

THE 33rd INTERNATIONAL CONFERENCE ON MACHINE LEARNING

NEW YORK CITY, NY, USA
JUNE 19 - JUNE 24, 2016



ICML 2016

ICML 2016

ICML 2017

Sydney, Australia



CONFERENCE AT A GLANCE

SUNDAY JUNE 19th

Tutorial Sessions	8:30 am - 1 pm, Marriott & Crowne Plaza
	2:30 pm - 4:30 pm, Marriott & Crowne Plaza
Reception	6 pm - 8 pm, Broadway Ballroom, 8th Floor, Marriott

MONDAY JUNE 20th

Welcome	8:30 am, Marriott: Westside Ballroom 1-4
Invited Talk: Susan Athey	8:40 am, Marriott: Westside Ballroom 1-4
Conference Sessions	10:20 am - 12:20 pm, Marriott
	2 pm - 6:15 pm, Marriott
Poster Session	3 pm - 7 pm, Marriott

TUESDAY JUNE 21st

Invited Talk: Fei-Fei Li	8:30 am, Marriott: Westside Ballroom 1-4
Test Of Time Paper	9:30 am, Marriott: Westside Ballroom 1-4
Poster Session	10 am - 1 pm, Marriott
Conference Sessions	10:30 am - 12:30 pm, Marriott
	3:40 pm - 6:15 pm, Marriott
Invited Talk: Daniel Spielman	2 pm, Marriott: Westside Ballroom 1-4
Poster Session	3 pm - 7 pm, Marriott

WEDNESDAY JUNE 22nd

Conference Sessions	8:30 am - 12:20 pm, Marriott
	3:20 pm - 4:30 pm, Marriott
Poster Session	10 am - 1 pm, Marriott
Invited Talk: Christos Faloutsos	2 pm, Marriott: Westside Ballroom 1-4
Reception	U.S.S. Intrepid, 7 pm - 10 pm

THURSDAY JUNE 23rd

Workshop Sessions	8:30 am - 4:30 pm
	Marriott, Crowne Plaza, Microsoft, Westin

FRIDAY JUNE 24th

Workshop Sessions	8:30 am - 4:30 pm
	Marriott, Westin, Microsoft

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**For the Workshop
Schedule & Maps
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WELCOME

A letter from the Program Chairs

Welcome to New York and the 33rd International Conference on Machine Learning (ICML 2016). The ICML committee has planned a wonderful conference.

Technical Program: We have 322 outstanding articles, selected from 1320 submissions. Each author will present their article to the community in a 15-minute talk, and present a poster at one of the poster sessions for discussion in smaller groups. All accepted articles are published in the Journal of Machine Learning Research (JMLR) as Volume 48 of their Workshop and Conference Proceedings series.

Keynote Speakers: We have four invited keynote speeches from some of the world's intellectual leaders: Susan Athey (Stanford University), Christos Faloutsos (Carnegie Mellon University), Fei-Fei Li (Stanford University), and Daniel Spielman (Yale University).

Tutorials: Nine tutorials spanning some of the most vital subjects in machine learning: deep learning, non-convex optimization, causal inference, stochastic gradient methods, convex optimization, adaptive data analysis, graph sketching, and reinforcement learning.

Workshops: 23 focused workshops for presenting late-breaking research and exploring new areas of machine learning.

Awards: We will present two best paper awards to honor some of the most promising research from the technical program. We will also present the ICML-2016 test of time award. This award is for the paper from the 2006 ICML (Pittsburgh, PA, USA) that has retrospectively had a significant impact on our field.

We would like to acknowledge all the people who made exceptional efforts and dedicated their time to bring this conference together; we were honored to work with them.

Reviewing and selecting papers for the technical program was a mammoth task. We worked with 97 wonderful area chairs and 909 dedicated reviewers to give each paper three high-quality reviews and make an informed (if sometimes difficult) decision. The entire program committee generously offered their time and expertise to the machine learning community, and we thank them. Some reviewers offered extra dedication; 31 are recognized with an ICML Outstanding Reviewer Award. The complete list of the program committee is available on the ICML web site.

In addition to the program committee, we would like to recognize and thank the entire organizing committee who

put the conference together. Planning for the tutorials, workshops, volunteers, publications, and sponsorship was ably organized and executed by this team. Their efforts over the past year are the backbone of this fantastic event.

We would like to offer special recognition to several people. First, we thank John Langford, the General Chair, who provided leadership, direction, and advice throughout the planning process. Second, we thank Marek Petrik and Peder Olsen, the local organizers. Marek, Peder, and their team gave their time and energy to see to the many details around the day-to-day of this year's ICML. Last, we thank Jacob Gardner and Matthew Kusner, the workflow chairs. Their help was invaluable in nearly every aspect of our planning process; neither of us can imagine performing this task without them.

Finally, we want to acknowledge our sponsors (Inside Cover) and the IMLS board. ICML 2016 is not possible without their continued support.

On behalf of all of us at ICML 2016, enjoy the conference!

Nina Balcan and Kilian Weinberger, ICML 2016

A Warm Welcome From the Local Chairs

Thank you for attending the 33rd International Conference on Machine Learning organized by the International Machine Learning Society in New York City. On behalf of the entire conference organizing committee it is our honor and pleasure to be your hosts. It can be seen as symbolic that the conference this year takes place in Times Square in the city that never sleeps - arguably in the capital of the world. This year will be the best attended in the history of ICML and it will take place at a time when machine learning is undergoing tremendous growth and excitement.

We are confident that you will find the scientific program technically stimulating. With four exciting plenary speakers, 9 tutorials, 23 workshops and 322 papers, the attendees should be spoiled for choice. The city also has much to offer as does the highlight of our social program that takes place onboard a legendary aircraft carrier - the Intrepid Museum.

We trust that you will find ICML 2016 to be an enjoyable and memorable event.

With best wishes from the Local Chairs,

Peder Olsen and Marek Petrik

GENERAL INFORMATION



CONFERENCE VENUE

ICML will be held in the Marriott Marquis hotel located right in the middle of the iconic Times Square in New York City.

REGISTRATION HOURS

NY Marriott Marquis Hotel

Sunday, June 19:	7:30am – 3:00pm	7th floor
Monday, June 20:	7:30am – 6:00pm	5th floor
Tuesday, June 21:	8:00am – 6:00pm	5th floor
Wednesday, June 22:	8:00am – 4:30pm	5th floor
Thursday, June 23:	7:30am – 5:00pm	7th floor
Friday, June 24:	8:00am – noon	7th floor

SUNDAY RECEPTION

Sunday in Broadway Lounge, 8th floor of Marriott, and takes place 6 pm - 8 pm. (ticket holders only)

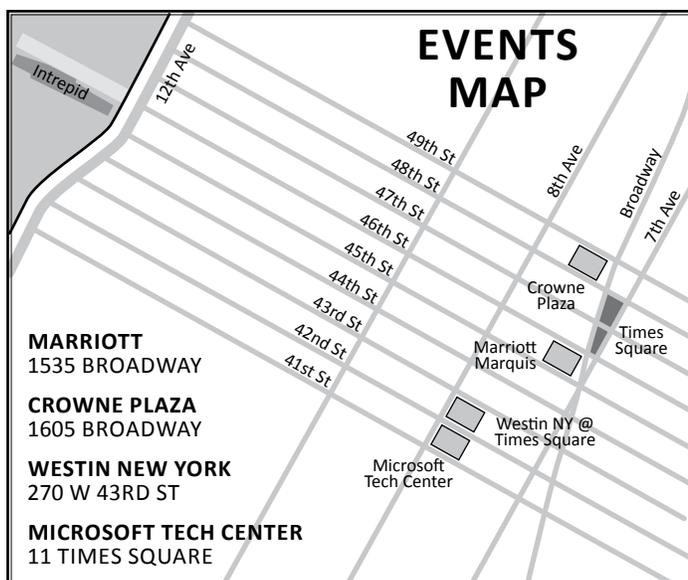
WEDNESDAY RECEPTION

Join us at the Intrepid Sea, Air & Space Museum for ICML's Networking Reception on June 22nd from 7 pm - 10 pm on Hangar 2 & 3. (For main conference registrants only)

The reception will be focused in Hangar 2 + Hangar 3 of the Hangar Deck

Guests are welcome to explore the Flight Deck throughout the evening (no food or drink).

Please see the map for walking directions from the NY Marriott Marquis on 7th Avenue to the Intrepid Museum on 12th Avenue



POSTER SESSIONS

The poster sessions will be in NY Marriott Marquis: Astor, Times Square, and Duffy.

Monday, June 20	3:00 pm – 7:00 pm
Tuesday, June 21	10:00 am – 1:00 pm
Tuesday, June 21	3:00 pm – 7:00 pm
Wednesday, June 22	10:00 am – 1:00 pm

MOBILE APP

- Step 1: Download and install the Whova app from App Store (for iPhones) or Google Play (for Android phones).
- Step 2: Sign up in the app using the email address you registered with.
- Step 3: You're all set.

Now you will be able to:

- View the event agenda and plan your schedule.
- If you set up your own profile, you can send in-app messages and exchange contact information
- Receive update notifications from organizers.
- Access agenda, maps, and directions.

After downloading, sign up on Whova with the email address that you used to RSVP for our event, or sign up using your social media accounts. If you are asked to enter an invitation code to join the event, please use the following invitation code: "icml"

EXHIBITOR HOURS

Monday	10:00 am - 7:00 pm
Tuesday	8:30 am - 7:00 pm
Wednesday	8:30 am - 6:00 pm
Thursday	8:30 am - 6:00 pm
Friday	8:30 am - 3:30 pm

LOCAL ATTRACTIONS

Please see <http://www.nycgo.com/> for local NYC events and attractions.

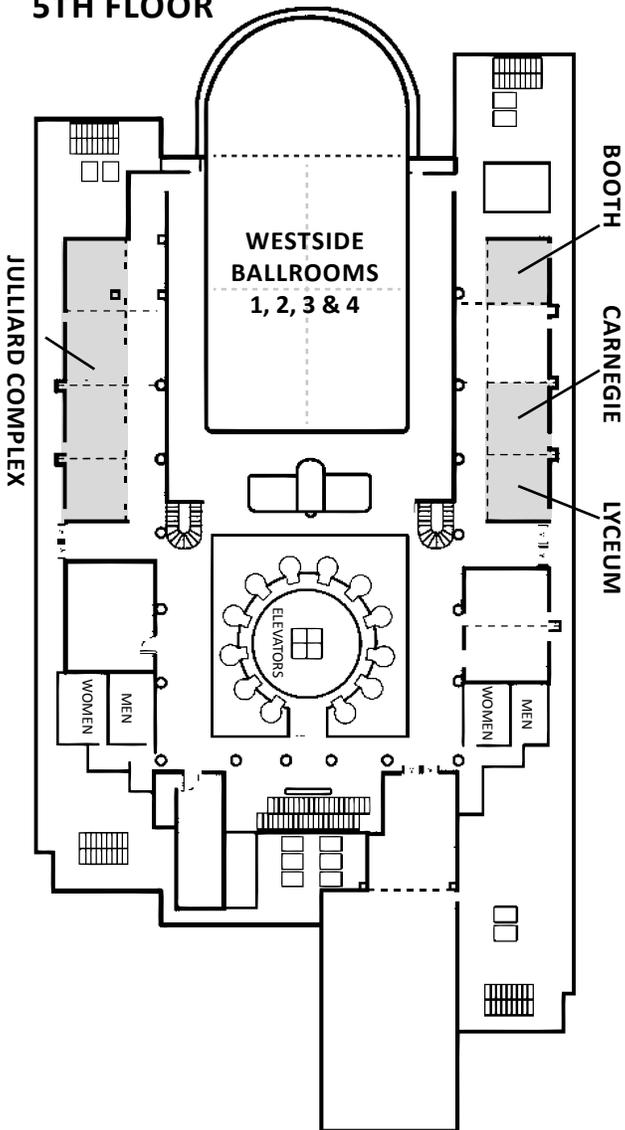
NEARBY RESTAURANTS

Manhattan has an unparalleled variety of restaurants of American and international cuisine. Hells Kitchen neighborhood near Times Square is very popular with locals. Some nearby restaurants include:

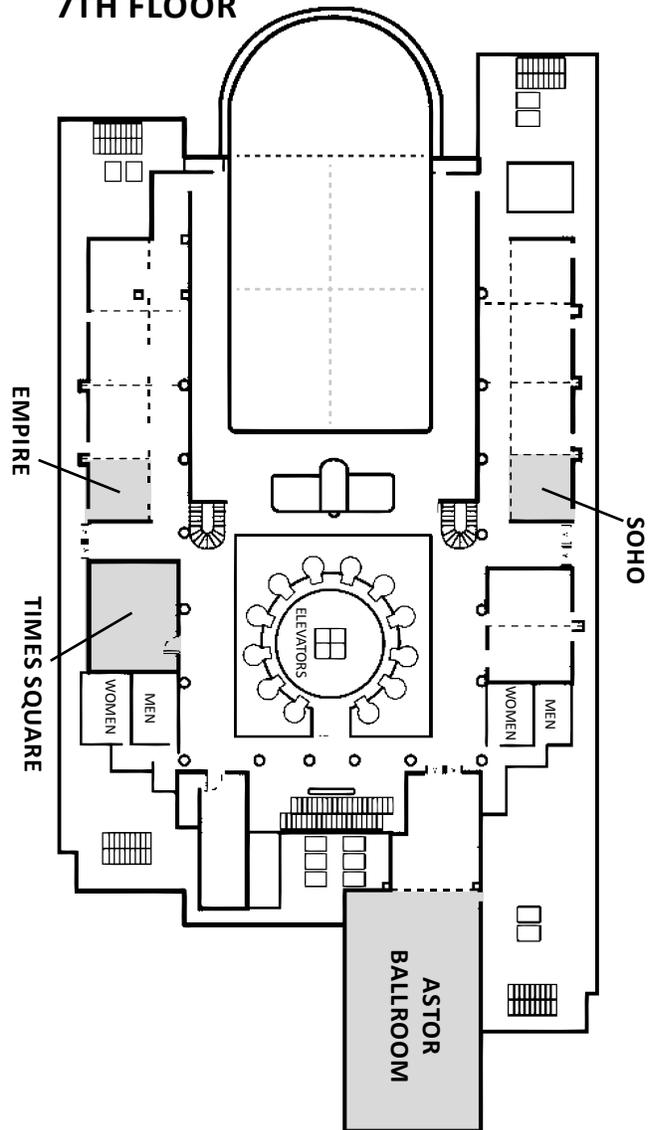
Toloache Mexican Grill	Trattoria Trecolori
Totto Ramen	Churrascaria Plataforma
Ippudo Westside	Uncle Vanya Cafe



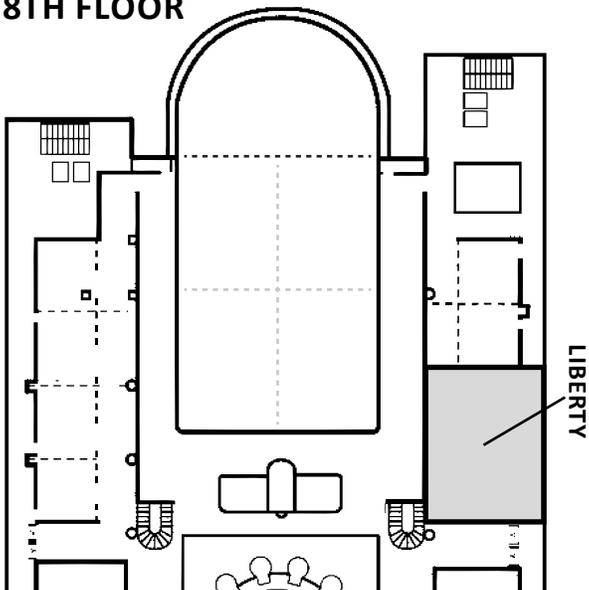
5TH FLOOR



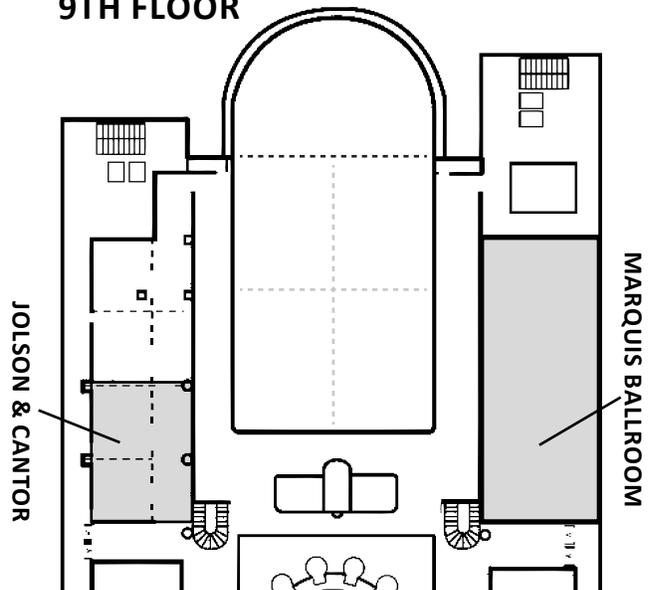
7TH FLOOR



8TH FLOOR



9TH FLOOR



ORGANIZING COMMITTEE



General chair: John Langford (Microsoft Research)

Program chairs: Nina Balcan (CMU) and Kilian Weinberger (Cornell University)

Local organization chairs: Peder Olsen (IBM Research) and Marek Petrik (IBM Research)

Tutorial chairs: Alina Beygelzimer (Yahoo! Labs) and Bernhard Schoelkopf (Max Planck Institute)

Workshop chair: Ruslan Salakhutdinov (University of Toronto) and Fei Sha (USC)

Financial chairs: John Cunningham (Columbia University), Gert Lanckriet (UCSD) and Robert Schapire (Microsoft Research)

Publication chairs: Dan Roy (University of Toronto) and David Sontag (NYU)

Workflow chairs: Jacob Gardner (Cornell) and Matthew Kusner (WUSTL)

Publicity chair: Jingrui He (Stevens Institute of Technology)

Webpage chair: Jérémie Mary (Univ. Lille / Inria)

AREA CHAIRS

Abernethy, Jacob	Univ. of Michigan	Grauman, Kristen	UT Austin	Roth, Dan	University of Illinois U-C
Adams, Ryan	Harvard University	Gupta, Maya	Google	Roth, Volker	University of Basel
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Bach, Francis	INRIA-ENS	Hsu, Daniel	Columbia	Saligrama, Venkatesh	Boston Univ
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Cho, Kyunghyun	New York University	Le Roux, Nicolas	Criteo	Stone, Peter	UT Austin
Collobert, Ronan	Facebook	Lee, Honglak	University of Michigan	Sutton, Rich	University of Alberta
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Crammer, Koby	Technion	Li, Ping	Rutgers	Uerner, Ruth	Max Planck Institute
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Darrell, Trevor	UC Berkeley	Lin, Chih-Jen	National Taiwan U	Van der Maaten, Laurens	Facebook
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Blei, David	Columbia	Mannor, Shie	Technion	Wallach, Hanna	Microsoft Research
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Gordon, Geoff	Carnegie Mellon Univ.	Ranzato, Marc'Aurelio	Facebook	Zhu, Xiaojin	University of Wisconsin
Grangier, David	Facebook	Ravikumar, Pradeep	UT Austin	Yang, Yiming	Carnegie Mellon Univ.
		Rish, Irina	IBM Research		

LOCAL ORGANIZATION COMMITTEE

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Aurelie Lozano
Dmitry Malioutov
Steven Rennie
Mary Ellen Perry
Priscila Rasmussen

EXECUTIVE EVENTS TEAM

Miki Hodge
Roxane Rose
Jody Anagnos
Shannon Cunningham

Sunday

JUNE 19TH | TUTORIALS



TUTORIAL SESSION 1 - 8:30 AM - 10:30 AM

Causal inference for Observational Studies

David Sontag - New York University

Uri Shalit - New York University

Location: Crowne Plaza - Broadway Ballroom

In many fields such as healthcare, education, and economics, policy makers have increasing amounts of data at their disposal. Making policy decisions based on this data often involves causal questions: Does medication X lead to lower blood sugar, compared with medication Y? Does longer maternity leave lead to better child social and cognitive skills? These questions have to be addressed in practice, every day, by scientists working across many different disciplines.

The goal of this tutorial is to bring machine learning practitioners closer to the vast field of causal inference as practiced by statisticians, epidemiologists and economists. We believe that machine learning has much to contribute in helping answer such questions, especially given the massive growth in the available data and its complexity. We also believe the machine learning community could and should be highly interested in engaging with such problems, considering the great impact they have on society in general.

We hope that participants in the tutorial will: a) learn the basic language of causal inference as exemplified by the two most dominant paradigms today: the potential outcomes framework, and causal graphs; b) understand the similarities and the differences between

problems machine learning practitioners usually face and problems of causal inference; c) become familiar with the basic tools employed by practicing scientists performing causal inference, and d) be informed about the latest research efforts in bringing machine learning techniques to address problems of causal inference.

Deep Residual Networks: Deep Learning Gets Way Deeper

Kaiming He - Microsoft Research

Location: Marriott - Astor

Live Simulcast: Marriott (Empire & Cantor)

Deeper neural networks are more difficult to train. Beyond a certain depth, traditional deeper networks start to show severe underfitting caused by optimization difficulties. This tutorial will describe the recently developed residual learning framework, which eases the training of networks that are substantially deeper than those used previously. These residual networks are easier to converge, and can gain accuracy from considerably increased depth. On the ImageNet dataset we evaluate residual nets with depth of up to 152 layers—8x deeper than VGG nets but still having lower complexity. These deep residual networks are the foundations of our 1st-place winning entries in all five main tracks in ImageNet and COCO 2015 competitions, which cover image classification, object detection, and semantic segmentation.



In this tutorial we will further look into the propagation formulations of residual networks. Our latest work reveals that when the residual networks have identity mappings as skip connections and inter-block activations, the forward and backward signals can be directly propagated from one block to any other block. This leads us to promising results of 1001-layer residual networks. Our work suggests that there is much room to exploit the dimension of network depth, a key to the success of modern deep learning.

The Convex Optimization, Game-Theoretic Approach To Learning

Elad Hazan - Princeton University

Satyen Kale - Yahoo Research

Location: Marriott - Soho

Live Simulcast: Marriott (Duffy & Times Square)

In recent years convex optimization and the notion of regret minimization in games have been combined and applied to machine learning in a general framework called online convex optimization. We will survey the basics of this framework, its applications, main algorithmic techniques and future research directions.

TUTORIAL SESSION 2 - 11 AM - 1 PM

Memory Networks for Language Understanding

Jason Weston - Facebook

Location: Crowne Plaza - Broadway Ballroom

There has been a recent resurgence in interest in the use of the combination of reasoning, attention and memory for solving tasks, particularly in the field of language understanding. I will review some of these recent efforts, as well as focusing on one of my own group's contributions, memory networks, an architecture that we have applied to question answering, language modeling and general dialog. As we try to move towards the goal of true language understanding, I will also discuss recent datasets and tests that have been built to assess these models abilities to see how far we have come.

Stochastic Gradient Methods for Large-Scale Machine Learning

Leon Bottou - Facebook AI Research

Frank E. Curtis - Lehigh University

Jorge Nocedal - Northwestern University

Location: Marriott - Astor

Live Simulcast: Marriott (Empire & Cantor)

This tutorial provides an accessible introduction to the mathematical properties of stochastic gradient methods and their consequences for large scale machine learning. After reviewing the computational needs for solving optimization problems in two typical examples of large scale machine learning, namely, the training of

sparse linear classifiers and deep neural networks, we present the theory of the simple, yet versatile stochastic gradient algorithm, explain its theoretical and practical behavior, and expose the opportunities available for designing improved algorithms. We then provide specific examples of advanced algorithms to illustrate the two essential directions for improving stochastic gradient methods, namely, managing the noise and making use of second order information.

Rigorous Data Dredging: Theory and Tools for Adaptive Data Analysis

Moritz Hardt - Google

Aaron Roth - University of Pennsylvania

Location: Marriott - Soho

Live Simulcast: Marriott (Duffy & Times Square)

Reliable tools for inference and model selection are necessary in all applications of machine learning and statistics. Much of the existing theory breaks down in the now common situation where the data analyst works interactively with the data, adaptively choosing which methods to use by probing the same data many times. We illustrate the problem through the lens of machine learning benchmarks, which currently all rely on the standard holdout method. After understanding why and when the standard holdout method fails, we will see practical alternatives to the holdout method that can be used many times without losing the guarantees of fresh data. We then transition into the emerging theory on this topic touching on deep connections to differential privacy, compression schemes, and hypothesis testing (although no prior knowledge will be assumed).



TUTORIAL SESSION 3 - 2:30 PM - 4:30 PM

Recent Advances in Non-Convex Optimization

Anima Anandkumar - University of California Irvine

Location: Crowne Plaza, Broadway Ballroom

Most machine learning tasks require solving non-convex optimization. The number of critical points in a non-convex problem grows exponentially with the data dimension. Local search methods such as gradient descent can get stuck in one of these critical points, and therefore, finding the globally optimal solution is computationally hard. Despite this hardness barrier, we have seen many advances in guaranteed non-convex optimization. The focus has shifted to characterizing transparent conditions under which the global solution can be found efficiently. In many instances, these conditions turn out to be mild and natural for machine learning applications. This tutorial will provide an overview of the recent theoretical success stories in non-convex optimization. This includes learning latent variable models, dictionary learning, robust principal component analysis, and so on. Simple iterative methods such as spectral methods, alternating projections, and so on, are proven to learn consistent models with polynomial sample and computational complexity. This tutorial will present main ingredients towards establishing these results. The tutorial will conclude with open challenges and possible path towards tackling them.

Deep Reinforcement Learning

David Silver - Google DeepMind

Location: Marriott - Astor**Live Simulcast:** Marriott (Empire & Cantor)

A major goal of artificial intelligence is to create general-purpose agents that can perform effectively in a wide range of challenging tasks. To achieve this goal, it is necessary to combine reinforcement learning (RL) agents with powerful and flexible representations. The key idea of deep RL is to use neural networks to provide this representational power. In this tutorial we will present a family of algorithms in which deep neural networks are used for value functions, policies, or environment models. State-of-the-art results will be presented in a variety of domains, including Atari games, 3D navigation tasks, continuous control domains and the game of Go.

Graph Sketching, Streaming, and Space-Efficient Optimization

Sudipto Guha - University of Pennsylvania

Andrew McGregor - Univ. of Massachusetts Amherst

Location: Marriott - Cantor**Live Simulcast:** Marriott (Times Square)

Graphs are one of the most commonly used data representation tools but existing algorithmic approaches are typically not appropriate when the graphs of interest are dynamic, stochastic, or do not fit into the memory of a single machine. Such graphs are often encountered as machine learning techniques are increasingly deployed to manage graph data and large-scale graph optimization problems. Graph sketching is a form of dimensionality reduction for graph data that is based on using random linear projections and exploiting connections between linear algebra and combinatorial structure. The technique has been studied extensively over the last five years and can be applied in many computational settings. It enables small-space online and data stream computation where we are permitted only a few passes (ideally only one) over an input sequence of updates to a large underlying graph. The technique parallelizes easily and can naturally be applied in various distributed settings. It can also be used in the context of convex programming to enable more efficient algorithms for combinatorial optimization problems such as correlation clustering. One of the main goals of the research on graph sketching is understanding and characterizing the types of graph structure and features that can be inferred from compressed representations of the relevant graphs.



Susan Athey – Stanford Graduate School of Business Causal Inference for Policy Evaluation

Susan Athey is The Economics of Technology Professor at Stanford Graduate School of Business. She received her bachelor's degree from Duke University

and her Ph.D. from Stanford, and she holds an honorary doctorate from Duke University. She previously taught at the economics departments at MIT, Stanford and Harvard. In 2007, Professor Athey received the John Bates Clark Medal, awarded by the American Economic Association to "that American economist under the age of forty who is adjudged to have made the most significant contribution to economic thought and knowledge." She was elected to the National Academy of Science in 2012 and to the American Academy of Arts and Sciences in 2008. Professor Athey's research focuses on the economics of the internet, online advertising, the news media, marketplace design, virtual currencies and the intersection of computer science, machine

learning and economics. She advises governments and businesses on marketplace design and platform economics, notably serving since 2007 as a long-term consultant to Microsoft Corporation in a variety of roles, including consulting chief economist.

Abstract:

A variety of scientific problems require the researcher to evaluate the causal effect of a policy or intervention, such as giving a drug to a patient, changing a government policy such as the minimum wage, exposing a user to an advertisement, or releasing a new algorithm to users in an online service. This talk will review a series of recently developed statistical methods for causal inference in settings with many covariates. We consider approaches to estimating average effects of a policy in observational data as well as approaches for estimating heterogeneous treatment effects and personalized policies in randomized experiments. We show how popular methods such as regression trees and random forests can be adapted and optimized to produce estimates of treatment effects as well as confidence intervals.



Christos Faloutsos – Carnegie Mellon University Mining Large Graphs: Patterns, Anomalies, and Fraud Detection

Christos Faloutsos is a Professor at Carnegie Mellon University. He has received the Presidential Young Investigator Award by the National Science Foundation (1989),

the Research Contributions Award in ICDM 2006, the SIGKDD Innovations Award (2010), 22 "best paper" awards (including four "test of time" awards), and four teaching awards.

Six of his advisees have attracted KDD or SCS dissertation awards. He is an ACM Fellow, he has served as a member of the executive committee of SIGKDD; he has published over 300 refereed articles, 17 book chapters and two monographs. He holds nine patents and he has given over 40 tutorials and over 20

invited distinguished lectures. His research interests include large-scale data mining, for graphs and streams; networks, fractals, and multimedia databases.

Abstract:

Given a large graph, like who-calls-whom, or who-likes-whom, what behavior is normal and what should be surprising, possibly due to fraudulent activity? How do graphs evolve over time? We focus on these topics: (a) anomaly detection in large static graphs and (b) patterns and anomalies in large time-evolving graphs.

For the first, we present a list of static and temporal laws, we show how to use them to spot suspicious activities, in on-line buyer-and-seller settings, in Facebook, in twitter-like networks. For the second, we show how to handle time-evolving graphs as tensors, as well as some discoveries such settings.



Fei-Fei Li – Stanford University A Quest for Visual Intelligence in Computers

Dr. Fei-Fei Li is an Associate Professor in the Computer Science Department at Stanford, and the Director of the Stanford Artificial Intelligence Lab and the Stanford Vision Lab.

She is also the Director of the recently established Stanford Toyota Center for Human-Centric AI Research. Dr. Fei-Fei Li's main research areas are in machine learning, computer vision and cognitive and computational neuroscience. She has published more than 100 scientific articles in top-tier journals and conferences, including Nature, PNAS, Journal of Neuroscience, CVPR, ICCV, NIPS, ECCV, IJCV, IEEE-PAMI, etc. Dr. Fei-Fei Li obtained her B.A. degree in physics from Princeton in 1999 with High Honors, and her PhD degree in electrical engineering from California Institute of Technology (Caltech) in 2005. She joined Stanford in 2009 as an assistant professor, and was promoted to associate professor with tenure in 2012.

Prior to that, she was on faculty at Princeton University (2007-2009) and University of Illinois Urbana-Champaign (2005-2006). Dr. Fei-Fei Li is a speaker at the TED2015 main conference, a recipient of the 2014 IBM Faculty Fellow Award, 2011 Alfred Sloan Faculty Award, 2012 Yahoo Labs FREP award, 2009 NSF CAREER award, the 2006 Microsoft Research New Faculty Fellowship and a number of Google Research awards. Work from Dr. Li's lab have been featured in a variety of popular press magazines and newspapers including New York Times, Science, Wired Magazine, and New Scientists.

Abstract: It takes nature and evolution more than five hundred million years to develop a powerful visual system in humans. The journey for AI and computer vision is about fifty years. In this talk, I will briefly discuss the key ideas and the cutting edge advances in the quest for visual intelligences in computers. I will particularly focus on the latest work developed in my lab for both image and video understanding, powered by big data and the deep learning (a.k.a. neural network) architecture.



Daniel Spielman – Yale University Laplacian Matrices of Graphs: Algorithms and Application

Daniel Alan Spielman received his B.A. in Mathematics and Computer Science from Yale in 1992, and his Ph.D in Applied Mathematics from M.I.T. in 1995. He

spent a year as a NSF Mathematical Sciences Postdoc in the Computer Science Department at U.C. Berkeley, and then taught in the Applied Mathematics Department at M.I.T. until 2005. Since 2006, he has been a Professor at Yale University. He is presently the Henry Ford II Professor of Computer Science, Mathematics, and Applied Mathematics.

He has received many awards, including the 1995 ACM Doctoral Dissertation Award, the 2002 IEEE Information Theory Paper Award, the 2008 and 2015 Godel Prize,

the 2009 Fulkerson Prize, the 2010 Nevanlinna Prize, the 2014 Polya Prize, an inaugural Simons Investigator Award, and a MacArthur Fellowship. He is a Fellow of the Association for Computing Machinery and a member of the Connecticut Academy of Science and Engineering. His main research interests include the design and analysis of algorithms, network science, machine learning, digital communications and scientific computing.

Abstract: The Laplacian matrices of graphs arise in fields including Machine Learning, Computer Vision, Optimization, Computational Science, and of course Network Analysis. We will explain what these matrices are and why they arise in so many applications. In particular, we will show how Laplacian system solvers can be used to quickly solve linear programs arising from natural graph problems.

Monday

JUNE 20TH | SESSIONS



TIME	DESCRIPTION	MARRIOT HOTEL
8:30 am - 8:40 am	Welcome	
8:40 am - 9:40 am	Invited Talk: Susan Athey: Causal Inference for Policy Evaluation	
9:40 am - 10:20 am	Break	
10:20 am - 12:20 pm	Neural Networks & Deep Learning Optimization (Continuous)	Westside Ballroom 1&2 Westside Ballroom 3&4
break from 11:10 - 11:30 am	Reinforcement Learning Online Learning Clustering Bayesian Nonparametric Methods Matrix Factorization / Neuroscience Applications	Marquis Lyceum Empire Soho Liberty
12:20 pm - 2 pm	Lunch (On Your Own)	
2 pm - 4:00 pm	Neural Networks & Deep Learning Optimization / Online Learning Machine Learning Applications Matrix Factorization and Related Topics Bandit Problems Graphical Models Transfer Learning / Learning Theory	Westside Ballroom 1&2 Westside Ballroom 3&4 Marquis Lyceum Empire Soho Liberty
break from 2:50 - 3:10 pm		
3 pm - 7 pm	Poster Sessions	Astor, Duffy, & Times Square
4 pm - 4:15 pm	Break	
4:15 pm - 6:15 pm	Neural Networks & Deep Learning I Neural Networks & Deep Learning II Approximate Inference Metric and Manifold Learning / Kernel Methods Statistical Learning Theory Structured Prediction / Monte Carlo Methods Online Learning	Westside Ballroom 1&2 Westside Ballroom 3&4 Marquis Lyceum Empire Soho Liberty
break from 5:05 - 5:25 pm		



SESSIONS - 10:20 AM - 12:20 PM - MARRIOTT HOTEL

Neural Networks & Deep Learning

Location: Westside Ballroom 1 & 2 + Juliard

- **One-Shot Generalization in Deep Generative Models**
Danilo Rezende, Shakir Mohamed, Ivo Danihelka, Karol Gregor, Daan Wierstra
- **Learning to Generate with Memory**
Chongxuan Li, Jun Zhu, Bo Zhang
- **A Theory of Generative ConvNet**
Jianwen Xie, Yang Lu, Song-Chun Zhu, Yingnian Wu
- **Deconstructing the Ladder Network Architecture**
Mohammad Pezeshki, Linxi Fan, Philémon Brakel, Aaron Courville, Yoshua Bengio
- **Normalization Propagation: A Parametric Technique for Removing Internal Covariate Shift in Deep Networks**
Devansh Arpit, Yingbo Zhou, Bhargava Kota, Venu Govindaraju
- **Unitary Evolution Recurrent Neural Networks**
Martin Arjovsky, Amar Shah, Yoshua Bengio

Reinforcement Learning

Location: Westside Ballroom 3 & 4

- **Why Most Decisions Are Easy in Tetris—And Perhaps in Other Sequential Decision Problems, As Well**
Özgür Şimşek, Simón Algorta, Amit Kothiyal
- **Opponent Modeling in Deep Reinforcement Learning**
He He, Jordan Boyd-Graber, Kevin Kwok, Hal Daumé III
- **Memory-based Control of Active Perception and Action in Minecraft**
Junhyuk Oh, Valliappa Chockalingam, Satinder Singh, Honglak Lee
- **Graying the black box: Understanding DQNs**
Tom Zahavy, Nir Ben-Zrihem, Shie Mannor
- **Benchmarking Deep Reinforcement Learning for Continuous Control**
Yan Duan, Xi Chen, Rein Houthoofd, John Schulman, Pieter Abbeel
- **Dueling Network Architectures for Deep Reinforcement Learning**
Ziyu Wang, Tom Schaul, Matteo Hessel, Hado van Hasselt, Marc Lanctot, Nando de Freitas

Optimization (Continuous)

Location: Marquis

- **SDCA without Duality, Regularization, and Individual Convexity**
Shai Shalev-Shwartz
- **Stochastic Variance Reduction for Nonconvex Optimization**
Sashank J. Reddi, Ahmed Hefny, Suvrit Sra, Barnabás Póczós, Alex Smola
- **A Fast Rate Analysis of Some Stochastic Optimization Algorithms**
Chao Qu, Huan Xu, Chong jin Ong
- **Black-box optimization with a politician**
Sebastien Bubeck, Yin Tat Lee
- **Starting Small - Learning with Adaptive Sample Sizes**
Hadi Daneshmand, Aurelien Lucchi, Thomas Hofmann
- **Primal-Dual Rates and Certificates**
Celestine Dünnner, Simone Forte, Martin Takac, Martin Jaggi

Online Learning

Location: Lyceum

- **Online Learning with Feedback Graphs Without the Graphs**
Alon Cohen, Tamir Hazan, Tomer Koren
- **Efficient Algorithms for Adversarial Contextual Learning**
Vasilis Syrgkanis, Akshay Krishnamurthy, Robert Schapire
- **BISTRO: An Efficient Relaxation-Based Method for Contextual Bandits**
Alexander Rakhlin, Karthik Sridharan
- **Online Stochastic Linear Optimization under One-bit Feedback**
Lijun Zhang, Tianbao Yang, Rong Jin, Yichi Xiao, Zhi-hua Zhou
- **Tracking Slowly Moving Clairvoyant: Optimal Dynamic Regret of Online Learning with True and Noisy Gradient**
Tianbao Yang, Lijun Zhang, Rong Jin, Jinfeng Yi
- **Adaptive Algorithms for Online Convex Optimization with Long-term Constraints**
Rodolphe Jenatton, Jim Huang, Cedric Archambeau



SESSIONS - 10:20 AM - 12:20 PM - MARRIOTT HOTEL

Clustering

Location: Empire

- **Correlation Clustering and Biclustering with Locally Bounded Errors**
Gregory Puleo, Olgica Milenkovic
- **K-Means Clustering with Distributed Dimensions**
Hu Ding, Lingxiao Huang, Jian Li, Yu Liu
- **Speeding up k-means by approximating Euclidean distances via block vectors**
Thomas Bottesch, Thomas Bühler, Markus Kächele
- **Fast k-means with accurate bounds**
James Newling, François Fleuret
- **k-variates++: more pluses in the k-means++**
Richard Nock, Raphaël Canyasse, Rokšana Boreli, Frank Nielsen
- **Compressive Spectral Clustering**
Nicolas Tremblay, Gilles Puy, Rémi Gribonval, Pierre Vandergheynst

Bayesian Nonparametric Methods

Location: Soho

- **Mixed membership modelling with hierarchical CRMs**
Gaurav Pandey, Ambedkar Dukkipati
- **Hawkes Processes with Stochastic Excitations**
Young Lee, Kar Wai Lim, Cheng Soon Ong
- **The Segmented iHMM: A Simple, Efficient Hierarchical Infinite HMM**
Ardavan Saeedi, Matthew Hoffman, Matthew Johnson, Ryan Adams
- **Markov Latent Feature Models**
Aonan Zhang, John Paisley
- **Diversity-Promoting Bayesian Learning of Latent Variable Models**
Pengtao Xie, Jun Zhu, Eric Xing
- **Bayesian Poisson Tucker Decomposition for Learning the Structure of International Relations**
Aaron Schein, Mingyuan Zhou, Blei David, Hanna Wallach

Matrix Factorization / Neuroscience Applications

Location: Liberty

- **The knockoff filter for FDR control in group-sparse and multitask regression**
Ran Dai, Rina Barber
- **A Simple and Provable Algorithm for Sparse CCA**
Megasthenis Asteris, Anastasios Kyrillidis, Oluwasanmi Koyejo, Russell Poldrack
- **Experimental Design on a Budget for Sparse Linear Models and Applications**
Sathya Narayanan Ravi, Vamsi Ithapu, Sterling Johnson, Vikas Singh
- **Representational Similarity Learning with Application to Brain Networks**
Urvashi Oswal, Christopher Cox, Matthew Lambon-Ralph, Timothy Rogers, Robert Nowak
- **Dictionary Learning for Massive Matrix Factorization**
Arthur Mensch, Julien Mairal, Bertrand Thirion, Gaël Varoquaux
- **A Random Matrix Approach to Recurrent Neural Networks**
Romain Couillet, Gilles Wainrib, Hafiz Tiomoko Ali, Harry Sevi



SESSIONS - 2:00 PM - 4:00 PM - MARRIOTT HOTEL

Neural Networks & Deep Learning

Location: Westside Ballroom 1 & 2 + Juliard

- **End-to-End Speech Recognition in English and Mandarin**
Dario Amodei, Rishita Anubhai, Eric Battenberg, Carl Case, Jared Casper, Bryan Catanzaro, JingDong Chen, Mike Chrzanowski, Adam Coates, Greg Diamos, Erich Elsen, Jesse Engel, Linxi Fan, Christopher Fougner, Awni Hannun, Billy Jun, Tony Han, Patrick LeGresley, Xiangang Li, Libby Lin, Sharan Narang, Andrew Ng, Sherjil Ozair, Ryan Prenger, Sheng Qian, Jonathan Raiman, Sanjeev Satheesh, David Seetapun, Shubho Sengupta, Chong Wang, Yi Wang, Zhiqian Wang, Bo Xiao, Yan Xie, Dani Yogatama, Jun Zhan, zhenyao Zhu
- **Persistent RNNs: Stashing Recurrent Weights On-Chip**
Greg Diamos, Shubho Sengupta, Bryan Catanzaro, Mike Chrzanowski, Adam Coates, Erich Elsen, Jesse Engel, Awni Hannun, Sanjeev Satheesh
- **Online Sequence Training of Recurrent Neural Networks with Connectionist Temporal Classification**
Kyuyeon Hwang, Wonyong Sung
- **Analysis of Deep Neural Networks with Extended Data Jacobian Matrix**
Shengjie Wang, Abdel-rahman Mohamed, Rich Caruana, Jeff Bilmes, Matthai Philipose, Matthew Richardson, Krzysztof Geras, Gregor Urban, Ozlem Aslan
- **Understanding and Improving Convolutional Neural Networks via Concatenated Rectified Linear Units**
Wenling Shang, Kihyuk Sohn, Diogo Almeida, Honglak Lee
- **Pixel Recurrent Neural Networks**
Aäron van den Oord, Nal Kalchbrenner, Koray Kavukcuoglu

Optimization / Online Learning

Location: Westside Ballroom 3 & 4

- **Shifting Regret, Mirror Descent, and Matrices**
András György, Csaba Szepesvari
- **Heteroscedastic Sequences: Beyond Gaussianity**
Oren Anava, Shie Mannor
- **Convergence of Stochastic Gradient Descent for PCA**
Ohad Shamir
- **Fast Stochastic Algorithms for SVD and PCA: Convergence Properties and Convexity**
Ohad Shamir

- **Faster Eigenvector Computation via Shift-and-Invert Preconditioning**
Dan Garber, Elad Hazan, Chi Jin, Sham M. Kakade, Cameron Musco, Praneeth Netrapalli, Aaron Sidford
- **Solving Ridge Regression using Sketched Preconditioned SVRG**
Alon Gonen, Francesco Orabona, Shai Shalev-Shwartz

Machine Learning Applications

Location: Marquis

- **Bounded Off-Policy Evaluation with Missing Data for Course Recommendation and Curriculum Design**
William Hoiles, Mihaela van der Schaar
- **Dealbreaker: A Nonlinear Latent Variable Model for Educational Data**
Andrew Lan, Tom Goldstein, Richard Baraniuk, Christoph Studer
- **Estimating Cosmological Parameters from the Dark-Matter Distribution**
Siamak Ravanbakhsh, Junier Oliva, Sebastian Fromenteau, Layne Price, Shirley Ho, Jeff Schneider, Barnabás Póczos
- **BASC: Applying Bayesian Optimization to the Search for Global Minima on Potential Energy Surfaces**
Shane Carr, Roman Garnett, Cynthia Lo
- **Predictive Entropy Search for Multi-objective Bayesian Optimization**
Daniel Hernández-Lobato, José Miguel Hernández-Lobato, Amar Shah, Ryan Adams
- **Pareto Frontier Learning with Expensive Correlated Objectives**
Amar Shah, Zoubin Ghahramani

Matrix Factorization and Related Topics

Location: Lyceum

- **Complex Embeddings for Simple Link Prediction**
Théo Trouillon, Johannes Welbl, Sebastian Riedel, Eric Gaussier, Guillaume Bouchard
- **PAC learning of Probabilistic Automaton based on the Method of Moments**
Hadrien Glaude, Olivier Pietquin



SESSIONS - 2:00 PM - 4:00 PM - MARRIOTT HOTEL

- **Rich Component Analysis**
Rong Ge, James Zou
- **Beyond CCA: Moment Matching for Multi-View Models**
Anastasia Podosinnikova, Francis Bach, Simon Lacoste-Julien
- **Isotonic Hawkes Processes**
Yichen Wang, Bo Xie, Nan Du, Le Song
- **Non-negative Matrix Factorization under Heavy Noise**
Chiranjib Bhattacharya, Navin Goyal, Ravindran Kannan, Jagdeep Pani

Bandit Problems

Location: Empire

- **An optimal algorithm for the Thresholding Bandit Problem**
Andrea Locatelli, Maurilio Gutzeit, Alexandra Carpentier
- **Anytime Exploration for Multi-armed Bandits using Confidence Information**
Kwang-Sung Jun, Robert Nowak
- **Anytime optimal algorithms in stochastic multi-armed bandits**
Rémy Degenne, Vianney Perchet
- **PAC Lower Bounds and Efficient Algorithms for The Max $\$K\$$ -Armed Bandit Problem**
Yahel David, Nahum Shimkin
- **Conservative Bandits**
Yifan Wu, Roshan Shariff, Tor Lattimore, Csaba Szepesvári
- **No-Regret Algorithms for Heavy-Tailed Linear Bandits**
Andres Munoz Medina, Scott Yang

Graphical Models

Location: Soho

- **Hierarchical Span-Based Conditional Random Fields for Labeling and Segmenting Events in Wearable Sensor Data Streams**
Roy Adams, Nazir Saleheen, Edison Thomaz, Abhinav Parate, Santosh Kumar, Benjamin Marlin
- **Efficient Multi-Instance Learning for Activity Recognition from Time Series Data Using an Auto-Regressive Hidden Markov Model**
Xinze Guan, Raviv Raich, Weng-Keen Wong

- **Topographical Features of High-Dimensional Categorical Data and Their Applications to Clustering**
Chao Chen, Novi Quadrianto
- **Nonlinear Statistical Learning with Truncated Gaussian Graphical Models**
Qinliang Su, xuejun Liao, changyou Chen, Lawrence Carin
- **Collapsed Variational Inference for Sum-Product Networks**
Han Zhao, Tameem Adel, Geoff Gordon, Brandon Amos
- **Square Root Graphical Models: Multivariate Generalizations of Univariate Exponential Families which Allow Positive Dependencies**
David Inouye, Pradeep Ravikumar, Inderjit S. Dhillon

Transfer Learning / Learning Theory

Location: Liberty

- **A New PAC-Bayesian Perspective on Domain Adaptation**
Pascal Germain, Amaury Habrard, François Laviolette, Emilie Morvant
- **Domain Adaptation with Conditional Transferable Components**
Mingming Gong, Kun Zhang, Tongliang Liu, Dacheng Tao, Clark Glymour, Bernhard Schölkopf
- **Train faster, generalize better: Stability of stochastic gradient descent**
Moritz Hardt, Ben Recht, Yoram Singer
- **Accurate Robust and Efficient Error Estimation for Decision Trees**
Lixin Fan
- **The Teaching Dimension of Linear Learners**
Ji Liu, Xiaojin Zhu, Hrag Ohannessian
- **Loss factorization, weakly supervised learning and label noise robustness**
Giorgio Patrini, Frank Nielsen, Richard Nock, Marcello Carioni



SESSIONS - 4:15 PM - 6:15 PM - MARRIOTT HOTEL

Neural Networks & Deep Learning

Location: Westside Ballroom 1 & 2 + Juliard

- **Texture Networks: Feed-forward Synthesis of Textures and Stylized Images**
Dmitry Ulyanov, Vadim Lebedev, Andrea Vedaldi, Victor Lempitsky
- **Discrete Deep Feature Extraction: A Theory and New Architectures**
Thomas Wiatowski, Michael Tschannen, Aleksandar Stanic, Philipp Grohs, Helmut Bölcskei
- **Deep Structured Energy Based Models for Anomaly Detection**
Shuangfei Zhai, Yu Cheng, Weining Lu, Zhongfei Zhang
- **Noisy Activation Functions**
Caglar Gulcehre, Marcin Moczulski, Misha Denil, Yoshua Bengio
- **A Kronecker-factored approximate Fisher matrix for convolution layers**
Roger Grosse, James Martens
- **Recurrent Orthogonal Networks and Long-Memory Tasks**
Mikael Henaff, Arthur Szlam, Yann LeCun

Neural Networks and Deep Learning II (Computer Vision)

Location: Westside Ballroom 3 & 4

- **Group Equivariant Convolutional Networks**
Taco Cohen, Max Welling
- **Learning End-to-end Video Classification with Rank-Pooling**
Basura Fernando, Stephen Gould
- **Learning Physical Intuition of Block Towers by Example**
Adam Lerer, Sam Gross, Rob Fergus
- **Large-Margin Softmax Loss for Convolutional Neural Networks**
Weiyang Liu, Yandong Wen, Zhiding Yu, Meng Yang
- **Network Morphism**
Tao Wei, Changhu Wang, Yong Rui, Chang Wen Chen
- **MBA: Multi-Bias Non-linear Activation in Deep Neural Networks**
Hongyang Li, Wanli Ouyang, Xiaogang Wang

Approximate Inference

Location: Marquis

- **Boolean Matrix Factorization and Noisy Completion via Message Passing**
Siamak Ravanbakhsh, Barnabás Póczos, Russell Greiner
- **Stochastic Discrete Clenshaw-Curtis Quadrature**
Nico Piatkowski, Katharina Morik
- **Beyond Parity Constraints: Fourier Analysis of Hash Functions for Inference**
Tudor Achim, Ashish Sabharwal, Stefano Ermon
- **Variable Elimination in the Fourier Domain**
Yexiang Xue, Stefano Ermon, Ronan Le Bras, Carla Gomes, Bart Selman
- **Learning and Inference via Maximum Inner Product Search**
Stephen Mussmann, Stefano Ermon
- **Analysis of Variational Bayesian Factorizations for Sparse and Low-Rank Estimation**
David Wipf

Metric and Manifold Learning / Kernel Methods

Location: Lyceum

- **Fast k-Nearest Neighbour Search via Dynamic Continuous Indexing**
Ke Li, Jitendra Malik
- **Geometric Mean Metric Learning**
Pourya Zadeh, Reshad Hosseini, Suvrit Sra
- **Low-rank tensor completion: a Riemannian manifold preconditioning approach**
Hiroyuki Kasai, Bamdev Mishra
- **The Variational Nystrom method for large-scale spectral problems**
Max Vladymyrov, Miguel Carreira-Perpiñán
- **Fast DPP Sampling for Nystrom with Application to Kernel Methods**
Chengtao Li, Stefanie Jegelka, Suvrit Sra
- **Computationally Efficient Nyström Approximation using Fast Transforms**
Si Si, Cho-Jui Hsieh, Inderjit S. Dhillon



SESSIONS - 4:15 PM - 6:15 PM - MARRIOTT HOTEL

Statistical Learning Theory

Location: Empire

- **Barron and Covers' Theory in Supervised Learning and Its Application to Lasso**
Masanori Kawakita, Jun'ichi Takeuchi
- **Exact Exponent in Optimal Rates for Crowdsourcing**
Chao Gao, Yu Lu, Dengyong Zhou
- **Generalization Properties and Implicit Regularization for Multiple Passes SGM**
Junhong Lin, Raffaello Camoriano, Lorenzo Rosasco
- **Generalized Direct Change Estimation in Ising Model Structure**
Farideh Fazayeli, Arindam Banerjee
- **Gaussian process nonparametric tensor estimator and its minimax optimality**
Heishiro Kanagawa, Taiji Suzuki, Hayato Kobayashi, Nobuyuki Shimizu, Yukihiko Tagami
- **Minimum Regret Search for Single- and Multi-Task Optimization**
Jan Hendrik Metzen

Online Learning

Location: Liberty

- **Pricing a low-regret seller**
Hoda Heidari, Mohammad Mahdian, Umar Syed, Sergei Vassilvitskii, Sadra Yazdanbo
- **Multi-Player Bandits -- a Musical Chairs Approach**
Jonathan Rosenski, Ohad Shamir, Liran Szlak
- **Contextual Combinatorial Cascading Bandits**
Shuai Li, Baoxiang Wang, Shengyu Zhang, Wei Chen
- **Copeland Dueling Bandit Problem: Regret Lower Bound, Optimal Algorithm, and Computationally Efficient Algorithm**
Junpei Komiyama, Junya Honda, Hiroshi Nakagawa
- **DCM Bandits: Learning to Rank with Multiple Clicks**
Sumeet Katariya, Branislav Kveton, Csaba Szepesvári, Zheng Wen
- **Distributed Clustering of Linear Bandits in Peer to Peer Networks**
Nathan Korda, Balázs Szörényi, Shuai Li

Structured Prediction / Monte Carlo Methods

Location: Soho

- **The Sum-Product Theorem: A Foundation for Learning Tractable Models**
Abram Friesen, Pedro Domingos
- **Train and Test Tightness of LP Relaxations in Structured Prediction**
Ofer Meshi, Mehrdad Mahdavi, Adrian Weller, David Sontag
- **Evasion and Hardening of Tree Ensemble Classifiers**
Alex Kantchelian, J. D. Tygar, Anthony Joseph
- **Importance Sampling Tree for Large-scale Empirical Expectation**
Olivier Canévet, Cijo Jose, François Fleuret
- **Stratified Sampling Meets Machine Learning**
Edo Liberty, Kevin Lang, Konstantin Shmakov
- **Scalable Discrete Sampling as a Multi-Armed Bandit Problem**
Yutian Chen, Zoubin Ghahramani

MONDAY JUNE 20TH | POSTER SESSIONS

LOCATION: MARRIOTT - ASTOR, DUFFY + TIMES SQUARE - 3PM - 7PM



- #1 One-Shot Generalization in Deep Generative Models**
Danilo Rezende, Shakir Mohamed, Ivo Danihelka, Karol Gregor, Daan Wierstra
- #2 Learning to Generate with Memory**
Chongxuan Li, Jun Zhu, Bo Zhang
- #3 A Theory of Generative ConvNet**
Jianwen Xie, Yang Lu, Song-Chun Zhu, Yingnian Wu
- #4 Deconstructing the Ladder Network Architecture**
Mohammad Pezeshki, Linxi Fan, Philéon Brakel, Aaron Courville, Yoshua Bengio
- #5 Normalization Propagation: A Parametric Technique for Removing Internal Covariate Shift in Deep Networks**
Devansh Arpit, Yingbo Zhou, Bhargava Kota, Venu Govindaraju
- #6 Unitary Evolution Recurrent Neural Networks**
Martin Arjovsky, Amar Shah, Yoshua Bengio
- #7 Sequential decision making under uncertainty: Are most decisions easy?**
Özgür Şimşek, Simón Algorta, Amit Kohliyal
- #8 Opponent Modeling in Deep Reinforcement Learning**
He He, Jordan Boyd-Graber, Kevin Kwok, Hal Daumé III
- #9 Memory-based Control of Active Perception and Action in Minecraft**
Junhyuk Oh, Valliappa Chockalingam, Satinder Singh, Honglak Lee
- #10 Graying the black box: Understanding DQNs**
Tom Zahavy, Nir Ben-Zrihem, Shie Mannor
- #11 Benchmarking Deep Reinforcement Learning for Continuous Control**
Yan Duan, Xi Chen, Rein Houthoofd, John Schulman, Pieter Abbeel
- #12 Dueling Network Architectures for Deep Reinforcement Learning**
Ziyu Wang, Tom Schaul, Matteo Hessel, Hado van Hasselt, Marc Lanctot, Nando de Freitas
- #13 SDCA without Duality, Regularization, and Individual Convexity**
Shai Shalev-Shwartz
- #14 Stochastic Variance Reduction for Nonconvex Optimization**
Sashank J. Reddi, Ahmed Hefny, Suvrit Sra, Barnabás Póczós, Alex Smola
- #15 Fast Rate Analysis of Some Stochastic Optimization Algorithms**
Chao Qu, Huan Xu, Chong jin Ong
- #16 Black-box optimization with a politician**
Sébastien Bubeck, Yin Tat Lee
- #17 Starting Small: Learning with Adaptive Sample Sizes**
Hadi Daneshmand, Aurelien Lucchi, Thomas Hofmann
- #18 Primal-Dual Rates and Certificates**
Celestine Dünnner, Simone Forte, Martin Takac, Martin Jaggi
- #19 Online Learning with Feedback Graphs Without the Graphs**
Alon Cohen, Tamir Hazan, Tomer Koren
- #20 Efficient Algorithms for Adversarial Contextual Learning**
Vasilis Syrgkanis, Akshay Krishnamurthy, Robert Schapire
- #21 BISTRO: An Efficient Relaxation-Based Method for Contextual Bandits**
Alexander Rakhlin, Karthik Sridharan
- #22 Online Stochastic Linear Optimization under One-bit Feedback**
Lijun Zhang, Tianbao Yang, Rong Jin, Yichi Xiao, Zhi-hua Zhou
- #23 Tracking Slowly Moving Clairvoyant: Optimal Dynamic Regret of Online Learning with True and Noisy Gradient**
Tianbao Yang, Lijun Zhang, Rong Jin, Jinfeng Yi
- #24 Adaptive Algorithms for Online Convex Optimization with Long-term Constraints**
Rodolphe Jenatton, Jim Huang, Cedric Archambeau
- #25 Correlation Clustering and Biclustering with Locally Bounded Errors**
Gregory Puleo, Olgica Milenkovic
- #26 $\$K\$$ -Means Clustering with Distributed Dimensions**
Hu Ding, Yu Liu, Lingxiao Huang, Jian Li
- #27 Speeding up k-means by approximating Euclidean distances via block vectors**
Thomas Bottesch, Thomas Bühler, Markus Kächele
- #28 Fast k-means with accurate bounds**
James Newling, François Fleuret
- #29 k-variates++: more pluses in the k-means++**
Richard Nock, Raphaël Canyasse, Roksana Boreli, Frank Nielsen
- #30 Compressive Spectral Clustering**
Nicolas TREMBLAY, Gilles Puy, Rémi Gribonval, Pierre Vandergheynst
- #31 Mixed membership modelling with hierarchical CRMs**
Gaurav Pandey, Ambedkar Dukkipati
- #32 Hawkes Processes with Stochastic Excitations**
Young Lee, Kar Wai Lim, Cheng Soon Ong
- #33 The Segmented iHMM: A Simple, Efficient Hierarchical Infinite HMM**
Ardavan Saeedi, Matthew Hoffman, Matthew Johnson, Ryan Adams
- #34 Markov Latent Feature Models**
Aonan Zhang, John Paisley
- #35 Diversity-Promoting Bayesian Learning of Latent Variable Models**
Pengtao Xie, Jun Zhu, Eric Xing
- #36 Bayesian Poisson Tucker Decomposition for Learning the Structure of International Relations**
Aaron Schein, Mingyuan Zhou, Blei David, Hanna Wallach
- #37 The knockoff filter for FDR control in group-sparse and multitask regression**
Ran Dai, Rina Barber
- #38 A Simple and Provable Algorithm for Sparse CCA**
Megasthenis Asteris, Anastasios Kyrillidis, Oluwasanmi Koyejo, Russell Poldrack
- #39 Experimental Design on a Budget for Sparse Linear Models and Applications**
Sathya Narayanan Ravi, Vamsi Ithapu, Sterling Johnson, Vikas Singh
- #40 Representational Similarity Learning with Application to Brain Networks**
Urvashi Oswal, Christopher Cox, Matthew Lambon-Ralph, Timothy Rogers, Robert Nowak

- #41 Dictionary Learning for Massive Matrix Factorization**
Arthur Mensch, Julien Mairal, Bertrand Thirion, Gaël Varoquaux
- #42 A Random Matrix Approach to Recurrent Neural Networks**
Romain Couillet, Gilles Wainrib, Hafiz Tiomoko Ali, Harry Sevi
- #43 Strongly-Typed Recurrent Neural Networks**
David Balduzzi, Muhammad Ghifary
- #44 A Convolutional Attention Network for Extreme Summarization of Source Code**
Miltiadis Allamanis, Hao Peng, Charles Sutton
- #45 Ask Me Anything: Dynamic Memory Networks for Natural Language Processing**
Ankit Kumar, Ozan Irsoy, Peter Ondruska, Mohit Iyyer, James Bradbury, Ishaan Gulrajani, Victor Zhong, Romain Paulus, Richard Socher
- #46 Dynamic Memory Networks for Visual and Textual Question Answering**
Caiming Xiong, Stephen Merity, Richard Socher
- #47 Supervised and Semi-Supervised Text Categorization using One-Hot LSTM for Region Embeddings**
Rie Johnson, Tong Zhang
- #48 PHOG: Probabilistic Model for Code**
Pavol Bielik, Veselin Raychev, Martin Vechev
- #49 On the Analysis of Complex Backup Strategies in Monte Carlo Tree Search**
Piyush Khandelwal, Elad Liebman, Scott Niekum, Peter Stone
- #50 Generalization and Exploration via Randomized Value Functions**
Ian Osband, Benjamin Van Roy, Zheng Wen
- #51 Doubly Robust Off-policy Value Evaluation for Reinforcement Learning**
Nan Jiang, Lihong Li
- #52 Near Optimal Behavior via Approximate State Abstraction**
David Abel, David Hershkowitz, Michael Littman
- #53 Model-Free Trajectory Optimization for Reinforcement Learning of Motor Skills**
Riad Akrou, Gerhard Neumann, Hany Abdulsamad, Abbas Abdolmaleki
- #54 Model-Free Imitation Learning with Policy Optimization**
Jonathan Ho, Jayesh Gupta, Stefano Ermon
- #55 Algorithms for Optimizing the Ratio of Submodular Functions**
Wenruo Bai, Rishabh Iyer, Kai Wei, Jeff Bilmes
- #56 Horizontally Scalable Submodular Maximization**
Mario Lucic, Olivier Bachem, Morteza Zadimoghaddam, Andreas Krause
- #57 Learning Sparse Combinatorial Representations via Two-stage Submodular Maximization**
Eric Balkanski, Baharan Mirzasoleiman, Andreas Krause, Yaron Singer
- #58 Fast Constrained Submodular Maximization: Personalized Data Summarization**
Baharan Mirzasoleiman, Ashwinkumar Badanidiyuru, Amin Karbasi
- #59 A Box-Constrained Approach for Hard Permutation Problems**
Cong Han Lim, Steve Wright
- #60 A Convex Atomic-Norm Approach to Multiple Sequence Alignment and Motif Discovery**
Ian En-Hsu Yen, Xin Lin, Jiong Zhang, Pradeep Ravikumar, Inderjit S. Dhillon
- #61 Nonparametric canonical correlation analysis**
Tomer Michaeli, Weiran Wang, Karen Livescu
- #62 The Information Sieve**
Greg Ver Steeg, Aram Galstyan
- #63 Gromov-Wasserstein Barycenters of Similarity Matrices**
Gabriel Peyré, Marco Cuturi, Justin Solomon
- #64 Learning Representations for Counterfactual Inference**
Fredrik Johansson, Uri Shalit, David Sontag
- #65 Why Regularized Auto-Encoders learn Sparse Representation?**
Devansh Arpit, Yingbo Zhou, Hung Ngo, Venu Govindaraju
- #66 Robust Random Cut Forest Based Anomaly Detection on Streams**
Sudipto Guha, Nina Mishra, Gourav Roy, Okke Schrijvers
- #67 Mixing Rates for the Alternating Gibbs Sampler over Restricted Boltzmann Machines and Friends**
Christopher Tosh
- #68 Pliable Rejection Sampling**
Akram Erraqabi, Michal Valko, Alexandra Carpentier, Odalric Maillard
- #69 A Kernel Test of Goodness of Fit**
Kacper Chwialkowski, Heiko Strathmann, Arthur Gretton
- #70 A Kernelized Stein Discrepancy for Goodness-of-fit Tests and Model Evaluation**
Qiang Liu, Jason Lee, Michael Jordan
- #71 Additive Approximations in High Dimensional Regression via the SALSA**
Kirthivasan Kandasamy, Yaoliang Yu
- #72 Doubly Decomposing Nonparametric Tensor Regression**
Masaaki Imaizumi, Kohei Hayashi
- #73 The Sample Complexity of Subspace Clustering with Missing Data**
Daniel Pimentel-Alarcón, Robert Nowak
- #74 Robust Principal Component Analysis with Side Information**
Kai-Yang Chiang, Cho-Jui Hsieh, Inderjit S. Dhillon
- #75 Online Low-Rank Subspace Clustering by Explicit Basis Modeling**
Jie Shen, Ping Li, Huan Xu
- #76 Provable Non-convex Phase Retrieval with Outliers: Median Truncated Wirtinger Flow**
Huishuai Zhang, Yuejie Chi, Yingbin Liang
- #77 Estimating Structured Vector Autoregressive Models**
Igor Melnyk, Arindam Banerjee
- #78 Towards Faster Rates and Oracle Property for Low-Rank Matrix Estimation**
Huan Gui, Jiawei Han, Quanquan Gu
- #79 Hierarchical Variational Models**
Rajesh Ranganath, Dustin Tran, Blei David
- #80 A Variational Analysis of Stochastic Gradient Algorithms**
Stephan Mandt, Matthew Hoffman, Blei David
- #81 Black-Box Alpha Divergence Minimization**
José Miguel Hernández-Lobato, Yingzhen Li, Mark Rowland, Thang Bui, Daniel Hernández-Lobato, Richard Turner
- #82 Variational inference for Monte Carlo objectives**
Andriy Mnih, Danilo Rezende
- #83 Dropout as a Bayesian Approximation: Representing Model Uncertainty in Deep Learning**
Yarin Gal, Zoubin Ghahramani
- #84 Auxiliary Deep Generative Models**
Lars Maaløe, Casper Kaae Sønderby, Søren Kaae Sønderby, Ole Winther

Tuesday

JUNE 21ST | SESSIONS



TIME	DESCRIPTION	MARRIOT HOTEL
8:30 am - 9:30 am	Invited Talk: Fei-Fei Li	Westside Ballroom 1&2
9:30 am - 9:45 am	Test of Time Award	Westside Ballroom 1&2
9:45 am - 10:30 am	Break	
10:00 am - 1:00 pm	Poster Session	Astor, Duffy, & Times Square
10:30 pm - 12:30 pm	Neural Networks & Deep Learning	Westside Ballroom 1&2
	Reinforcement Learning	Westside Ballroom 3&4
break from 11:20 - 11:40 am	Optimization (Combinatorial)	Marquis
	Unsupervised Learning / Representation Learning	Lyceum
	Sampling / Kernel Methods	Empire
	Sparsity and Compressed Sensing	Soho
	Approximate Inference	Liberty
12:30 pm - 2 pm	Lunch (On Your Own)	
2 pm - 3 pm	Invited Talk: Daniel Spielman	Westside Ballroom 1&2
3 pm - 7 pm	Poster Session	Astor, Duffy, & Times Square
3 pm - 3:40 pm	Break	
3:40 pm - 4:45 pm	Neural Networks & Deep Learning	Westside Ballroom 1&2
	Neural Networks & Deep Learning II	Westside Ballroom 3&4
	Optimization (Continuous)	Marquis
	Reinforcement Learning	Lyceum
	Matrix Factorization and Related Topics	Empire
	Unsupervised Learning / Applications	Soho
	Learning Theory	Liberty
4:45 pm - 5:10 pm	Break	
5:10 pm - 6:15 pm	Neural Networks & Deep Learning 1	Westside Ballroom 1&2
	Neural Networks & Deep Learning II	Westside Ballroom 3&4
	Reinforcement Learning	Marquis
	Optimization (Continuous)	Lyceum
	Large Scale Learning & Big Data	Empire
	Graphical Models	Soho
	Supervised Learning	Liberty



SESSIONS - 10:30 AM - 12:30 PM - MARRIOTT HOTEL

Neural Networks and Deep Learning

Location: Westside Ballroom 1 & 2 + Juliard

- **Strongly-Typed Recurrent Neural Networks**
David Balduzzi, Muhammad Ghifary
- **A Convolutional Attention Network for Extreme Summarization of Source Code**
Miltiadis Allamanis, Hao Peng, Charles Sutton
- **Ask Me Anything: Dynamic Memory Networks for Natural Language Processing**
Ankit Kumar, Ozan Irsoy, Peter Ondruska, Mohit Iyyer, James Bradbury, Ishaan Gulrajani, Victor Zhong, Romain Paulus, Richard Socher
- **Dynamic Memory Networks for Visual and Textual Question Answering**
Caiming Xiong, Stephen Merity, Richard Socher
- **Supervised and semi-supervised text categorization using LSTM for region embeddings**
Rie Johnson, Tong Zhang
- **PHOG: Probabilistic Model for Code**
Pavol Bielik, Veselin Raychev, Martin Vechev

Reinforcement Learning

Location: Westside Ballroom 3 & 4

- **On the Analysis of Complex Backup Strategies in Monte Carlo Tree Search**
Piyush Khandelwal, Elad Liebman, Scott Niekum, Peter Stone
- **Generalization and Exploration via Randomized Value Functions**
Ian Osband, Benjamin Van Roy, Zheng Wen
- **Doubly Robust Off-policy Value Evaluation for Reinforcement Learning**
Nan Jiang, Lihong Li
- **Near Optimal Behavior via Approximate State Abstraction**
David Abel, David Hershkowitz, Michael Littman
- **Model-Free Trajectory Optimization for Reinforcement Learning of Motor Skills**
Riad Akrouf, Gerhard Neumann, Hany Abdulsamad, Abbas Abdolmaleki
- **Model-Free Imitation Learning with Policy Optimization**
Jonathan Ho, Jayesh Gupta, Stefano Ermon

Optimization (Combinatorial)

Location: Marquis

- **Algorithms for Optimizing the Ratio of Submodular Functions**
Wenruo Bai, Rishabh Iyer, Kai Wei, Jeff Bilmes
- **Horizontally Scalable Submodular Maximization**
Mario Lucic, Olivier Bachem, Morteza Zadimoghaddam, Andreas Krause
- **Learning Sparse Combinatorial Representations via Two-stage Submodular Maximization**
Eric Balkanski, Baharan Mirzasoleiman, Andreas Krause, Yaron Singer
- **Fast Constrained Submodular Maximization: Personalized Data Summarization**
Baharan Mirzasoleiman, Ashwinkumar Badanidiyuru, Amin Karbasi
- **A Box-Constrained Approach for Hard Permutation Problems**
Cong Han Lim, Steve Wright
- **A Convex Atomic-Norm Approach to Multiple Sequence Alignment and Motif Discovery**
Ian En-Hsu Yen, Xin Lin, Jiong Zhang, Pradeep Ravikumar, Inderjit S. Dhillon

Unsupervised Learning / Representation Learning

Location: Lyceum

- **A Nonparametric canonical correlation analysis**
Tomer Michaeli, Weiran Wang, Karen Livescu
- **The Information Sieve**
Greg Ver Steeg, Aram Galstyan
- **Gromov-Wasserstein Barycenters of Similarity Matrices**
Gabriel Peyré, Marco Cuturi, Justin Solomon
- **Learning Representations for Counterfactual Inference**
Fredrik Johansson, Uri Shalit, David Sontag
- **Why Regularized Auto-Encoders learn Sparse Representation?**
Devansh Arpit, Yingbo Zhou, Hung Ngo, Venu Govindaraju
- **Robust Random Cut Forest Based Anomaly Detection on Streams**
Sudipto Guha, Nina Mishra, Gourav Roy, Okke Schrijvers



Sampling / Kernel Methods

Location: Empire

- **Mixing Rates for the Alternating Gibbs Sampler over Restricted Boltzmann Machines and Friends**
Christopher Tosh
- **Pliable Rejection Sampling**
Akram Erraqabi, Michal Valko, Alexandra Carpentier, Odalric Maillard
- **A Kernel Test of Goodness of Fit**
Kacper Chwialkowski, Heiko Strathmann, Arthur Gretton
- **A Kernelized Stein Discrepancy for Goodness-of-fit Tests and Model Evaluation**
Qiang Liu, Jason Lee, Michael Jordan
- **Additive Approximations in High Dimensional Regression via the SALSA**
Kirthevasan Kandasamy, Yaoliang Yu
- **Doubly Decomposing Nonparametric Tensor Regression**
Masaaki Imaizumi, Kohei Hayashi

Sparsity and Compressed Sensing

Location: Soho

- **The Sample Complexity of Subspace Clustering with Missing Data**
Daniel Pimentel-Alarcón, Robert Nowak
- **Robust Principal Component Analysis with Side Information**
Kai-Yang Chiang, Cho-Jui Hsieh, Inderjit S. Dhillon
- **Online Low-Rank Subspace Clustering by Explicit Basis Modeling**
Jie Shen, Ping Li, Huan Xu
- **Provable Non-convex Phase Retrieval with Outliers: Median Truncated Wirtinger Flow**
Huishuai Zhang, Yuejie Chi, Yingbin Liang
- **Estimating Structured Vector Autoregressive Models**
Igor Melnyk, Arindam Banerjee
- **Towards Faster Rates and Oracle Property for Low-Rank Matrix Estimation**
Huan Gui, Jiawei Han, Quanquan Gu

Approximate Inference

Location: Liberty

- **Hierarchical Variational Models**
Rajesh Ranganath, Dustin Tran, Blei David
- **A Variational Analysis of Stochastic Gradient Algorithms**
Stephan Mandt, Matthew Hoffman, Blei David
- **Black-Box Alpha Divergence Minimization**
José Miguel Hernández-Lobato, Yingzhen Li, Mark Rowland, Thang Bui, Daniel Hernández-Lobato, Richard Turner
- **Variational inference for Monte Carlo objectives**
Andriy Mnih, Danilo Rezende
- **Dropout as a Bayesian Approximation: Representing Model Uncertainty in Deep Learning**
Yarin Gal, Zoubin Ghahramani
- **Auxiliary Deep Generative Models**
Lars Maaløe, Casper Kaae Sønderby, Søren Kaae Sønderby, Ole Winther

SESSIONS - 3:40 PM - 4:45 PM

Neural Networks and Deep Learning I

Location: Westside Ballroom 1 & 2 + Juliard

- **Factored Temporal Sigmoid Belief Networks for Sequence Learning**
Jiaming Song, Zhe Gan, Lawrence Carin
- **Bidirectional Helmholtz Machines**
Jörg Bornschein, Samira Shabanian, Asja Fischer, Yoshua Bengio
- **The Deep Neural Matrix Gaussian Process**
Christos Louizos, Max Welling
- **Dropout distillation**
Samuel Rota Bulò, Lorenzo Porzi, Peter Kotschieder



SESSIONS - 3:40 PM - 4:45 PM - MARRIOTT HOTEL

Neural Networks and Deep Learning II

Location: Westside Ballroom 3 & 4

- **Revisiting Semi-Supervised Learning with Graph Embeddings**
Zhilin Yang, William Cohen, Ruslan Salakhudinov
- **ADIOS: Architectures Deep In Output Space**
Moustapha Cissé, Maruan Al-Shedivat, Samy Bengio
- **Unsupervised Deep Embedding for Clustering Analysis**
Junyuan Xie, Ross Girshick, Ali Farhadi
- **Learning Convolutional Neural Networks for Graphs**
Mathias Niepert, Mohamed Ahmed, Konstantin Kutzkov

Reinforcement Learning

Location: Marquis

- **Inverse Optimal Control with Deep Networks via Policy Optimization**
Chelsea Finn, Sergey Levine, Pieter Abbeel
- **Smooth Imitation Learning**
Hoang Le, Andrew Kang, Yisong Yue, Peter Carr
- **Improving the Efficiency of Deep Reinforcement Learning with Normalized Advantage Functions and Synthetic Experience**
Shixiang Gu, Timothy Lillicrap, Ilya Sutskever, Sergey Levine
- **Asynchronous Methods for Deep Reinforcement Learning**
Volodymyr Mnih, Adrià Puigdomènech Badia, Mehdi Mirza, Alex Graves, Timothy Lillicrap, Tim Harley, David Silver, Koray Kavukcuoglu

Optimization (Continuous)

Location: Lyceum

- **On the Statistical Limits of Convex Relaxations**
Zhaoran Wang, Quanquan Gu, Han Liu
- **Faster Convex Optimization: Simulated Annealing with an Efficient Universal Barrier**
Jacob Abernethy, Elad Hazan
- **A ranking approach to global optimization**
Cédric Malherbe, Emile Contal, Nicolas Vayatis
- **Epigraph projections for fast general convex programming**
Po-Wei Wang, Matt Wytock, J. Zico Kolter

Matrix Factorization and Related Topics

Location: Empire

- **Principal Component Projection Without Principal Component Analysis**
Roy Frostig, Cameron Musco, Christopher Musco, Aaron Sidford
- **Recovery guarantee of weighted low-rank approximation via alternating minimization**
Yuanzhi Li, Yingyu Liang, Andrej Risteski
- **Tensor Decomposition via Joint Matrix Schur Decomposition**
Nicolò Colombo, Nikos Vlassis
- **Fast Methods for Estimating the Numerical Rank of Large Matrices**
Shashanka Ubaru, Yousef Saad

Unsupervised Learning / Applications

Location: Soho

- **Markov-modulated marked Poisson processes for check-in data**
Jiangwei Pan, Vinayak Rao, Pankaj Agarwal, Alan Gelfand
- **Hierarchical Compound Poisson Factorization**
Mehmet Basbug, Barbara Engelhardt
- **Dirichlet Process Mixture Model for Correcting Technical Variation in Single-Cell Gene Expression Data**
Sandhya Prabhakaran, Elham Azizi, Ambrose Carr, Dana Pe'er
- **The Automatic Statistician: A Relational Perspective**
Yunseong Hwang, Anh Tong, Jaesik Choi

Learning Theory

Location: Liberty

- **Truthful Univariate Estimators**
Ioannis Caragiannis, Ariel Procaccia, Nisarg Shah
- **Fast Algorithms for Segmented Regression**
Jayadev Acharya, Ilias Diakonikolas, Jerry Li, Ludwig Schmidt
- **Stochastically Transitive Models for Pairwise Comparisons: Statistical and Computational Issues**
Nihar Shah, Sivaraman Balakrishnan, Aditya Guntuboyina, Martin Wainwright
- **Provable Algorithms for Inference in Topic Models**
Sanjeev Arora, Rong Ge, Frederic Koehler, Tengyu Ma, Ankur Moitra



Neural Networks and Deep Learning I

Location: Westside Ballroom 1 & 2 + Juliard

- **Expressiveness of Rectifier Neural Network**
Xingyuan Pan, Vivek Srikumar
- **Convolutional Rectifier Networks as Generalized Tensor Decompositions**
Nadav Cohen, Amnon Shashua
- **Fixed Point Quantization of Deep Convolutional Networks**
Darryl Lin, Sachin Talathi, Sreekanth Annapureddy
- **CryptoNets: Applying Neural Networks to Encrypted Data with High Throughput and Accuracy**
Ran Gilad-Bachrach, Nathan Dowlan, Kim Laine, Kristin Lauter, Michael Naehrig, John Wernsing

Neural Networks and Deep Learning II

Location: Westside Ballroom 3 & 4

- **Correcting Forecasts with Multi-force Neural Attention**
Matthew Riemer, Aditya Vempaty, Flavio Calmon, Fenno Heath, Richard Hull, Elham Khabiri
- **Meta-Learning with Memory-Augmented Neural Networks**
Adam Santoro, Sergey Bartunov, Matthew Botvinick, Daan Wierstra, Timothy Lillicrap
- **Learning Simple Algorithms from Examples**
Wojciech Zaremba, Tomas Mikolov, Armand Joulin, Rob Fergus
- **Associative Long Short-Term Memory**
Ivo Danihelka, Greg Wayne, Benigno Uria, Nal Kalchbrenner, Alex Graves

Reinforcement Learning

Location: Marquis

- **Estimating Maximum Expected Value through Gaussian Approximation**
Carlo D'Eramo, Marcello Restelli, Alessandro Nuara
- **Data-Efficient Off-Policy Policy Evaluation for Reinforcement Learning**
Philip Thomas, Emma Brunskill
- **Cumulative Prospect Theory Meets Reinforcement Learning: Prediction and Control**
Prashanth L.A., Cheng Jie, Michael Fu, Steve Marcus, Csaba Szepesvári
- **Softened Approximate Policy Iteration for Markov Games**
Julien Pérolat, Bilal Piot, Matthieu Geist, Bruno Scherrer, Olivier Pietquin

Optimization (Continuous)

Location: Lyceum

- **Low-rank Solutions of Linear Matrix Equations via Procrustes Flow**
Stephen Tu, Ross Boczar, Max Simchowitz, mahdi Soltanolkotabi, Ben Recht
- **Quadratic Optimization with Orthogonality Constraints: Explicit Lojasiewicz Exponent and Linear Convergence of Line-Search Methods**
Huikang Liu, Weijie Wu, Anthony Man-Cho So
- **Efficient Algorithms for Large-scale Generalized Eigenvector Computation and CCA**
Rong Ge, Chi Jin, Sham M. Kakade, Praneeth Netrapalli, Aaron Sidford
- **Matrix Eigendecomposition via Doubly Stochastic Riemannian Optimization**
Zhiqiang Xu, Peilin Zhao, Jianneng Cao, Xiaoli Li



Large Scale Learning and Big Data

Location: Empire

- **Extreme F-measure Maximization using Sparse Probability Estimates**
Kalina Jasinska, Krzysztof Dembczynski, Robert Busa-Fekete, Karlson Pfannschmidt, Timo Klerx, Eyke Hullermeier
- **Stochastic Optimization for Multiview Learning using Partial Least Squares**
Raman Arora, Poorya Mianjy, Teodor Marinov
- **Gaussian quadrature for matrix inverse forms with applications**
Chengtao Li, Suvrit Sra, Stefanie Jegelka
- **A Subspace Learning Approach for High Dimensional Matrix Decomposition with Efficient Column/Row Sampling**
Mostafa Rahmani, Geroge Atia

Supervised Learning

Location: Liberty

- **Early and Reliable Event Detection Using Proximity Space Representation**
Maxime Sangnier, Jérôme Gauthier, Alain Rakotomamonjy
- **Meta--Gradient Boosted Decision Tree Model for Weight and Target Learning**
Yury Ustinovskiy, Valentina Fedorova, Gleb Gusev, Pavel Serdyukov
- **Class Probability Estimation via Differential Geometric Regularization**
Qinxun Bai, Steven Rosenberg, Zheng Wu, Stan Sclaroff
- **Linking losses for density ratio and class-probability estimation**
Aditya Menon, Cheng Soon Ong

Graphical Models

Location: Soho

- **Uprooting and Rerooting Graphical Models**
Adrian Weller
- **Structure Learning of Partitioned Markov Networks**
Song Liu, Taiji Suzuki, Masashi Sugiyama, Kenji Fukumizu
- **Ensuring Rapid Mixing and Low Bias for Asynchronous Gibbs Sampling**
Christopher De Sa, Chris Re, Kunle Olukotun
- **Estimation from Indirect Supervision with Linear Moments**
Aditi Raghunathan, Roy Frostig, John Duchi, Percy Liang

TUESDAY JUNE 21ST | MORNING POSTER SESSIONS

LOCATION: MARRIOTT - ASTOR, DUFFY + TIMES SQUARE - 10 AM - 1 PM



- #1 End-to-End Speech Recognition in English and Mandarin**
Dario Amodei, Rishita Anubhai, Eric Battenberg, Carl Case, Jared Casper, Bryan Catanzaro, JingDong Chen, Mike Chrzanowski, Adam Coates, Greg Diamos, Erich Elsen, Jesse Engel, Linxi Fan, Christopher Fougner, Awni Hannun, Billy Jun, Tony Han, Patrick LeGresley, Xiangang Li, Libby Lin, Sharan Narang, Andrew Ng, Sherjil Ozair, Ryan Prenger, Sheng Qian, Jonathan Raiman, Sanjeev Satheesh, David Seetapun, Shubho Sengupta, Chong Wang, Yi Wang, Zhiqian Wang, Bo Xiao, Yan Xie, Dani Yogatama, Jun Zhan, zhenyao Zhu
- #2 Persistent RNNs: Stashing Recurrent Weights On-Chip**
Greg Diamos, Shubho Sengupta, Bryan Catanzaro, Mike Chrzanowski, Adam Coates, Erich Elsen, Jesse Engel, Awni Hannun, Sanjeev Satheesh
- #3 Online Sequence Training of Recurrent Neural Networks with Connectionist Temporal Classification**
Kyuyeon Hwang, Wonyong Sung
- #4 Analysis of Deep Neural Networks with Extended Data Jacobian Matrix**
Shengjie Wang, Abdel-rahman Mohamed, Rich Caruana, Jeff Bilmes, Matthai Philipose, Matthew Richardson, Krzysztof Geras, Gregor Urban, Ozlem Aslan
- #5 Understanding and Improving Convolutional Neural Networks via Concatenated Rectified Linear Units**
Wenling Shang, Kihyuk Sohn, Diogo Almeida, Honglak Lee
- #6 Pixel Recurrent Neural Networks**
Aäron van den Oord, Nal Kalchbrenner, Koray Kavukcuoglu
- #7 Shifting Regret, Mirror Descent, and Matrices**
András György, Csaba Szepesvari
- #8 Heteroscedastic Sequences: Beyond Gaussianity**
Oren Anava, Shie Mannor
- #9 Convergence of Stochastic Gradient Descent for PCA**
Ohad Shamir
- #10 Fast Stochastic Algorithms for SVD and PCA: Convergence Properties and Convexity**
Ohad Shamir
- #11 Faster Eigenvector Computation via Shift-and-Invert Preconditioning**
Dan Garber, Elad Hazan, Chi Jin, Sham M. Kakade, Cameron Musco, Praneeth Netrapalli, Aaron Sidford
- #12 Solving Ridge Regression using Sketched Preconditioned SVRG**
Alon Gonen, Francesco Orabona, Shai Shalev-Shwartz
- #13 Bounded Off-Policy Evaluation with Missing Data for Course Recommendation and Curriculum Design**
William Hoiles, Mihaela van der Schaar
- #14 Dealbreaker: A Nonlinear Latent Variable Model for Educational Data**
Andrew Lan, Tom Goldstein, Richard Baraniuk, Christoph Studer
- #15 Estimating Cosmological Parameters from the Dark-Matter Distribution**
Siamak Ravanbakhsh, Junier Oliva, Sebastian Fromenteau, Layne Price, Shirley Ho, Jeff Schneider, Barnabás Póczos
- #16 BASC: Applying Bayesian Optimization to the Search for Global Minima on Potential Energy Surfaces**
Shane Carr, Roman Garnett, Cynthia Lo
- #17 Predictive Entropy Search for Multi-objective Bayesian Optimization**
Daniel Hernández-Lobato, José Miguel Hernández-Lobato, Amar Shah, Ryan Adams
- #18 Pareto Frontier Learning with Expensive Correlated Objectives**
Amar Shah, Zoubin Ghahramani
- #19 Complex Embeddings for Simple Link Prediction**
Théo Trouillon, Johannes Welbl, Sebastian Riedel, Eric Gaussier, Guillaume Bouchard
- #20 PAC learning of Probabilistic Automaton based on the Method of Moments**
Hadrien Glaude, Olivier Pietquin
- #21 Rich Component Analysis**
Rong Ge, James Zou
- #22 Beyond CCA: Moment Matching for Multi-View Models**
Anastasia Podosinnikova, Francis Bach, Simon Lacoste-Julien
- #23 Isotonic Hawkes Processes**
Yichen Wang, Bo Xie, Nan Du, Le Song
- #24 Non-negative Matrix Factorization under Heavy Noise**
Chiranjib Bhattacharya, Navin Goyal, Ravindran Kannan, Jagdeep Pani
- #25 An optimal algorithm for the Thresholding Bandit Problem**
Andrea Locatelli, Maurilio Gutzeit, Alexandra Carpentier
- #26 Anytime Exploration for Multi-armed Bandits using Confidence Information**
Kwang-Sung Jun, Robert Nowak
- #27 Anytime optimal algorithms in stochastic multi-armed bandits**
Rémy Degenne, Vianney Perchet
- #28 PAC Lower Bounds and Efficient Algorithms for The Max $\$K\$$ -Armed Bandit Problem**
Yahel David, Nahum Shimkin
- #29 Conservative Bandits**
Yifan Wu, Roshan Shariff, Tor Lattimore, Csaba Szepesvári
- #30 No-Regret Algorithms for Heavy-Tailed Linear Bandits**
Andres Munoz Medina, Scott Yang
- #31 Hierarchical Span-Based Conditional Random Fields for Labeling and Segmenting Events in Wearable Sensor Data Streams**
Roy Adams, Nazir Saleheen, Edison Thomaz, Abhinav Parate, Santosh Kumar, Benjamin Marlin
- #32 Efficient Multi-Instance Learning for Activity Recognition from Time Series Data Using an Auto-Regressive Hidden Markov Model**
Xinze Guan, Raviv Raich, Weng-Keen Wong
- #33 Topographical Features of High-Dimensional Categorical Data and Their Applications to Clustering**
Chao Chen, Novi Quadrianto
- #34 Nonlinear Statistical Learning with Truncated Gaussian Graphical Models**
Qinliang Su, xuejun Liao, changyou Chen, Lawrence Carin
- #35 Collapsed Variational Inference for Sum-Product Networks**
Han Zhao, Tameem Adel, Geoff Gordon, Brandon Amos
- #36 Square Root Graphical Models: Multivariate Generalizations of Univariate Exponential Families which Allow Positive Dependencies**
David Inouye, Pradeep Ravikumar, Inderjit S. Dhillon
- #37 A New PAC-Bayesian Perspective on Domain Adaptation**
Pascal Germain, Amaury Habrard, François Laviolette, Emilie Morvant
- #38 Domain Adaptation with Conditional Transferable Components**
Mingming Gong, Kun Zhang, Tongliang Liu, Dacheng Tao, Clark Glymour, Bernhard Schölkopf

- #39 Train faster, generalize better: Stability of stochastic gradient descent**
Moritz Hardt, Ben Recht, Yoram Singer
- #40 Accurate Robust and Efficient Error Estimation for Decision Trees**
Lixin Fan
- #41 The Teaching Dimension of Linear Learners**
Ji Liu, Xiaojin Zhu, Hrag Ohannessian
- #42 Loss factorization, weakly supervised learning and label noise robustness**
Giorgio Patrini, Frank Nielsen, Richard Nock, Marcello Carioni
- #43 Texture Networks: Feed-forward Synthesis of Textures and Stylized Images**
Dmitry Ulyanov, Vadim Lebedev, Andrea Vedaldi, Victor Lempitsky
- #44 Discrete Deep Feature Extraction: A Theory and New Architectures**
Thomas Wiatowski, Michael Tschannen, Aleksandar Stanic, Philipp Grohs, Helmut Bölcskei
- #45 Deep Structured Energy Based Models for Anomaly Detection**
Shuangfei Zhai, Yu Cheng, Weining Lu, Zhongfei Zhang
- #46 Noisy Activation Functions**
Caglar Gulcehre, Marcin Moczulski, Misha Denil, Yoshua Bengio
- #47 A Kronecker-factored approximate Fisher matrix for convolution layers**
Roger Grosse, James Martens
- #48 Recurrent Orthogonal Networks and Long-Memory Tasks**
Mikael Henaff, Arthur Szlam, Yann LeCun
- #49 Group Equivariant Convolutional Networks**
Taco Cohen, Max Welling
- #50 Learning End-to-end Video Classification with Rank-Pooling**
Basura Fernando, Stephen Gould
- #51 Learning Physical Intuition of Block Towers by Example**
Adam Lerer, Sam Gross, Rob Fergus
- #52 Large-Margin Softmax Loss for Convolutional Neural Networks**
Weiyang Liu, Yandong Wen, Zhiding Yu, Meng Yang
- #53 Network Morphism**
Tao Wei, Changhu Wang, Yong Rui, Chang Wen Chen
- #54 MBA: Multi-Bias Non-linear Activation in Deep Neural Networks**
Hongyang Li, Wanli Ouyang, Xiaogang Wang
- #55 Boolean Matrix Factorization and Noisy Completion via Message Passing**
Siamak Ravanbakhsh, Barnabás Póczos, Russell Greiner
- #56 Stochastic Discrete Clenshaw-Curtis Quadrature**
Nico Piatkowski, Katharina Morik
- #57 Beyond Parity Constraints: Fourier Analysis of Hash Functions for Inference**
Tudor Achim, Ashish Sabharwal, Stefano Ermon
- #58 Variable Elimination in the Fourier Domain**
Yexiang Xue, Stefano Ermon, Ronan Le Bras, Carla Gomes, Bart Selman
- #59 Learning and Inference via Maximum Inner Product Search**
Stephen Mussmann, Stefano Ermon
- #60 Analysis of Variational Bayesian Factorizations for Sparse and Low-Rank Estimation**
David Wipf
- #61 Fast k-Nearest Neighbour Search via Dynamic Continuous Indexing**
Ke Li, Jitendra Malik
- #62 Geometric Mean Metric Learning**
Pourya Zadeh, Reshad Hosseini, Suvrit Sra
- #63 Low-rank tensor completion: a Riemannian manifold preconditioning approach**
Hiroyuki Kasai, Bamdev Mishra
- #64 The Variational Nystrom method for large-scale spectral problems**
Max Vladymyrov, Miguel Carreira-Perpiñán
- #65 Fast DPP Sampling for Nystrom with Application to Kernel Methods**
Chengtao Li, Stefanie Jegelka, Suvrit Sra
- #66 Computationally Efficient Nystrom Approximation using Fast Transforms**
Si Si, Cho-Jui Hsieh, Inderjit S. Dhillon
- #67 Barron and Covers' Theory in Supervised Learning and Its Application to Lasso**
Masanori Kawakita, Jun'ichi Takeuchi
- #68 Exact Exponent in Optimal Rates for Crowdsourcing**
Chao Gao, Yu Lu, Dengyong Zhou
- #69 Generalization Properties and Implicit Regularization for Multiple Passes SGM**
Junhong Lin, Raffaello Camoriano, Lorenzo Rosasco
- #70 Generalized Direct Change Estimation in Ising Model Structure**
Farideh Fazayeli, Arindam Banerjee
- #71 Gaussian process nonparametric tensor estimator and its minimax optimality**
Heishiro Kanagawa, Taiji Suzuki, Hayato Kobayashi, Nobuyuki Shimizu, Yukihiko Tagami
- #72 Minimum Regret Search for Single- and Multi-Task Optimization**
Jan Hendrik Metzen
- #73 The Sum-Product Theorem: A Foundation for Learning Tractable Models**
Abram Friesen, Pedro Domingos
- #74 Train and Test Tightness of LP Relaxations in Structured Prediction**
Ofer Meshi, Mehrdad Mahdavi, Adrian Weller, David Sontag
- #75 Evasion and Hardening of Tree Ensemble Classifiers**
Alex Kantchelian, J. D. Tygar, Anthony Joseph
- #76 Importance Sampling Tree for Large-scale Empirical Expectation**
Olivier Canévet, Cijo Jose, François Fleuret
- #77 Stratified Sampling Meets Machine Learning**
Edo Liberty, Kevin Lang, Konstantin Shmakov
- #78 Scalable Discrete Sampling as a Multi-Armed Bandit Problem**
Yutian Chen, Zoubin Ghahramani
- #79 Pricing a low-regret seller**
Hoda Heidari, Mohammad Mahdian, Umar Syed, Sergei Vassilvitskii, Sadra Yazdanbod
- #80 Multi-Player Bandits -- a Musical Chairs Approach**
Jonathan Rosenski, Ohad Shamir, Liran Szlak
- #81 Contextual Combinatorial Cascading Bandits**
Shuai Li, Baoxiang Wang, Shengyu Zhang, Wei Chen
- #82 Copeland Dueling Bandit Problem: Regret Lower Bound, Optimal Algorithm, and Computationally Efficient Algorithm**
Junpei Komiyama, Junya Honda, Hiroshi Nakagawa
- #83 DCM Bandits: Learning to Rank with Multiple Clicks**
Sumeet Katariya, Branislav Kveton, Csaba Szepesvári, Zheng Wen
- #84 Distributed Clustering of Linear Bandits in Peer to Peer Networks**
Nathan Korda, Balázs Szörényi, Shuai Li

TUESDAY JUNE 21ST | AFTERNOON POSTER SESSIONS

LOCATION: MARRIOTT - ASTOR, DUFFY + TIMES SQUARE - 3 PM - 7 PM



- #1 **Neural Variational Inference for Text Processing**
Yishu Miao, Lei Yu, Phil Blunsom
- #2 **A Deep Learning Approach to Unsupervised Ensemble Learning**
Uri Shaham, Xiuyuan Cheng, Omer Dror, Ariel Jaffe, Boaz Nadler, Joseph Chang, Yuval Kluger
- #3 **From Softmax to Sparsemax: A Sparse Model of Attention and Multi-Label Classification**
André Martins, Ramon Astudillo
- #4 **A Neural Autoregressive Approach to Collaborative Filtering**
Yin Zheng, Bangsheng Tang, Wenkui Ding, Hanning Zhou
- #5 **Scalable Gradient-Based Tuning of Continuous Regularization Hyperparameters**
Jelena Luketina, Tapani Raiko, Mathias Berglund, Klaus Greff
- #6 **SDNA: Stochastic Dual Newton Ascent for Empirical Risk Minimization**
Zheng Qu, Peter Richtárik, Martin Takac, Olivier Fercoq
- #7 **Stochastic Block BFGS: Squeezing More Curvature out of Data**
Robert Gower, Donald Goldfarb, Peter Richtárik
- #8 **A Primal and Dual Sparse Approach to Extreme Classification**
Ian En-Hsu Yen, Xiangru Huang, Pradeep Ravikumar, Kai Zhong, Inderjit S. Dhillon
- #9 **Parallel and Distributed Block-Coordinate Frank-Wolfe Algorithms**
Yu-Xiang Wang, Veeranjaneyulu Sadhanala, Wei Dai, Willie Neiswanger, Suvrit Sra, Eric Xing
- #10 **Minding the Gaps for Block Frank-Wolfe Optimization of Structured SVM**
Anton Osokin, Jean-Baptiste Alayrac, Isabella Lukasewitz, Puneet Dokania, Simon Lacoste-Julien
- #11 **Asymmetric Multi-task Learning based on Task Relatedness and Confidence**
Giwoong Lee, Eunho Yang, Sung ju Hwang
- #12 **Training Deep Neural Networks via Direct Loss Minimization**
Yang Song, Alexander Schwing, Richard S. Zemel, Raquel Urtasun
- #13 **Structured Prediction Energy Networks**
David Belanger, Andrew McCallum
- #14 **Conditional Bernoulli Mixtures for Multi-label Classification**
Cheng Li, Bingyu Wang, Virgil Pavlu, Javed Aslam
- #15 **Training Neural Networks Without Gradients: A Scalable ADMM Approach**
Gavin Taylor, Ryan Burmeister, Zheng Xu, Bharat Singh, Ankit Patel, Tom Goldstein
- #16 **Stability of Controllers for Gaussian Process Forward Models**
Julia Vinogradska, Bastian Bischoff, Duy Nguyen-Tuong, Anne Romer, Henner Schmidt, Jan Peters
- #17 **A Distributed Variational Inference Framework for Unifying Parallel Sparse Gaussian Process Regression Models**
Trong Nghia Hoang, Quang Minh Hoang, Bryan Kian Hsiang Low
- #18 **Deep Gaussian Processes for Regression using Approximate Expectation Propagation**
Thang Bui, José Miguel Hernández-Lobato, Daniel Hernández-Lobato, Yingzhen Li, Richard Turner
- #19 **Preconditioning Kernel Matrices**
Kurt Cutajar, Michael Osborne, John Cunningham, Maurizio Filippone
- #20 **Extended and Unscented Kitchen Sinks**
Edwin Bonilla, Daniel Steinberg, Alistair Reid
- #21 **On the Consistency of Feature Selection With Lasso for Non-linear Targets**
Yue Zhang, Weihong Guo, Soumya Ray
- #22 **No penalty no tears: Least squares in high-dimensional linear models**
Xiangyu Wang, David Dunson, Chenlei Leng
- #23 **Simultaneous Safe Screening of Features and Samples in Doubly Sparse Modeling**
Atsushi Shibagaki, Masayuki Karasuyama, Kohei Hatano, Ichiro Takeuchi
- #24 **Efficient Learning with Nonconvex Regularizers by Nonconvexity Redistribution**
Quanming Yao, James Kwok
- #25 **How to Fake Multiply by a Gaussian Matrix**
Michael Kapralov, Vamsi Potluru, David Woodruff
- #26 **Metadata-conscious anonymous messaging**
Giulia Fanti, Peter Kairouz, Sewoong Oh, Kannan Ramchandran, Pramod Viswanath
- #27 **A Simple and Strongly-Local Flow-Based Method for Cut Improvement**
Nate Veldt, David Gleich, Michael Jordan
- #28 **Community Recovery in Graphs with Locality**
Yuxin Chen, Govinda Kamath, Changho Suh, David Tse
- #29 **Interactive Bayesian Hierarchical Clustering**
Sharad Vikram, Sanjoy Dasgupta
- #30 **Cross-graph Learning of Multi-relational Associations**
Hanxiao Liu, Yiming Yang
- #31 **Controlling the distance to a Kemeny consensus without computing it**
Anna Korba, Yunlong Jiao, Eric Sibony
- #32 **Data-driven Rank Breaking for Efficient Rank Aggregation**
Ashish Khetan, Sewoong Oh
- #33 **Parameter Estimation for Generalized Thurstone Choice Models**
Milan Vojnovic, Seyoung Yun
- #34 **Learning Mixtures of Plackett-Luce Models**
Zhibing Zhao, Peter Piech, Lirong Xia
- #35 **Recommendations as Treatments: Debiasing Learning and Evaluation**
Tobias Schnabel, Adith Swaminathan, Ashudeep Singh, Navin Chandak, Thorsten Joachims

- #36 Generative Adversarial Text to Image Synthesis**
Scott Reed, Zeynep Akata, Xinchun Yan, Lajanugen Logeswaran, Bernt Schiele, Honglak Lee
- #37 Autoencoding beyond pixels using a learned similarity metric**
Anders Boesen Lindbo Larsen, Søren Kaae Sønderby, Hugo Larochelle, Ole Winther
- #38 Exploiting Cyclic Symmetry in Convolutional Neural Networks**
Sander Dieleman, Jeffrey De Fauw, Koray Kavukcuoglu
- #39 A Comparative Analysis and Study of Multiview Convolutional Neural Network Models for Joint Object Categorization and Pose Estimation**
Mohamed Elhoseiny, Tarek El-Gaaly, Amr Bakry, Ahmed Elgammal
- #40 Dynamic Capacity Networks**
Amjad Almahairi, Nicolas Ballas, Tim Coijmans, Yin Zheng, Hugo Larochelle, Aaron Courville
- #41 Augmenting Neural Networks with Reconstructive Decoding Pathways for Large-scale Image Classification**
Yuting Zhang, Kibok Lee, Honglak Lee
- #42 On the Iteration Complexity of Oblivious First-Order Optimization Algorithms**
Yossi Arjevani, Ohad Shamir
- #43 Variance-Reduced and Projection-Free Stochastic Optimization**
Elad Hazan, Haipeng Luo
- #44 On Graduated Optimization for Stochastic Non-Convex Problems**
Elad Hazan, Kfir Yehuda Levy, Shai Shalev-Shwartz
- #45 A Self-Correcting Variable-Metric Algorithm for Stochastic Optimization**
Frank Curtis
- #46 A Superlinearly-Convergent Proximal Newton-type Method for the Optimization of Finite Sums**
Anton Rodomanov, Dmitry Kropotov
- #47 Stochastic Variance Reduced Optimization for Nonconvex Sparse Learning**
Xingguo Li, Tuo Zhao, Raman Arora, Han Liu, Jarvis Haupt
- #48 Hierarchical Decision Making In Electricity Grid Management**
Gal Dalal, Elad Gilboa, Shie Mannor
- #49 ForecastICU: A Prognostic Decision Support System for Timely Prediction of Intensive Care Unit Admission**
Jinsung Yoon, Ahmed Alaa, Scott Hu, Mihaela van der Schaar
- #50 Power of Ordered Hypothesis Testing**
Lihua Lei, William Fithian
- #51 Learning to Filter with Predictive State Inference Machines**
Wen Sun, Arun Venkatraman, Byron Boots, J. Andrew Bagnell
- #52 Learning population-level diffusions with generative RNNs**
Tatsunori Hashimoto, David Gifford, Tommi Jaakkola
- #53 Fast Parameter Inference in Nonlinear Dynamical Systems using Iterative Gradient Matching**
Mu Niu, Simon Rogers, Maurizio Filippone, Dirk Husmeier
- #54 Greedy Column Subset Selection: New Bounds and Distributed Algorithms**
Jason Altschuler, Aditya Bhaskara, Gang Fu, Vahab Mirrokni, Afshin Rostamizadeh, Morteza Zadimoghaddam
- #55 Efficient Private Empirical Risk Minimization for High-dimensional Learning**
Shiva Prasad Kasiviswanathan, Hongxia Jin
- #56 Binary embeddings with structured hashed projections**
Anna Choromanska, Krzysztof Choromanski, Mariusz Bojarski, Tony Jebara, Sanjiv Kumar, Yann LeCun
- #57 Differentially Private Policy Evaluation**
Borja Balle, Maziar Gomrokchi, Doina Precup
- #58 Learning from Multiway Data: Simple and Efficient Tensor Regression**
Rose Yu, Yan Liu
- #59 Low-Rank Matrix Approximation with Stability**
Dongsheng Li, Chao Chen, Qin Lv, Junchi Yan, Li Shang, Stephen Chu
- #60 Interacting Particle Markov Chain Monte Carlo**
Tom Rainforth, Christian Naeseth, Fredrik Lindsten, Brooks Paige, Jan-Willem Vandemeent, Arnaud Doucet, Frank Wood
- #61 Slice Sampling on Hamiltonian Trajectories**
Benjamin Bloem-Reddy, John Cunningham
- #62 Robust Monte Carlo Sampling using Riemannian Nos'e-Poincar'e Hamiltonian Dynamics**
Anirban Roychowdhury, Brian Kulis, Srinivasan Parthasarathy
- #63 Inference Networks for Sequential Monte Carlo in Graphical Models**
Brooks Paige, Frank Wood
- #64 Partition Functions from Rao-Blackwellized Tempered Sampling**
David Carlson, Patrick Stinson, Ari Pakman, Liam Paninski
- #65 Stochastic Quasi-Newton Langevin Monte Carlo**
Umut Simsekli, Roland Badeau, Taylan Cemgil, Gaël Richard
- #66 No Oops, You Won't Do It Again: Mechanisms for Self-correction in Crowdsourcing**
Nihar Shah, Dengyong Zhou
- #67 The Label Complexity of Mixed-Initiative Classifier Training**
Jina Suh, Xiaojin Zhu, Saleema Amershi
- #68 The Knowledge Gradient for Sequential Decision Making with Stochastic Binary Feedbacks**
Yingfei Wang, Chu Wang, Warren Powell
- #69 Estimating Accuracy from Unlabeled Data: A Bayesian Approach**
Emmanouil Antonios Platanios, Avinava Dubey, Tom Mitchell
- #70 Actively Learning Hemimetrics with Applications to Eliciting User Preferences**
Adish Singla, Sebastian Tschiatschek, Andreas Krause
- #71 Optimality of Belief Propagation for Crowdsourced Classification**
Jungseul Ok, Sewoong Oh, Jinwoo Shin, Yung Yi
- #72 Improved SVRG for Non-Strongly-Convex or Sum-of-Non-Convex Objectives**
Zeyuan Allen-Zhu, Yang Yuan
- #73 Variance Reduction for Faster Non-Convex Optimization**
Zeyuan Allen-Zhu, Elad Hazan
- #74 Even Faster Accelerated Coordinate Descent Using Non-Uniform Sampling**
Zeyuan Allen-Zhu, Zheng Qu, Peter Richtárik, Yang Yuan
- #75 False Discovery Rate Control and Statistical Quality Assessment of Annotators in Crowdsourced Ranking**
Qianqian Xu, Jiechao Xiong, Xiaochun Cao, Yuan Yao
- #76 On the Power of Distance-Based Learning**
Periklis Papakonstantinou, Jia Xu, Guang Yang
- #77 Minimizing the Maximal Loss: How and Why**
Shai Shalev-Shwartz, Yonatan Wexler

Wednesday

JUNE 22ND | SESSIONS



TIME	DESCRIPTION	MARRIOT HOTEL
8:30 am - 9:55 am	Neural Networks & Deep Learning Optimization (Continuous) Multi-label, Multi-task, & Neural Networks Gaussian Processes Feature Selection & Dimensionality Reduction Graph Analysis/ Spectral Methods Ranking and Preference Learning	Westside Ballroom 1&2 Westside Ballroom 3&4 Marquis Lyceum Empire Soho Liberty
9:55 am - 10:20 am	Break	
10 am - 1 pm	Poster Sessions	Astor, Duffy, & Times Square
10:20 am - 12:20 am break from 11:10 - 11:30 am	Neural Networks & Deep Learning Optimization (Continuous) Applications and Time-Series Analysis Dimensionality Reduction / Private Learning Monte Carlo Methods Crowdsourcing and Interactive Learning Learning Theory	Westside Ballroom 1&2 Westside Ballroom 3&4 Marquis Lyceum Empire Soho Liberty
12:20 pm - 2 pm	Lunch (On Your Own)	
2 pm - 3 pm	Invited Talk: Christos Faloutsos	Ballroom 1&2
3 pm - 3:40 pm	Break	
3:40 pm - 5:20 pm	Optimization (Continuous) Supervised Learning Kernel Methods Matrix Factorization and Related Topics Privacy, Anonymity, and Security Causal Inference Optimization	Westside Ballroom 1&2 Westside Ballroom 3&4 Marquis Lyceum Empire Soho Liberty



SESSIONS - 8:30 AM - 9:55 PM - MARRIOTT

Neural Networks and Deep Learning

Location: Westside Ballroom 1 & 2 + Juliard

- **Neural Variational Inference for Text Processing**
Yishu Miao, Lei Yu, Phil Blunsom
- **A Deep Learning Approach to Unsupervised Ensemble Learning**
Uri Shaham, Xiuyuan Cheng, Omer Dror, Ariel Jaffe, Boaz Nadler, Joseph Chang, Yuval Kluger
- **From Softmax to Sparsemax: A Sparse Model of Attention and Multi-Label Classification**
André Martins, Ramon Astudillo
- **A Neural Autoregressive Approach to Collaborative Filtering**
Yin Zheng, Bangsheng Tang, Wenkui Ding, Hanning Zhou
- **Scalable Gradient-Based Tuning of Continuous Regularization Hyperparameters**
Jelena Luketina, Tapani Raiko, Mathias Berglund, Klaus Greff

Optimization (Continuous)

Location: Westside Ballroom 3 & 4

- **SDNA: Stochastic Dual Newton Ascent for Empirical Risk Minimization**
Zheng Qu, Peter Richtárik, Martin Takac, Olivier Fercoq
- **Stochastic Block BFGS: Squeezing More Curvature out of Data**
Robert Gower, Donald Goldfarb, Peter Richtárik
- **A Primal and Dual Sparse Approach to Extreme Classification**
Ian En-Hsu Yen, Xiangru Huang, Pradeep Ravikumar, Kai Zhong, Inderjit S. Dhillon
- **Parallel and Distributed Block-Coordinate Frank-Wolfe Algorithms**
Yu-Xiang Wang, Veeranjaneyulu Sadhanala, Wei Dai, Willie Neiswanger, Suvrit Sra, Eric Xing
- **Minding the Gaps for Block Frank-Wolfe Optimization of Structured SVM**
Anton Osokin, Jean-Baptiste Alayrac, Isabella Lukasewitz, Puneet Dokania, Simon Lacoste-Julien

Multi-label, multi-task, and neural networks

Location: Marquis

- **Asymmetric Multi-task Learning based on Task Relatedness and Confidence**
Giwoong Lee, Eunho Yang, Sung ju Hwang
- **Training Deep Neural Networks via Direct Loss Minimization**
Yang Song, Alexander Schwing, Richard S. Zemel, Raquel Urtasun
- **Structured Prediction Energy Networks**
David Belanger, Andrew McCallum
- **Conditional Bernoulli Mixtures for Multi-label Classification**
Cheng Li, Bingyu Wang, Virgil Pavlu, Javed Aslam
- **Training Neural Networks Without Gradients: A Scalable ADMM Approach**
Gavin Taylor, Ryan Burmeister, Zheng Xu, Bharat Singh, Ankit Patel, Tom Goldstein

Gaussian Processes

Location: Lyceum

- **Stability of Controllers for Gaussian Process Forward Models**
Julia Vinogradska, Bastian Bischoff, Duy Nguyen-Tuong, Anne Romer, Henner Schmidt, Jan Peters
- **A Distributed Variational Inference Framework for Unifying Parallel Sparse Gaussian Process Regression Models**
Trong Nghia Hoang, Quang Minh Hoang, Bryan Kian Hsiang Low
- **Deep Gaussian Processes for Regression using Approximate Expectation Propagation**
Thang Bui, José Miguel Hernández-Lobato, Daniel Hernández-Lobato, Yingzhen Li, Richard Turner
- **Preconditioning Kernel Matrices**
Kurt Cutajar, Michael Osborne, John Cunningham, Maurizio Filippone
- **Extended and Unscented Kitchen Sinks**
Edwin Bonilla, Daniel Steinberg, Alistair Reid



SESSIONS - 8:30 AM - 9:55 PM - MARRIOTT

Feature Selection and Dimensionality Reduction

Location: Empire

- **On the Consistency of Feature Selection With Lasso for Non-linear Targets**
Yue Zhang, Weihong Guo, Soumya Ray
- **No penalty no tears: Least squares in high-dimensional linear models**
Xiangyu Wang, David Dunson, Chenlei Leng
- **Simultaneous Safe Screening of Features and Samples in Doubly Sparse Modeling**
Atsushi Shibagaki, Masayuki Karasuyama, Kohei Hatano, Ichiro Takeuchi
- **Efficient Learning with Nonconvex Regularizers by Nonconvexity Redistribution**
Quanming Yao, James Kwok
- **How to Fake Multiply by a Gaussian Matrix**
Michael Kapralov, Vamsi Potluru, David Woodruff

Graph Analysis/ Spectral Methods

Location: Soho

- **Metadata-conscious anonymous messaging**
Giulia Fanti, Peter Kairouz, Sewoong Oh, Kannan Ramchandran, Pramod Viswanath
- **A Simple and Strongly-Local Flow-Based Method for Cut Improvement**
Nate Veldt, David Gleich, Michael Jordan
- **Community Recovery in Graphs with Locality**
Yuxin Chen, Govinda Kamath, Changho Suh, David Tse
- **Interactive Bayesian Hierarchical Clustering**
Sharad Vikram, Sanjoy Dasgupta
- **Cross-graph Learning of Multi-relational Associations**
Hanxiao Liu, Yiming Yang

Ranking and Preference Learning

Location: Liberty

- **Controlling the distance to a Kemeny consensus without computing it**
Anna Korba, Yunlong Jiao, Eric Sibony
- **Data-driven Rank Breaking for Efficient Rank Aggregation**
Ashish Khetan, Sewoong Oh
- **Parameter Estimation for Generalized Thurstone Choice Models**
Milan Vojnovic, Seyoung Yun
- **Learning Mixtures of Plackett-Luce Models**
Zhibing Zhao, Peter Piech, Lirong Xia
- **Recommendations as Treatments: Debiasing Learning and Evaluation**
Tobias Schnabel, Adith Swaminathan, Ashudeep Singh, Navin Chandak, Thorsten Joachims



SESSIONS - 10:20 AM - 12:20 PM - MARRIOTT

Neural Networks and Deep Learning

Location: Westside Ballroom 1 & 2 + Juliard

- **Generative Adversarial Text to Image Synthesis**
Scott Reed, Zeynep Akata, Xinchun Yan, Lajanugen Logeswaran, Bernt Schiele, Honglak Lee
- **Autoencoding beyond pixels using a learned similarity metric**
Anders Boesen Lindbo Larsen, Søren Kaae Sønderby, Hugo Larochelle, Ole Winther
- **Exploiting Cyclic Symmetry in Convolutional Neural Networks**
Sander Dieleman, Jeffrey De Fauw, Koray Kavukcuoglu
- **A Comparative Analysis and Study of Multiview Convolutional Neural Network Models for Joint Object Categorization and Pose Estimation**
Mohamed Elhoseiny, Tarek El-Gaaly, Amr Bakry, Ahmed Elgammal
- **Dynamic Capacity Networks**
Amjad Almahairi, Nicolas Ballas, Tim Cooijmans, Yin Zheng, Hugo Larochelle, Aaron Courville
- **Augmenting Neural Networks with Reconstructive Decoding Pathways for Large-scale Image Classification**
Yuting Zhang, Kibok Lee, Honglak Lee

Optimization (Continuous)

Location: Westside Ballroom 3 & 4

- **On the Iteration Complexity of Oblivious First-Order Optimization Algorithms**
Yossi Arjevani, Ohad Shamir
- **Variance-Reduced and Projection-Free Stochastic Optimization**
Elad Hazan, Haipeng Luo
- **On Graduated Optimization for Stochastic Non-Convex Problems**
Elad Hazan, Kfir Yehuda Levy, Shai Shalev-Shwartz
- **A Self-Correcting Variable-Metric Algorithm for Stochastic Optimization**
Frank Curtis
- **A Superlinearly-Convergent Proximal Newton-type Method for the Optimization of Finite Sums**
Anton Rodomanov, Dmitry Kropotov
- **Stochastic Variance Reduced Optimization for Nonconvex Sparse Learning**
Xingguo Li, Tuo Zhao, Raman Arora, Han Liu, Jarvis Haupt

Applications and Time-Series Analysis

Location: Marquis

- **Hierarchical Decision Making In Electricity Grid Management**
Gal Dalal, Elad Gilboa, Shie Mannor
- **ForecastICU: A Prognostic Decision Support System for Timely Prediction of Intensive Care Unit Admission**
Jinsung Yoon, Ahmed Alaa, Scott Hu, Mihaela van der Schaar
- **Power of Ordered Hypothesis Testing**
Lihua Lei, William Fithian
- **Learning to Filter with Predictive State Inference Machines**
Wen Sun, Arun Venkatraman, Byron Boots, J.Andrew Bagnell
- **Learning population-level diffusions with generative RNNs**
Tatsunori Hashimoto, David Gifford, Tommi Jaakkola
- **Fast Parameter Inference in Nonlinear Dynamical Systems using Iterative Gradient Matching**
Mu Niu, Simon Rogers, Maurizio Filippone, Dirk Husmeier

Dimensionality Reduction / Private Learning

Location: Lyceum

- **Greedy Column Subset Selection: New Bounds and Distributed Algorithms**
Jason Altschuler, Aditya Bhaskara, Gang Fu, Vahab Mirrokni, Afshin Rostamizadeh, Morteza Zadimoghaddam
- **Efficient Private Empirical Risk Minimization for High-dimensional Learning**
Shiva Prasad Kasiviswanathan, Hongxia Jin
- **Binary embeddings with structured hashed projections**
Anna Choromanska, Krzysztof Choromanski, Mariusz Bojarski, Tony Jebara, Sanjiv Kumar, Yann LeCun
- **Differentially Private Policy Evaluation**
Borja Balle, Maziar Gomrokchi, Doina Precup
- **Learning from Multiway Data: Simple and Efficient Tensor Regression**
Rose Yu, Yan Liu
- **Low-Rank Matrix Approximation with Stability**
Dongsheng Li, Chao Chen, Qin Lv, Junchi Yan, Li Shang, Stephen Chu



SESSIONS - 10:20 AM - 12:20 PM - MARRIOTT

Monte Carlo Methods

Location: Empire

- **Interacting Particle Markov Chain Monte Carlo**
Tom Rainforth, Christian Naesseth, Fredrik Lindsten, Brooks Paige, Jan-Willem Vandemeent, Arnaud Doucet, Frank Wood
- **Slice Sampling on Hamiltonian Trajectories**
Benjamin Bloem-Reddy, John Cunningham
- **Robust Monte Carlo Sampling using Riemannian Nosé-Poincaré Hamiltonian Dynamics**
Anirban Roychowdhury, Brian Kulis, Srinivasan Parthasarathy
- **Inference Networks for Sequential Monte Carlo in Graphical Models**
Brooks Paige, Frank Wood
- **Partition Functions from Rao-Blackwellized Tempered Sampling**
David Carlson, Patrick Stinson, Ari Pakman, Liam Paninski
- **Stochastic Quasi-Newton Langevin Monte Carlo**
Umut Simsekli, Roland Badeau, Taylan Cemgil, Gaël Richard

Learning Theory

Location: Liberty

- **Improved SVRG for Non-Strongly-Convex or Sum-of-Non-Convex Objectives**
Zeyuan Allen-Zhu, Yang Yuan
- **Variance Reduction for Faster Non-Convex Optimization**
Zeyuan Allen-Zhu, Elad Hazan
- **Even Faster Accelerated Coordinate Descent Using Non-Uniform Sampling**
Zeyuan Allen-Zhu, Zheng Qu, Peter Richtárik, Yang Yuan
- **False Discovery Rate Control and Statistical Quality Assessment of Annotators in Crowdsourced Ranking**
QianQian Xu, Jiechao Xiong, Xiaochun Cao, Yuan Yao
- **On the Power of Distance-Based Learning**
Periklis Papakonstantinou, Jia Xu, Guang Yang
- **Minimizing the Maximal Loss: How and Why**
Shai Shalev-Shwartz, Yonatan Wexler

Crowdsourcing and Interactive Learning

Location: Soho

- **No Oops, You Won't Do It Again: Mechanisms for Self-correction in Crowdsourcing**
JNihar Shah, Dengyong Zhou
- **The Label Complexity of Mixed-Initiative Classifier Training**
Jina Suh, Xiaojin Zhu, Saleema Amershi
- **The Knowledge Gradient for Sequential Decision Making with Stochastic Binary Feedbacks**
Yingfei Wang, Chu Wang, Warren Powell
- **Estimating Accuracy from Unlabeled Data: A Bayesian Approach**
Emmanouil Antonios Platanios, Avinava Dubey, Tom Mitchell
- **Actively Learning Hemimetrics with Applications to Eliciting User Preferences**
Adish Singla, Sebastian Tschatschek, Andreas Krause
- **Optimality of Belief Propagation for Crowdsourced Classification**
Jungseul Ok, Sewoong Oh, Jinwoo Shin, Yung Yi



SESSIONS - 3:40 PM - 4:30 PM - MARRIOTT

Optimization (Continuous)

Location: Westside Ballroom 1 & 2 + Juliard

- **Energetic Natural Gradient Descent**
Philip Thomas; Bruno Castro da Silva; Christoph Dann; Emma Brunskill
- **On the Quality of the Initial Basin in Overspecified Neural Networks**
Itay Safran; Ohad Shamir
- **L1-regularized Neural Networks are Improperly Learnable in Polynomial Time**
Yuchen Zhang; Jason D. Lee; Michael Jordan

Supervised Learning

Location: Westside Ballroom 3 & 4

- **Sparse Nonlinear Regression: Parameter Estimation and Asymptotic Inference**
Zhuoran Yang; Zhaoran Wang; Han Liu; Yonina Eldar; Tong Zhang
- **Polynomial Networks and Factorization Machines: New Insights and Efficient Training Algorithms**
Mathieu Blondel; Masakazu Ishihata; Akinori Fujino; Naonori Ueda
- **Hyperparameter optimization with approximate gradient**
Fabian Pedregosa

Kernel Methods

Location: Marquis

- **DR-ABC: Approximate Bayesian Computation with Kernel-Based Distribution Regression**
Jovana Mitrovic; Dino Sejdinovic; Yee-Whye Teh
- **Persistence weighted Gaussian kernel for topological data analysis**
Genki Kusano; Yasuaki Hiraoka; Kenji Fukumizu
- **Discriminative Embeddings of Latent Variable Models for Structured Data**
Hanjun Dai; Bo Dai; Le Song

Matrix Factorization and Related Topics

Location: Lyceum

- **Recycling Randomness with Structure for Sublinear time Kernel Expansions**
Krzysztof Choromanski; Vikas Sindhwani
- **Optimal Classification with Multivariate Losses**
Nagarajan Natarajan; Oluwasanmi Koyejo; Pradeep Ravikumar; Inderjit S. Dhillon
- **Sparse Parameter Recovery from Aggregated Data**
Avrudeep Bhowmik; Joydeep Ghosh; Oluwasanmi Koyejo

Privacy, Anonymity, and Security

Location: Empire

- **Learning privately from multiparty data**
Jihun Hamm; Yingjun Cao; Mikhail Belkin
- **Differentially Private Chi-Squared Hypothesis Testing: Goodness of Fit and Independence Testing**
Ryan Rogers; Salil Vadhan; Hyun Lim; Marco Gaboardi
- **Discrete Distribution Estimation under Local Privacy**
Peter Kairouz; Keith Bonawitz; Daniel Ramage

Causal Inference

Location: Soho

- **The Arrow of Time in Multivariate Time Series**
Stefan Bauer; Bernhard Schölkopf; Jonas Peters
- **Causal Strength via Shannon Capacity: Axioms, Estimators and Applications**
Weihao Gao; Sreeram Kannan; Sewoong Oh; Pramod Viswanath
- **Learning Granger Causality for Hawkes Processes**
Hongteng Xu; Mehrdad Farajtabar; Hongyuan Zha

Optimization

Location: Liberty

- **Gossip Dual Averaging for Decentralized Optimization of Pairwise Functions**
Igor Colin; Aurélien Bellet; Joseph Salmon; Stéphan Cléménçon
- **Adaptive Sampling for SGD by Exploiting Side Information**
Siddharth Gopal
- **Mixture Proportion Estimation via Kernel Embeddings of Distributions**
Harish Ramaswamy; Clayton Scott; Ambuj Tewari



- #1 **Factored Temporal Sigmoid Belief Networks for Sequence Learning**
Jiaming Song, Zhe Gan, Lawrence Carin
- #2 **Bidirectional Helmholtz Machines**
Jörg Bornschein, Samira Shabani, Asja Fischer, Yoshua Bengio
- #3 **The Deep Neural Matrix Gaussian Process**
Christos Louizos, Max Welling
- #4 **Dropout distillation**
Samuel Rota Bulò, Lorenzo Porzi, Peter Kotschieder
- #5 **Revisiting Semi-Supervised Learning with Graph Embeddings**
Zhilin Yang, William Cohen, Ruslan Salakhudinov
- #6 **ADIOS: Architectures Deep In Output Space**
Moustapha Cissé, Maruan Al-Shedivat, Samy Bengio
- #7 **Unsupervised Deep Embedding for Clustering Analysis**
Junyuan Xie, Ross Girshick, Ali Farhadi
- #8 **Learning Convolutional Neural Networks for Graphs**
Mathias Niepert, Mohamed Ahmed, Konstantin Kutzkov
- #9 **Inverse Optimal Control with Deep Networks via Policy Optimization**
Chelsea Finn, Sergey Levine, Pieter Abbeel
- #10 **Smooth Imitation Learning**
Hoang Le, Andrew Kang, Yisong Yue, Peter Carr
- #11 **Improving the Efficiency of Deep Reinforcement Learning with Normalized Advantage Functions and Synthetic Experience**
Shixiang Gu, Timothy Lillicrap, Ilya Sutskever, Sergey Levine
- #12 **Asynchronous Methods for Deep Reinforcement Learning**
Volodymyr Mnih, Adrià Puigdomènech Badia, Mehdi Mirza, Alex Graves, Timothy Lillicrap, Tim Harley, David Silver, Koray Kavukcuoglu
- #13 **On the Statistical Limits of Convex Relaxations**
Zhaoran Wang, Quanquan Gu, Han Liu
- #14 **Faster Convex Optimization: Simulated Annealing with an Efficient Universal Barrier**
Jacob Abernethy, Elad Hazan
- #15 **A ranking approach to global optimization**
Cédric Malherbe, Emile Contal, Nicolas Vayatis
- #16 **Epigraph projections for fast general convex programming**
Po-Wei Wang, Matt Wytock, J. Zico Kolter
- #17 **Principal Component Projection Without Principal Component Analysis**
Roy Frostig, Cameron Musco, Christopher Musco, Aaron Sidford
- #18 **Recovery guarantee of weighted low-rank approximation via alternating minimization**
Yuanzhi Li, Yingyu Liang, Andrej Risteski
- #19 **Tensor Decomposition via Joint Matrix Schur Decomposition**
Nicolò Colombo, Nikos Vlassis
- #20 **Fast Methods for Estimating the Numerical Rank of Large Matrices**
Shashanka Ubaru, Yousef Saad
- #21 **Markov-modulated marked Poisson processes for check-in data**
Jiangwei Pan, Vinayak Rao, Pankaj Agarwal, Alan Gelfand
- #22 **Hierarchical Compound Poisson Factorization**
Mehmet Basbug, Barbara Engelhardt
- #23 **Dirichlet Process Mixture Model for Correcting Technical Variation in Single-Cell Gene Expression Data**
Sandhya Prabhakaran, Elham Azizi, Ambrose Carr, Dana Pe'er
- #24 **The Automatic Statistician: A Relational Perspective**
Yunseong Hwang, Anh Tong, Jaesik Choi
- #25 **Truthful Univariate Estimators**
Ioannis Caragiannis, Ariel Procaccia, Nisarg Shah
- #26 **Fast Algorithms for Segmented Regression**
Jayadev Acharya, Ilias Diakonikolas, Jerry Li, Ludwig Schmidt
- #27 **Stochastically Transitive Models for Pairwise Comparisons: Statistical and Computational Issues**
Nihar Shah, Sivaraman Balakrishnan, Aditya Guntuboyina, Martin Wainwright
- #28 **Provable Algorithms for Inference in Topic Models**
Sanjeev Arora, Rong Ge, Frederic Koehler, Tengyu Ma, Ankur Moitra
- #29 **Expressiveness of Rectifier Neural Network**
Xingyuan Pan, Vivek Srikumar
- #30 **Convolutional Rectifier Networks as Generalized Tensor Decompositions**
Nadav Cohen, Amnon Shashua
- #31 **Fixed Point Quantization of Deep Convolutional Networks**
Darryl Lin, Sachin Talathi, Sreekanth Annapureddy
- #32 **CryptoNets: Applying Neural Networks to Encrypted Data with High Throughput and Accuracy**
Ran Gilad-Bachrach, Nathan Dowlin, Kim Laine, Kristin Lauter, Michael Naehrig, John Wernsing
- #33 **Correcting Forecasts with Multi-force Neural Attention**
Matthew Riemer, Aditya Vempaty, Flavio Calmon, Fenno Heath, Richard Hull, Elham Khabiri
- #34 **Meta-Learning with Memory-Augmented Neural Networks**
Adam Santoro, Sergey Bartunov, Matthew Botvinick, Daan Wierstra, Timothy Lillicrap
- #35 **Learning Simple Algorithms from Examples**
Wojciech Zaremba, Tomas Mikolov, Armand Joulin, Rob Fergus
- #36 **Associative Long Short-Term Memory**
Ivo Danihelka, Greg Wayne, Benigno Uribe, Nal Kalchbrenner, Alex Graves
- #37 **Estimating Maximum Expected Value through Gaussian Approximation**
Carlo D'Eramo, Marcello Restelli, Alessandro Nuara
- #38 **Data-Efficient Off-Policy Policy Evaluation for Reinforcement Learning**
Philip Thomas, Emma Brunskill
- #39 **Cumulative Prospect Theory Meets Reinforcement Learning: Prediction and Control**
Prashanth L.A., Cheng Jie, Michael Fu, Steve Marcus, Csaba Szepesvári

- #40 Softened Approximate Policy Iteration for Markov Games**
Julien Pérolat, Bilal Piot, Matthieu Geist, Bruno Scherrer, Olivier Pietquin
- #41 Low-rank Solutions of Linear Matrix Equations via Procrustes Flow**
Stephen Tu, Ross Boczar, Max Simchowitz, mahdi Soltanolkotabi, Ben Recht
- #42 Quadratic Optimization with Orthogonality Constraints: Explicit Lojasiewicz Exponent and Linear Convergence of Line-Search Methods**
Huikang Liu, Weijie Wu, Anthony Man-Cho So
- #43 Efficient Algorithms for Large-scale Generalized Eigenvector Computation and CCA**
Rong Ge, Chi Jin, Sham M. Kakade, Praneeth Netrapalli, Aaron Sidford
- #44 Matrix Eigendecomposition via Doubly Stochastic Riemannian Optimization**
Zhiqiang Xu, Peilin Zhao, Jianneng Cao, Xiaoli Li
- #45 Extreme F-measure Maximization using Sparse Probability Estimates**
Kalina Jasinska, Krzysztof Dembczynski, Robert Busa-Fekete, Karlson Pfannschmidt, Timo Klerx, Eyke Hullermeier
- #46 Stochastic Optimization for Multiview Learning using Partial Least Squares**
Raman Arora, Poorya Mianjy, Teodor Marinov
- #47 Gaussian quadrature for matrix inverse forms with applications**
Chengtao Li, Suvrit Sra, Stefanie Jegelka
- #48 A Subspace Learning Approach for High Dimensional Matrix Decomposition with Efficient Column/Row Sampling**
Mostafa Rahmani, Geroge Atia
- #49 Uprooting and Rerooting Graphical Models**
Adrian Weller
- #50 Structure Learning of Partitioned Markov Networks**
Song Liu, Taiji Suzuki, Masashi Sugiyama, Kenji Fukumizu
- #51 Ensuring Rapid Mixing and Low Bias for Asynchronous Gibbs Sampling**
Christopher De Sa, Chris Re, Kunle Olukotun
- #52 Estimation from Indirect Supervision with Linear Moments**
Aditi Raghunathan, Roy Frostig, John Duchi, Percy Liang
- #53 Early and Reliable Event Detection Using Proximity Space Representation**
Maxime Sangnier, Jérôme Gauthier, Alain Rakotomamonjy
- #54 Meta--Gradient Boosted Decision Tree Model for Weight and Target Learning**
Yury Ustinovskiy, Valentina Fedorova, Gleb Gusev, Pavel Serdyukov
- #55 Class Probability Estimation via Differential Geometric Regularization**
Qinxun Bai, Steven Rosenberg, Zheng Wu, Stan Sclaroff
- #56 Linking losses for density ratio and class-probability estimation**
Aditya Menon, Cheng Soon Ong
- #57 Energetic Natural Gradient Descent**
Philip Thomas, Bruno Castro da Silva, Christoph Dann, Emma Brunskill
- #58 On the Quality of the Initial Basin in Overspecified Neural Networks**
Itay Safran, Ohad Shamir
- #59 L1-regularized Neural Networks are Improperly Learnable in Polynomial Time**
Yuchen Zhang, Jason D. Lee, Michael Jordan
- #60 Sparse Nonlinear Regression: Parameter Estimation and Asymptotic Inference**
Zhuoran Yang, Zhaoran Wang, Han Liu, Yonina Eldar, Tong Zhang
- #61 Polynomial Networks and Factorization Machines: New Insights and Efficient Training Algorithms**
Mathieu Blondel, Masakazu Ishihata, Akinori Fujino, Naonori Ueda
- #62 Hyperparameter optimization with approximate gradient**
Fabian Pedregosa
- #63 DR-ABC: Approximate Bayesian Computation with Kernel-Based Distribution Regression**
Jovana Mitrovic, Dino Sejdinovic, Yee-Whye Teh
- #64 Persistence weighted Gaussian kernel for topological data analysis**
Genki Kusano, Yasuaki Hiraoka, Kenji Fukumizu
- #65 Discriminative Embeddings of Latent Variable Models for Structured Data**
Hanjun Dai, Bo Dai, Le Song
- #66 Recycling Randomness with Structure for Sublinear time Kernel Expansions**
Krzysztof Choromanski, Vikas Sindhwani
- #67 Optimal Classification with Multivariate Losses**
Nagarajan Natarajan, Oluwasanmi Koyejo, Pradeep Ravikumar, Inderjit S. Dhillon
- 68 Sparse Parameter Recovery from Aggregated Data**
Avradeep Bhowmik, Joydeep Ghosh, Oluwasanmi Koyejo
- #69 Learning privately from multiparty data**
Jihun Hamm, Yingjun Cao, Mikhail Belkin
- #70 Differentially Private Chi-Squared Hypothesis Testing: Goodness of Fit and Independence Testing**
Ryan Rogers, Salil Vadhan, Hyun Lim, Marco Gaboardi
- #71 Discrete Distribution Estimation under Local Privacy**
Peter Kairouz, Keith Bonawitz, Daniel Ramage
- #72 The Arrow of Time in Multivariate Time Series**
Stefan Bauer, Bernhard Schölkopf, Jonas Peters
- #73 Causal Strength via Shannon Capacity: Axioms, Estimators and Applications**
Weihao Gao, Sreeram Kannan, Sewoong Oh, Pramod Viswanath
- #74 Learning Granger Causality for Hawkes Processes**
Hongteng Xu, Mehrdad Farajtabar, Hongyuan Zha
- #75 Gossip Dual Averaging for Decentralized Optimization of Pairwise Functions**
Igor Colin, Aurélien Bellet, Joseph Salmon, Stéphan Cléménçon
- #76 Adaptive Sampling for SGD by Exploiting Side Information**
Siddharth Gopal
- #77 Mixture Proportion Estimation via Kernel Embeddings of Distributions**
Harish Ramaswamy, Clayton Scott, Ambuj Tewari renner, Alex Graves

Thursday

JUNE 23RD | WORKSHOPS



THURSDAY WORKSHOPS 8:00 AM - 4:30 PM

Gimli: Geometry in Machine Learning

Location: Crowne Plaza - Times Square

Søren Hauberg (Technical University of Denmark)
Oren Freifeld (MIT)
Michael Schober (Max Plack Institute)

Many machine learning (ML) problems are fundamentally geometric in nature, e.g. finding optimal subspaces can be recast as finding point estimates on the Grassmannian; multi-metric learning can be recast as the learning of a Riemannian tensor; and covariance estimation entails optimization over a nonlinear cone. In spite of this, most practitioners neglect the geometry, only to find suboptimal models. Furthermore, many difficult problems that involve both geometry and statistical learning are usually ignored by the ML community. This workshop will raise these discussion points through a series of invited talks from experts on both geometry and machine learning.

<https://sites.google.com/site/gimliworkshop>

Machine Learning for Digital Education and Assessment Systems

Location: Marriott - Times Square

Alina A. von Davier (Educational Testing Service)
Mihaela van der Schaar (UCLA)
Richard Baraniuk (Rice University)

The focus of this workshop is on multidisciplinary research in the area of machine learning to enable new forms of digital education and assessment tools.

Recent developments indicate that the society is interested in redesigning learning and assessment systems (LAS) and not merely improving the systems we have. There is a renewed interest in performance assessments that are individualized and adaptive, which are developed in virtual settings. However, virtual LASs come with a number of psychometric and operational challenges. Advances in ML provide opportunities to address these challenges.

This workshop provides a platform for the sharing of knowledge and ideas across disciplines including ML, computational psychometrics, adaptive learning and testing, and natural language processing.

<http://medianetlab.ee.ucla.edu/ICML-Education2016.html>



Human Interpretability in Machine Learning

Location: Microsoft, Central Park (6th floor)
Entrance is between 42nd and 41st on 8th Avenue

Been Kim (Allen Institute for Artificial Intelligence)
Dmitry Malioutov (IBM T. J. Watson Research Center)
Kush Varshney (IBM T. J. Watson Research Center)

The goal of this workshop is to bring together researchers who study interpretable machine learning. This is a very exciting time to study interpretable machine learning, as the advances in large scale optimization and Bayesian inference that have enabled the rise of blackbox machine learning (e.g., deep learning) are now also starting to be exploited to develop principled approaches to large scale interpretable machine learning. Participants in the workshop will exchange ideas on these and allied topics, including, but not limited to, developing interpretability of predictive models, interpretable machine learning algorithms, methodology to interpret blackbox machine learning models (e.g., post hoc interpretations), and visual analytics.

<https://sites.google.com/site/2016whi>

Multi-View Representation Learning

Location: Marriott: Carnegie-Booth

Xiaodong He (Microsoft Research)
Karen Livescu (TTI-Chicago)
Weiran Wang (TTI-Chicago)
Scott Wen-tau Yih (Microsoft Research)

The workshop will bring together researchers and practitioners in this area, and discuss both theoretical and practical aspects of representation/feature learning in the presence of multi-view data.

http://ttic.uchicago.edu/~wwang5/ICML2016_MVRL/

Theory and Practice of Differential Privacy (TPDP 2016)

Location: Marriott: O'Neil

Gilles Barthe (IMDEA Software)
Christos Dimitrakakis (Chalmers University)
Marco Gaboardi (University at Buffalo, SUNY)
Andreas Haeberlen (University of Pennsylvania)
Aaron Roth (University of Pennsylvania)
Aleksandra Slavkovic (Penn State University)

Differential privacy is a promising approach to the privacy-preserving release of data: it offers a strong guaranteed bound on the increase in harm that a user incurs as a result of participating in a differentially private data analysis. Several mechanisms and software tools have been developed to ensure differential privacy for a wide range of data analysis task.

Researchers in differential privacy come from several disciplines such as computer science, data analysis, statistics, security, law and privacy making, social science. The workshop is an occasion for researchers to discuss the recent developments in the theory and practice of differential privacy and applications.

<http://tpdp16.cse.buffalo.edu/>

Visualization for Deep Learning

Location: Marriott: Astor

Biye Jiang (UC Berkeley)
John Canny (UC Berkeley)
Polo Chau (Georgia Tech)
Aditya Khosla (MIT)

Deep neural networks are complex to design and train. They are non-linear systems that have many local optima and are sensitive to hyper-parameters. Systematic optimization of structure and hyper-parameters is possible, but hampered by the expense of training each design on realistic datasets. We argue that visualization can play an essential role in understanding DNNs and in developing new design principles. With rich tools for visual



exploration of networks during training and inference, one should be able to form closer ties between theory and practice: validating expected behaviors, and exposing the unexpected which can lead to new insights.

<http://icmlviz.github.io/>

Reliable Machine Learning in the Wild

Location: Marriott: Empire

Jacob Steinhardt (Stanford)
Tom Dietterich (OSU)
Percy Liang (Stanford)
Andrew Critch (MIRI)
Jessica Taylor (MIRI)
Adrian Weller (Cambridge)

How can we be confident that a system that performed well in the past will do so in the future, in the presence of novel and potentially adversarial input distributions? Answering these questions is critical for high stakes applications such as autonomous driving, as well as for building reliable large-scale machine learning systems. This workshop explores approaches that are principled or can provide performance guarantees, ensuring AI systems are robust and beneficial in the long run. We will focus on three aspects — robustness, adaptation, and monitoring — that can aid us in designing and deploying reliable machine learning systems.

<https://sites.google.com/site/wildml2016/>

Neural Networks Back To The Future

Location: Crowne Plaza - Broadway

Léon Bottou (Facebook)
David Grangier (Facebook)
Tomas Mikolov (Facebook)
John Platt (Google)

As research in deep learning is extremely active today, we could take a step back and examine its

foundations. We propose to have a critical look at previous work on neural networks, and try to have a better understanding of the differences with today's work. Previous work can point at promising directions to follow, pitfalls to avoid, ideas and assumptions to revisit. Similarly, today's progress can allow a critical examination of what should still be investigated, what has been answered...

<https://sites.google.com/site/nnb2tf>

Deep Learning Workshop

Location: Marriott: Westside Ballroom 3 & 4

Antoine Bordes (Facebook AI Research),
Kyunghyun Cho (New York University),
Emily Denton (New York University),
Nando de Freitas (Google DeepMind, University of Oxford),
Rob Fergus (Facebook AI Research, New York University)

Deep learning is a fast-growing field of machine learning concerned with the study and design of computer algorithms for learning good representations of data, at multiple levels of abstraction. There has been rapid progress in this area in recent years, both in terms of methods and in terms of applications, which are attracting the major IT companies as well as major research labs. Many challenges remain, however, in aspects like large sample complexity of deep learning approaches, generative modeling, learning representations for reinforcement learning and symbolic reasoning, modeling of temporal data with long-term dependencies, efficient Bayesian inference for deep learning and multi-modal data and models. This workshop aims at tackling two major challenges in deep learning, which are unsupervised learning in the regime of small data, and simulation-based learning and its transferability to the real world, by bringing together researchers in the field of deep learning.

<https://sites.google.com/site/dlworkshop16/>



Abstraction in Reinforcement Learning

Location: Marriott: Marquis

Daniel Mankowitz,
Shie Mannor (Technion Israel Institute of Technology),
Timothy Mann (Google Deepmind)

Many real-world domains can be modeled using some form of abstraction. An abstraction is an important tool that enables an agent to focus less on the lower level details of a task and more on solving the task at hand. Temporal abstraction (i.e., options or skills) as well as spatial abstraction (i.e., state space representation) are two important examples. The goal of this workshop is to provide a forum to discuss the current challenges in designing as well as learning abstractions in real-world Reinforcement Learning (RL).

<http://rlabstraction2016.wix.com/icml>

Advances in non-convex analysis and optimization

Location: Westin - Majestic

Animashree Anandkumar (UCI)
Sivaraman Balakrishnan (CMU)
Srinadh Bhojanapalli (TTI)
Kamalika Chaudhuri (UCSD)
Yudong Chen (Cornell)
Anastasios Kyrillidis (UT Austin)
Percy Liang (Stanford)
Praneeth Netrapalli (Microsoft)
Sewoong Oh (UIUC)
Zhaoran Wang (Princeton)

This workshop will attempt to present some of the very recent developments on non-convex analysis and optimization, as reported in diverse research fields: from machine learning and mathematical programming to statistics and theoretical computer science. We believe that this workshop can bring researchers closer, in order to facilitate a discussion regarding why tackling non-convexity is important, where it is found, why non-convex schemes work

well in practice and, how we can progress further with interesting research directions and open problems.

<https://sites.google.com/site/noncvxicml16/>

Machine Learning for Music Discovery

Location: Marriott: Wilder

Erik Schmidt (Pandora)
Fabien Gouyon (Pandora)
Oriol Nieto (Pandora)
Gert Lanckriet (Amazon/UC San Diego)

The ever-increasing size and accessibility of vast music libraries has created a demand more than ever for machine learning systems that are capable of understanding and organizing this complex data. Collaborative filtering provides excellent music recommendations when the necessary user data is available, but these approaches also suffer heavily from the cold-start problem. Furthermore, defining musical similarity directly is extremely challenging as myriad features play some role (e.g., cultural, emotional, timbral, rhythmic). The topics discussed will span a variety of music recommender systems challenges including cross-cultural recommendation, content-based audio processing and representation learning, automatic music tagging, and evaluation.

<https://sites.google.com/site/ml4md2016/>

Friday

JUNE 24TH | WORKSHOPS



FRIDAY WORKSHOPS 8:00 AM - 4:30 PM

Data-Efficient Machine Learning

Location: Marriott: Astor

Marc Deisenroth (Imperial College London)
Shakir Mohamed (Google Deepmind)
Finale Doshi-Velez (Harvard University)
Andreas Krause (ETH Zürich)
Max Welling (University of Amsterdam)

Recent efforts in machine learning have addressed the problem of learning from massive amounts of data. We now have highly scalable solutions for problems in object detection and recognition, machine translation, text-to-speech, recommender systems, and information retrieval, all of which attain state-of-the-art performance when trained with large amounts of data. In these domains, the challenge we now face is how to learn efficiently with the same performance in less time and with less data. Other problem domains, such as personalized healthcare, robot reinforcement learning, sentiment analysis, and community detection, are characterized as either small-data problems, or big-data problems that are a collection of small-data problems. The ability to learn in a sample-efficient manner is a necessity in these data-limited domains. Collectively, these problems highlight the increasing need for data-efficient machine learning: the ability to learn in complex domains without requiring large quantities of data.

This workshop will discuss the diversity of approaches that exist for data-efficient machine learning, and the practical challenges that we face. There are many approaches that demonstrate that data-efficient machine learning is possible, including methods that consider trade-offs between incorporating explicit domain knowledge and more general-purpose approaches, exploit structural knowledge of our data, such as symmetry and other invariance properties, apply bootstrapping and data augmentation techniques that make statistically efficient reuse of available data, use semi-supervised learning techniques, e.g., where we can use generative models to better guide the training of discriminative models, generalize knowledge across domains (transfer learning), use active learning and Bayesian optimization for experimental design and data-efficient black-box optimization, apply non-parametric methods, one-shot learning and Bayesian deep learning.

The objective of this interdisciplinary workshop is to provide a platform for researchers from a variety of areas, spanning transfer learning, Bayesian optimization, bandits, deep learning, approximate inference, robot learning, healthcare, computational neuroscience, active learning, reinforcement learning, and social network analysis, to share insights and perspectives on the problem of data-efficient machine learning, discuss challenges and to debate the roadmap towards more data-efficient machine learning.

<https://sites.google.com/site/dataefficientml/>



Computational Biology

Location: Marriott: Cantor/Jolson

<i>Dana Pe'er</i>	<i>(Columbia University)</i>
<i>Elham Azizi</i>	<i>(Columbia University)</i>
<i>Sandhya Prabhakaran</i>	<i>(Columbia University)</i>
<i>Olga Troyanskaya</i>	<i>(Princeton University)</i>
<i>Edoardo Airoldi</i>	<i>(Harvard University)</i>
<i>Volker Roth</i>	<i>(University of Basel)</i>

The application of Machine Learning in Computational biology has advanced significantly in recent years. In computational biology, there has been credible developments in many high-throughput technologies like next-generation sequencing, CyToF and single-cell sequencing that enable data generation from many interesting biological systems. The gamut of novel algorithms in Machine Learning makes it very attractive to apply these methods to the challenging biological questions. It therefore only seems befitting to bring together researchers engaged in applying ML in Computational biology to discuss recent advances in this interdisciplinary field and ongoing developments.

<https://sites.google.com/site/compbioworkshopicml2016>

Anomaly Detection 2016

Location: Marriott - Soho

<i>Nico Goernitz</i>	<i>(Berlin Institute of Technology)</i>
<i>Marius Kloft</i>	<i>(Humboldt University of Berlin)</i>
<i>Vitaly Kuznetsov</i>	<i>(Courant Institute)</i>

Anomaly, outlier and novelty detection methods are crucial tools in any data scientist's inventory and are critical components of many real-world applications. Abnormal user activities can be used to detect credit card fraud, network intrusions or other security breaches. In computational biology, characterization of systematic anomalies in gene expression can be translated into clinically relevant information. With the rise of Internet-of-Things, the task of monitoring and diagnostics of numerous autonomous systems becomes intractable for a human and needs to be outsourced to a machine. Early detection of an

upcoming earthquake or tsunami can potentially save human lives. These applications make anomaly detection methods increasingly relevant in the modern world.

However, with the advent of Big Data, new challenges and questions are introduced, which will need to be addressed by the next generation of the anomaly and outlier detection algorithms. The goal of our workshop is to survey the existing techniques and discuss new research directions in this area.

<https://sites.google.com/site/icmlworkshoponanomalydetection>

Automatic Machine Learning (AutoML)

Location: Marriott: Empire

<i>Frank Hutter</i>	<i>(University of Freiburg)</i>
<i>Lars Kotthoff</i>	<i>(University of British Columbia)</i>
<i>Joaquin Vanschoren</i>	<i>(Eindhoven University)</i>

Machine learning has been very successful, but its successes rely on human machine learning experts to define the learning problem, select, collect and preprocess the training data, choose appropriate ML architectures (deep learning, random forests, SVMs, ...) and their hyperparameters, and finally evaluate the suitability of the learned models for deployment. As the complexity of these tasks is often beyond non-experts, the rapid growth of machine learning applications has created a demand for off-the-shelf machine learning methods that are more bullet-proof and can be used easily without expert knowledge. We call the resulting research area that targets progressive automation of machine learning AutoML.

See also *ChALearn's AutoML challenge*:

<http://automl.chalearn.org/>

<http://icml2016.automl.org/>



Machine Learning Systems

Location: Microsoft, Central Park (6th floor)

Entrance is between 42nd and 41st on 8th Avenue

Aparna Lakshmi Ratan (Facebook)
Joaquin Quiñonero Candela (Facebook)
Hussein Mehanna (Facebook)
Joseph Gonzalez (UC Berkeley)

The diverse use of machine learning, the explosive growth in data, and the complexity of large-scale learning systems have fueled an interesting area at intersection of Machine Learning and large scale System Design. The goal of this workshop is to bring together experts working in the intersection of machine learning, system design, software engineering to explore the challenges needed to address real world, large scale machine learning problems. In particular, we aim to elicit new connections among these diverse fields, identify tools, best practices and design principles. The workshop will cover ML and AI platforms and algorithm toolkits (Caffe, Torch, MXNet and parameter server, Theano etc), as well as dive into Machine learning focused developments in distributed learning platforms, programming languages, data structures and general purpose GPU programming.

The workshop will have a mix of invited speakers and reviewed papers to facilitate the flow of new ideas as well as best practices which can benefit those looking to implement large ML systems in academia or industry.

<https://sites.google.com/site/mlsys2016/>

#data4good: Machine Learning in Social Good Applications

Location: Marriott: Wilder

James Faghmous (Mount Sinai)
Matt Gee (University of Chicago)
Rayid Ghani (University of Chicago)
Gideon Mann (Bloomberg)
Aleksandra Mojsilović (IBM Research)
Kush Varshney (IBM Research)

This workshop will bring together experts from different fields to explore the opportunities for machine learning

in applications with social impact. Our goal is to raise awareness among ML practitioners about the opportunities in Data-for-Good movement and push the boundaries on addressing tough humanitarian challenges. The workshop will consist of: 1) invited presentations from the leading practitioners in the field and 2) a series of presentations on research that fits the theme of machine learning for social good; broadly construed, this could be machine learning related social good applications, or machine learning methods/theory of particular interest for social good applications.

<https://sites.google.com/site/icml2016data4goodworkshop>

Theory of Deep Learning

Location: Marriott: Westside Ballroom 3 & 4

Rene Vidal (the John Hopkins University)
Alex M. Bronstein (Technion – IIT)
Raja Giryes (Tel Aviv University)

Deep learning led to a significant breakthrough in many applications in computer vision and machine learning. However, only little is known about the theory behind this successful paradigm. This workshop will discuss the recent achievements with respect to the theoretical understanding of deep networks.

<https://sites.google.com/site/deeplearningtheory>

On-Device Intelligence

Location: Marriott: Odets

Vikas Sindhwani
Daniel Ramage
Keith Bonawitz (Google)
Suyog Gupta (IBM)
Sachin Talathi (Qualcomm)

Consumer adoption of mobile devices has created a new normal in computing: there are now more mobile devices on the planet than people, and exabytes of mobile data per month now dominates global internet traffic. As computing systems, these pocket-sized devices are more powerful in many ways than



vintage supercomputers. They come packed with an ever growing array of sensors. They are “always-on”, and becoming increasingly capable of rich contextual understanding and natural interaction with their users.

This workshop will focus on research themes emerging at the intersection of machine learning and mobile systems. The topics of interest range from the design of new machine learning algorithms under storage and power constraints, new on-device learning mechanisms, the interaction between devices and cloud resources for privacy-aware distributed training, and opportunities for machine learning in the nascent area of “Internet of Things.” The scope of the workshop also extends to real-time learning and optimization in the context of novel form-factors: wearable computers, home intelligence devices, and consumer robotics systems. We are also interested in hardware-software co-design for mobile machine learning applications.

<https://sites.google.com/site/ondeviceintelligence/icml2016>

Online advertising systems

Location: Marriott: Carnegie/Booth

Sharat Chikkerur (Nanigans Inc)
 Hossein Azari (Google Research)
 Edoardo Airoldi (Harvard)

Online advertising is a multi-billion dollar industry driven by the confluence of machine learning, optimization, control systems, auction algorithms, econometrics and software engineering. The goal of this workshop is to discuss how machine learning systems operate within the context of an advertising system.

<https://sites.google.com/site/admlsystemsworkshop>

Optimization Methods for the Next Generation of Machine Learning

Location: Westin - Majestic

Katya Scheinberg (Lehigh University)
 Frank E. Curtis (Lehigh University)

Jorge Nocedal (Northwestern University)
 Yoshua Bengio (University of Montreal)

The future of optimization for machine learning, lies in the design of methods for nonconvex optimization problems, such as those arising through the use of deep neural networks. Nonconvex formulations lead to more powerful predictive models, but are much more complex in the sense that they result in much more challenging optimization problems. This workshop will bring together experts from the machine learning and optimization communities whose research focuses on the design of optimization methodologies that combine recent trends of optimization in machine learning—stochasticity, parallel and distributed computing, and second order information—but do so in nonconvex settings.

<http://optml.lehigh.edu/ICML2016>

Computational Frameworks for Personalization

Location: Marriott: O’Neil

Suchi Saria (Johns Hopkins University)
 Yisong Yue (Caltech)
 Khalid El-Arini (Facebook)
 Ambuj Tewari (University of Michigan)

This workshop aims to bring together researchers from industry and academia in order to describe recent advances and discuss future research directions pertaining to computational frameworks for personalization, broadly construed. Personalization has already made a huge impact in online recommender systems. Furthermore, there are many emerging applications where personalization has begun to show great promise, such as education and medicine. We are particularly interested in understanding what are the common computational challenges that underlie all these applications, with the goal of accelerating the development of personalization frameworks across a broad range of domains.

<https://sites.google.com/site/icml2016personalization/>



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Deepak Kadetotad, Arizona State University			



- Abbeel, Pieter - Reinforcement Learning, Mon, Mon - Reinforcement Learning, Tue, Wed
- Abdolmaleki, Abbas - Reinforcement Learning, Tue, Mon
- Abdulsamad, Hany - Reinforcement Learning, Tue, Mon
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- Abernethy, Jacob - Optimization (Continuous), Tue, Wed
- Acharya, Jayadev - Learning Theory, Tue, Wed
- Achim, Tudor - Approximate Inference, Mon, Tue
- Adams, Roy - Graphical Models, Mon, Tue
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- Ahmed, Mohamed - Neural Networks and Deep Learning II, Tue, Wed
- Akata, Zeynep - Neural Networks and Deep Learning, Wed, Tue
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- Alaa, Ahmed - Applications and Time-Series Analysis, Wed, Tue
- Alayrac, Jean-Baptiste - Optimization (Continuous), Wed, Tue
- Algorta, Simón - Reinforcement Learning, Mon, Mon
- Allamanis, Miltiadis - Neural Networks and Deep Learning, Tue, Mon
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- Almeida, Diogo - Neural Networks and Deep Learning, Mon, Tue
- Al-Shedivat, Maruan - Neural Networks and Deep Learning II, Tue, Wed
- Altschuler, Jason - Dimensionality Reduction / Private Learning, Wed, Tue
- Amershi, Saleema - Crowdsourcing and Interactive Learning, Wed, Tue
- Amodei, Dario - Neural Networks and Deep Learning, Mon, Tue
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- Arora, Raman - Matrix Factorization and Related Topics, Tue, Wed - Optimization (Continuous), Wed, Wed
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- Arpit, Devansh - Neural Networks and Deep Learning, Mon, Mon - Unsupervised Learning / Representation Learning, Tue, Mon
- Aslam, Javed - Multi-label, multi-task, and neural networks, Wed, Tue
- Aslan, Ozlem - Neural Networks and Deep Learning, Mon, Tue
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- Bai, Qinxun - Learning Theory, Tue, Wed
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- Balduzzi, David - Neural Networks and Deep Learning, Tue, Mon
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- Basbug, Mehmet - Unsupervised Learning / Applications, Tue, Wed
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 Jaakkola, Tommi - Applications and Time-Series Analysis, Wed, Tue
 Jaffe, Ariel - Neural Networks and Deep Learning I, Wed, Tue
 Jaggi, Martin - Optimization (Continuous), Mon, Mon
 Jasinska, Kalina - Matrix Factorization and Related Topics, Tue, Wed
 Jebara, Tony - Dimensionality Reduction / Private Learning, Wed, Tue
 Jegelka, Stefanie - Metric and Manifold Learning / Kernel Methods, Mon, Tue, Matrix Factorization and Related Topics, Tue, Wed
 Jenatton, Rodolphe - Online Learning, Mon, Mon
 Jiang, Nan - Reinforcement Learning, Tue, Mon
 Jiao, Yunlong - Ranking and Preference Learning, Wed, Tue
 Jie, Cheng - Reinforcement Learning, Tue, Wed
 Jin, Chi - Optimization / Online Learning, Mon, Tue, Optimization (Continuous), Tue, Wed
 jin, Chong - Optimization (Continuous), Mon, Mon
 Jin, Hongxia - Dimensionality Reduction / Private Learning, Wed, Tue
 Jin, Rong - Online Learning, Mon, Mon - Online Learning, Mon, Mon
 Joachims, Thorsten - Ranking and Preference Learning, Wed, Tue
 Johansson, Fredrik - Unsupervised Learning / Representation Learning, Tue, Mon
 Johnson, Matthew - Bayesian Nonparametric Methods, Mon, Mon
 Johnson, Rie - Neural Networks and Deep Learning, Tue, Mon
 Johnson, Sterling - Matrix Factorization / Neuroscience Applications, Mon, Mon
 Jordan, Michael - Sampling / Kernel Methods, Tue, Mon - Graph Analysis/ Spectral Methods, Wed, Tue, Optimization (Continuous), Wed, Wed -
 Jose, Cijo - Structured Prediction / Monte Carlo Methods, Mon, Tue
 Joseph, Anthony - Structured Prediction / Monte Carlo Methods, Mon, Tue
 Joulin, Armand - Neural Networks and Deep Learning II, Tue, Wed
 ju, Sung - Multi-label, multi-task, and neural networks, Wed, Tue
 Jun, Billy - Neural Networks and Deep Learning, Mon, Tue
 Jun, Kwang-Sung - Bandit Problems, Mon, Tue
 Kaae, Casper - Approximate Inference, Tue, Mon
 Kaae, Søren - Approximate Inference, Tue, Mon - Neural Networks and Deep Learning, Wed, Tue
 Kächele, Markus - Clustering, Mon, Mon
 Kairouz, Peter - Graph Analysis/ Spectral Methods, Wed, Tue, Privacy, Anonymity, and Security, Wed, Wed
 Kalchbrenner, Nal - Neural Networks and Deep Learning, Mon, Tue, Neural Networks and Deep Learning



- Il, Tue, Wed
 Kamath, Govinda - Graph Analysis/
 Spectral Methods, Wed, Tue
 Kanagawa, Heishihiro - Statistical
 Learning Theory, Mon, Tue
 Kandasamy, Kirthevasan - Sampling /
 Kernel Methods, Tue, Mon
 Kang, Andrew - Reinforcement
 Learning, Tue, Wed
 Kannan, Ravindran - Matrix
 Factorization and Related Topics,
 Mon, Tue
 Kannan, Sreeram - Causal Inference,
 Wed, Wed
 Kantchelian, Alex - Structured
 Prediction / Monte Carlo Methods,
 Mon, Tue
 Kapralov, Michael - Feature Selection
 and Dimensionality Reduction, Wed,
 Tue
 Karasuyama, Masayuki - Feature
 Selection and Dimensionality
 Reduction, Wed, Tue
 Karbasi, Amin - Optimization
 (Combinatorial), Tue, Mon
 Katariya, Sumeet - Online Learning,
 Mon, Tue
 Kavukcuoglu, Koray - Neural
 Networks and Deep Learning, Mon,
 Tue, Reinforcement Learning, Tue,
 Tue, Neural Networks and Deep
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 Kawakita, Masanori - Statistical
 Learning Theory, Mon, Tue
 Khabiri, Elham - Neural Networks
 and Deep Learning II, Tue, Wed
 Khandelwal, Piyush - Reinforcement
 Learning, Tue, Mon
 Khetan, Ashish - Ranking and
 Preference Learning, Wed, Tue
 Kian, Bryan - Gaussian Processes,
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 Klerx, Timo - Matrix Factorization
 and Related Topics, Tue, Wed
 Kluger, Yuval - Neural Networks and
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 Kobayashi, Hayato - Statistical
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 Koehler, Frederic - Learning Theory,
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 Komiyama, Junpei - Online Learning,
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 Kontschieder, Peter - Neural
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 Korba, Anna - Ranking and
 Preference Learning, Wed, Tue
 Korda, Nathan - Online Learning,
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 Koren, Tomer - Online Learning,
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 Kota, Bhargava - Neural Networks
 and Deep Learning, Mon, Mon
 Kothiyal, Amit - Reinforcement
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 Koyejo, Oluwasanmi - Matrix
 Factorization / Neuroscience
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 Factorization and Related Topics,
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 Krause, Andreas - Optimization
 (Combinatorial), Tue, Mon -
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 Mon - Crowdsourcing and Interactive
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 Krishnamurthy, Akshay - Online
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 Kropotov, Dmitry - Optimization
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 Kulis, Brian - Monte Carlo Methods,
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 Kumar, Ankit - Neural Networks and
 Deep Learning, Tue, Mon
 Kumar, Sanjiv - Dimensionality
 Reduction / Private Learning, Wed,
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 Kumar, Santosh - Graphical Models,
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 Kusano, Genki - Kernel Methods,
 Wed, Wed
 Kutzkov, Konstantin - Neural
 Networks and Deep Learning II, Tue,
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 Kveton, Branislav - Online Learning,
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 Kwok, James - Feature Selection and
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 Kwok, Kevin - Reinforcement
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 Kyrillidis, Anastasios - Matrix
 Factorization / Neuroscience
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 L.A., Prashanth - Reinforcement
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 Lacoste-Julien, Simon - Matrix
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 Topics, Mon, Tue, Optimization
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 Laine, Kim - Neural Networks and
 Deep Learning I, Tue, Wed
 Lambon-Ralph, Matthew - Matrix
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 Lan, Andrew - Machine Learning
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 Lanctot, Marc - Reinforcement
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 Lang, Kevin - Structured Prediction /
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 Laroche, Hugo - Neural Networks
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 Lattimore, Tor - Bandit Problems,
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 Lauter, Kristin - Neural Networks and
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 Laviolette, François - Transfer
 Learning / Learning Theory, Mon,
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 Le, Hoang - Reinforcement Learning,
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 Le, Ronan - Approximate Inference,
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 Lebedev, Vadim - Neural Networks
 and Deep Learning I, Mon, Tue
 LeCun, Yann - Neural Networks
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 Lee, Giwoong - Multi-label, multi-
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 Lee, Honglak - Reinforcement
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 Networks and Deep Learning, Mon,
 Tue, Neural Networks and Deep
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 Lee, Jason - Sampling / Kernel
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 Lee, Kibok - Neural Networks and
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 Lee, Young - Bayesian Nonparametric
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 LeGresley, Patrick - Neural Networks
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 Lei, Dihua - Applications and Time-
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 Lempitsky, Victor - Neural Networks
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 Leng, Chenlei - Feature Selection and
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 Lerer, Adam - Neural Networks and
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 Mon, Tue
 Levine, Sergey - Reinforcement
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 Li, Cheng - Multi-label, multi-task,
 and neural networks, Wed, Tue
 Li, Chengtao - Metric and Manifold
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 Tue, Matrix Factorization and Related
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 Li, Chongxuan - Neural Networks and
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 Li, Dongsheng - Dimensionality
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 Li, Hongyang - Neural Networks and
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 Li, Jerry - Learning Theory, Tue, Wed
 Li, Jian - Clustering, Mon, Mon
 Li, Ke - Metric and Manifold
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 Li, Lihong - Reinforcement Learning,
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 Li, Ping - Sparsity and Compressed
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 Li, Shuai - Online Learning, Mon, Tue,
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 Li, Xiangang - Neural Networks and
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 Li, Xiaoli - Optimization (Continuous),
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 Li, Xingguo - Optimization
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 Li, Yingzhen - Approximate Inference,
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 Li, Yuanzhi - Matrix Factorization and
 Related Topics, Tue, Wed
 Liang, Percy - Unsupervised Learning
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 Liang, Yingbin - Sparsity and
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 Liang, Yingyu - Matrix Factorization
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 Liao, xuejun - Graphical Models,
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 Liberty, Edo - Structured Prediction /
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 Liebman, Elad - Reinforcement
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 Lillicrap, Timothy - Reinforcement
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 Networks and Deep Learning II, Tue,
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 Lim, Hyun - Privacy, Anonymity, and
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 Lin, Darryl - Neural Networks and
 Deep Learning I, Tue, Wed
 Lin, Junhong - Statistical Learning
 Theory, Mon, Tue
 Lin, Libby - Neural Networks and
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 Lin, Xin - Optimization
 (Combinatorial), Tue, Mon
 Lindsten, Fredrik - Monte Carlo
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 Littman, Michael - Reinforcement
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 Liu, Han - Optimization (Continuous),
 Tue, Wed - Optimization
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 Supervised Learning, Wed, Wed -
 Liu, Hanxiao - Graph Analysis/
 Spectral Methods, Wed, Tue
 Liu, Huikang - Optimization
 (Continuous), Tue, Wed
 Liu, Ji - Transfer Learning / Learning
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 Liu, Qiang - Sampling / Kernel
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 Liu, Song - Unsupervised Learning /
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 Liu, Tongliang - Transfer Learning /
 Learning Theory, Mon, Tue
 Liu, Weiyang - Neural Networks and
 Deep Learning II (Computer Vision),
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 Liu, Yan - Dimensionality Reduction /
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 Liu, Yu - Clustering, Mon, Mon
 Livescu, Karen - Unsupervised
 Learning / Representation Learning,
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 Lo, Cynthia - Machine Learning
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 LOCATELLI, Andrea - Bandit
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 Logeswaran, Lajanugen - Neural
 Networks and Deep Learning, Wed,
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 Louizos, Christos - Neural Networks
 and Deep Learning I, Tue, Wed
 Lu, Weining - Neural Networks and
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 Lu, Yang - Neural Networks and Deep
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 Lu, Yu - Statistical Learning Theory,
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 Lucchi, Aurelien - Optimization
 (Continuous), Mon, Mon
 Lucic, Mario - Optimization
 (Combinatorial), Tue, Mon
 Lukaszewicz, Isabella - Optimization
 (Continuous), Wed, Tue
 Luketina, Jelena - Neural Networks
 and Deep Learning I, Wed, Tue
 Luo, Haipeng - Optimization
 (Continuous), Wed, Tue
 Lv, Qin - Dimensionality Reduction /
 Private Learning, Wed, Wed
 M., Sham - Optimization / Online
 Learning, Mon, Tue, Optimization
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 Ma, Tengyu - Learning Theory, Tue,
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 Maaløe, Lars - Approximate
 Inference, Tue, Mon



- Mahdavi, Mehrdad - Structured Prediction / Monte Carlo Methods, Mon, Tue
- Mahdian, Mohammad - Online Learning, Mon, Tue
- Maillard, Odalric - Sampling / Kernel Methods, Tue, Mon
- Mairal, Julien - Matrix Factorization / Neuroscience Applications, Mon, Mon
- Malherbe, Cédric - Optimization (Continuous), Tue, Wed
- Malik, Jitendra - Metric and Manifold Learning / Kernel Methods, Mon, Tue
- Man-Cho, Anthony - Optimization (Continuous), Tue, Wed
- Mandt, Stephan - Approximate Inference, Tue, Mon
- Mannor, Shie - Reinforcement Learning, Mon, Mon - Optimization / Online Learning, Mon, Tue, Applications and Time-Series Analysis, Wed, Tue,
- Marcus, Steve - Reinforcement Learning, Tue, Wed
- Marinov, Teodor - Matrix Factorization and Related Topics, Tue, Wed
- Marlin, Benjamin - Graphical Models, Mon, Tue
- Martens, James - Neural Networks and Deep Learning I, Mon, Tue
- Martins, André - Neural Networks and Deep Learning I, Wed, Tue
- McCallum, Andrew - Multi-label, multi-task, and neural networks, Wed, Tue
- Melnyk, Igor - Sparsity and Compressed Sensing, Tue, Mon
- Menon, Aditya - Learning Theory, Tue, Wed
- Mensch, Arthur - Matrix Factorization / Neuroscience Applications, Mon, Mon
- Merity, Stephen - Neural Networks and Deep Learning, Tue, Mon
- Meshi, Ofer - Structured Prediction / Monte Carlo Methods, Mon, Tue
- Mianjy, Poorya - Matrix Factorization and Related Topics, Tue, Wed
- Miao, Yishu - Neural Networks and Deep Learning I, Wed, Tue
- Michaeli, Tomer - Unsupervised Learning / Representation Learning, Tue, Mon
- Miguel, José - Machine Learning Applications, Mon, Mon - Approximate Inference, Tue, Tue, Gaussian Processes, Wed, Tue,
- Mikolov, Tomas - Neural Networks and Deep Learning II, Tue, Wed
- Milenkovic, Olgica - Clustering, Mon, Mon
- Minh, Quang - Gaussian Processes, Wed, Tue
- Mirroknii, Vahab - Dimensionality Reduction / Private Learning, Wed, Tue
- Mirza, Mehdi - Reinforcement Learning, Tue, Wed
- Mirzasoleiman, Baharan - Optimization (Combinatorial), Tue, Mon - Optimization (Combinatorial), Tue, Mon
- Mishra, Bamdev - Metric and Manifold Learning / Kernel Methods, Mon, Tue
- Mishra, Nina - Unsupervised Learning / Representation Learning, Tue, Mon
- Mitchell, Tom - Crowdsourcing and Interactive Learning, Wed, Tue
- Mitrovic, Jovana - Kernel Methods, Wed, Wed
- Mnih, Andriy - Approximate Inference, Tue, Mon
- Mnih, Volodymyr - Reinforcement Learning, Tue, Wed
- Moczulski, Marcin - Neural Networks and Deep Learning I, Mon, Tue
- Mohamed, Abdel-rahman - Neural Networks and Deep Learning, Mon, Tue
- Mohamed, Shakir - Neural Networks and Deep Learning, Mon, Mon
- Moitra, Ankur - Learning Theory, Tue, Wed
- Morik, Katharina - Approximate Inference, Mon, Tue
- Morvant, Emilie - Transfer Learning / Learning Theory, Mon, Tue
- Munoz, Andres - Bandit Problems, Mon, Tue
- Musco, Cameron - Optimization / Online Learning, Mon, Tue, Matrix Factorization and Related Topics, Tue, Wed
- Musco, Christopher - Matrix Factorization and Related Topics, Tue, Wed
- Mussmann, Stephen - Approximate Inference, Mon, Tue
- Nadler, Boaz - Neural Networks and Deep Learning I, Wed, Tue
- Naehrig, Michael - Neural Networks and Deep Learning I, Tue, Wed
- Naesseth, Christian - Monte Carlo Methods, Wed, Tue
- Nakagawa, Hiroshi - Online Learning, Mon, Tue
- Narang, Sharan - Neural Networks and Deep Learning, Mon, Tue
- Narayanan, Sathya - Matrix Factorization / Neuroscience Applications, Mon, Mon
- Natarajan, Nagarajan - Matrix Factorization and Related Topics, Wed, Wed
- Neiswanger, Willie - Optimization (Continuous), Wed, Tue
- Netrapalli, Praneeth - Optimization / Online Learning, Mon, Tue, Optimization (Continuous), Tue, Wed
- Neumann, Gerhard - Reinforcement Learning, Tue, Mon
- Newling, James - Clustering, Mon, Mon
- Ng, Andrew - Neural Networks and Deep Learning, Mon, Tue
- Nghia, Trong - Gaussian Processes, Wed, Tue
- Ngo, Hung - Unsupervised Learning / Representation Learning, Tue, Mon
- Nguyen-Tuong, Duy - Gaussian Processes, Wed, Tue
- Niekum, Scott - Reinforcement Learning, Tue, Mon
- Nielsen, Frank - Clustering, Mon, Mon - Transfer Learning / Learning Theory, Mon, Tue
- Niepert, Mathias - Neural Networks and Deep Learning II, Tue, Wed
- Niu, Mu - Applications and Time-Series Analysis, Wed, Wed
- Nock, Richard - Clustering, Mon, Mon - Transfer Learning / Learning Theory, Mon, Tue
- Nowak, Robert - Matrix Factorization / Neuroscience Applications, Mon, Mon - Bandit Problems, Mon, Mon - Sparsity and Compressed Sensing, Tue, Tue,
- Nuara, Alessandro - Reinforcement Learning, Tue, Wed
- Oh, Junhyuk - Reinforcement Learning, Mon, Mon
- Oh, Sewoong - Graph Analysis / Spectral Methods, Wed, Tue, Ranking and Preference Learning, Wed, Tue, Crowdsourcing and Interactive Learning, Wed, Wed - Causal Inference, Wed, Wed
- Ohannessian, Hrag - Transfer Learning / Learning Theory, Mon, Tue
- Ok, Jungseul - Crowdsourcing and Interactive Learning, Wed, Wed
- Oliva, Junier - Machine Learning Applications, Mon, Tue
- Olukotun, Kunle - Unsupervised Learning / Applications, Tue, Wed
- Ondruska, Peter - Neural Networks and Deep Learning, Tue, Mon
- Orabona, Francesco - Optimization / Online Learning, Mon, Tue
- Osband, Ian - Reinforcement Learning, Tue, Mon
- Osborne, Michael - Gaussian Processes, Wed, Tue
- Osokin, Anton - Optimization (Continuous), Wed, Tue
- Oswal, Urvashi - Matrix Factorization / Neuroscience Applications, Mon, Mon
- Ouyang, Wanli - Neural Networks and Deep Learning II (Computer Vision), Mon, Tue
- Ozair, Sherjil - Neural Networks and Deep Learning, Mon, Tue
- Paige, Brooks - Monte Carlo Methods, Wed, Tue, Monte Carlo Methods, Wed, Tue
- Paisley, John - Bayesian Nonparametric Methods, Mon, Mon
- Pakman, Ari - Monte Carlo Methods, Wed, Tue
- Pan, Jiangwei - Unsupervised Learning / Applications, Tue, Wed
- Pan, Xingyuan - Neural Networks and Deep Learning I, Tue, Wed
- Pandey, Gaurav - Bayesian Nonparametric Methods, Mon, Mon
- Pani, Jagdeep - Matrix Factorization and Related Topics, Mon, Tue
- Paninski, Liam - Monte Carlo Methods, Wed, Tue
- Papakonstantinou, Periklis - Learning Theory, Wed, Tue
- Parate, Abhinav - Graphical Models, Mon, Tue
- Parthasarathy, Srinivasan - Monte Carlo Methods, Wed, Tue
- Patel, Ankit - Multi-label, multi-task, and neural networks, Wed, Tue
- Patrini, Giorgio - Transfer Learning / Learning Theory, Mon, Tue
- Paulus, Romain - Neural Networks and Deep Learning, Tue, Mon
- Pavlu, Virgil - Multi-label, multi-task, and neural networks, Wed, Tue
- Pedregosa, Fabian - Supervised Learning, Wed, Wed
- Pe'er, Dana - Unsupervised Learning / Applications, Tue, Wed
- Peng, Hao - Neural Networks and Deep Learning, Tue, Mon
- Perchet, Vianney - Bandit Problems, Mon, Tue
- Pérolat, Julien - Reinforcement Learning, Tue, Wed
- Peters, Jan - Gaussian Processes, Wed, Tue
- Peters, Jonas - Causal Inference, Wed, Wed
- Peyré, Gabriel - Unsupervised Learning / Representation Learning, Tue, Mon
- Pezeshki, Mohammad - Neural Networks and Deep Learning, Mon, Mon
- Pfannschmidt, Karlson - Matrix Factorization and Related Topics, Tue, Wed
- Piatkowski, Nico - Approximate Inference, Mon, Tue
- Piech, Peter - Ranking and Preference Learning, Wed, Tue
- Pietquin, Olivier - Matrix Factorization and Related Topics, Mon, Tue, Reinforcement Learning, Tue, Wed
- Pimentel-Alarcón, Daniel - Sparsity and Compressed Sensing, Tue, Mon
- Piot, Bilal - Reinforcement Learning, Tue, Wed
- Piliipose, Matthai - Neural Networks and Deep Learning, Mon, Tue
- Póczos, Barnabás - Machine Learning Applications, Mon, Tue, Approximate Inference, Mon, Tue
- Póczós, Barnabás - Optimization (Continuous), Mon, Mon
- Podosinnikova, Anastasia - Matrix Factorization and Related Topics, Mon, Tue
- Poldrack, Russell - Matrix Factorization / Neuroscience Applications, Mon, Mon
- Porzi, Lorenzo - Neural Networks and Deep Learning I, Tue, Wed
- Potluru, Vamsi - Feature Selection and Dimensionality Reduction, Wed, Tue
- Powell, Warren - Crowdsourcing and Interactive Learning, Wed, Tue
- Prabhakaran, Sandhya - Unsupervised Learning / Applications, Tue, Wed
- Prasad, Shiva - Dimensionality Reduction / Private Learning, Wed, Tue
- Precup, Doina - Dimensionality



- Reduction / Private Learning, Wed, Tue
- Prenger, Ryan - Neural Networks and Deep Learning, Mon, Tue
- Price, Layne - Machine Learning Applications, Mon, Tue
- Procaccia, Ariel - Learning Theory, Tue, Wed
- Puigdomènech, Adrià - Reinforcement Learning, Tue, Wed
- Puleo, Gregory - Clustering, Mon, Mon
- Puy, Gilles - Clustering, Mon, Mon
- Qian, Sheng - Neural Networks and Deep Learning, Mon, Tue
- Qu, Chao - Optimization (Continuous), Mon, Mon
- Qu, Zheng - Optimization (Continuous), Wed, Tue, Learning Theory, Wed, Tue
- Quadrantio, Novi - Graphical Models, Mon, Tue
- Raghuathan, Aditi - Unsupervised Learning / Applications, Tue, Wed
- Rahmani, Mostafa - Matrix Factorization and Related Topics, Tue, Wed
- Raich, Raviv - Graphical Models, Mon, Tue
- Raiko, Tapani - Neural Networks and Deep Learning I, Wed, Tue
- Raiman, Jonathan - Neural Networks and Deep Learning, Mon, Tue
- Rainforth, Tom - Monte Carlo Methods, Wed, Tue
- Rakhlin, Alexander - Online Learning, Mon, Mon
- Rakotomamonjy, Alain - Learning Theory, Tue, Wed
- Ramage, Daniel - Privacy, Anonymity, and Security, Wed, Wed
- Ramaswamy, Harish - Optimization, Wed, Wed
- Ramchandran, Kannan - Graph Analysis/ Spectral Methods, Wed, Tue
- Ranganath, Rajesh - Approximate Inference, Tue, Mon
- Rao, Vinayak - Unsupervised Learning / Applications, Tue, Wed
- Ravanbakhsh, Siamak - Machine Learning Applications, Mon, Tue, Approximate Inference, Mon, Tue
- Ravikumar, Pradeep - Graphical Models, Mon, Mon - Optimization (Combinatorial), Tue, Tue, Optimization (Continuous), Wed, Tue, Matrix Factorization and Related Topics, Wed, Wed
- Ray, Soumya - Feature Selection and Dimensionality Reduction, Wed, Tue
- Raychev, Veselin - Neural Networks and Deep Learning, Tue, Mon
- Re, Chris - Unsupervised Learning / Applications, Tue, Wed
- Recht, Ben - Transfer Learning / Learning Theory, Mon, Tue, Optimization (Continuous), Tue, Wed
- Reed, Scott - Neural Networks and Deep Learning, Wed, Tue
- Reid, Alistair - Gaussian Processes, Wed, Tue
- Restelli, Marcello - Reinforcement Learning, Tue, Wed
- Rezende, Danilo - Neural Networks and Deep Learning, Mon, Mon - Approximate Inference, Tue, Mon
- Richard, Gaël - Monte Carlo Methods, Wed, Wed
- Richardson, Matthew - Neural Networks and Deep Learning, Mon, Tue
- Richtárik, Peter - Optimization (Continuous), Wed, Tue, Optimization (Continuous), Wed, Tue, Learning Theory, Wed, Tue, Riedel, Sebastian - Matrix Factorization and Related Topics, Mon, Tue
- Riemer, Matthew - Neural Networks and Deep Learning II, Tue, Wed
- Risteski, Andrej - Matrix Factorization and Related Topics, Tue, Wed
- Rodomanov, Anton - Optimization (Continuous), Wed, Tue
- Rogers, Ryan - Privacy, Anonymity, and Security, Wed, Wed
- Rogers, Simon - Applications and Time-Series Analysis, Wed, Wed
- Rogers, Timothy - Matrix Factorization / Neuroscience Applications, Mon, Mon
- Romer, Anne - Gaussian Processes, Wed, Tue
- Rosasco, Lorenzo - Statistical Learning Theory, Mon, Tue
- Rosenberg, Steven - Learning Theory, Tue, Wed
- Rosenski, Jonathan - Online Learning, Mon, Tue
- Rostamizadeh, Afshin - Dimensionality Reduction / Private Learning, Wed, Tue
- Rota, Samuel - Neural Networks and Deep Learning I, Tue, Wed
- Rowland, Mark - Approximate Inference, Tue, Mon
- Roy, Gourav - Unsupervised Learning / Representation Learning, Tue, Mon
- Roychowdhury, Anirban - Monte Carlo Methods, Wed, Tue
- Rui, Yong - Neural Networks and Deep Learning II (Computer Vision), Mon, Tue
- S., Inderjit - Graphical Models, Mon, Mon - Metric and Manifold Learning / Kernel Methods, Mon, Mon - Sparsity and Compressed Sensing, Tue, Tue, Optimization (Combinatorial), Tue, Tue
- S., Richard - Multi-label, multi-task, and neural networks, Wed, Tue
- Saad, Yousef - Matrix Factorization and Related Topics, Tue, Wed
- Sabharwal, Ashish - Approximate Inference, Mon, Tue
- Sadhanala, Veeranjanyulu - Optimization (Continuous), Wed, Tue
- Saeedi, Ardavan - Bayesian Nonparametric Methods, Mon, Mon
- Safran, Itay - Optimization (Continuous), Wed, Wed
- Salakhudinov, Ruslan - Neural Networks and Deep Learning II, Tue, Wed
- Saleheen, Nazir - Graphical Models, Mon, Tue
- Salmon, Joseph - Optimization, Wed, Wed
- Sangnier, Maxime - Learning Theory, Tue, Wed
- Santoro, Adam - Neural Networks and Deep Learning II, Tue, Wed
- Satheesh, Sanjeev - Neural Networks and Deep Learning, Mon, Tue, Neural Networks and Deep Learning, Mon, Tue
- Schapiro, Robert - Online Learning, Mon, Mon
- Schaul, Tom - Reinforcement Learning, Mon, Mon
- Schein, Aaron - Bayesian Nonparametric Methods, Mon, Mon
- Scherrer, Bruno - Reinforcement Learning, Tue, Wed
- Schiele, Bernt - Neural Networks and Deep Learning, Wed, Tue
- Schmidt, Henner - Gaussian Processes, Wed, Tue
- Schmidt, Ludwig - Learning Theory, Tue, Wed
- Schnabel, Tobias - Ranking and Preference Learning, Wed, Tue
- Schneider, Jeff - Machine Learning Applications, Mon, Tue
- Schölkopf, Bernhard - Transfer Learning / Learning Theory, Mon, Tue, Causal Inference, Wed, Wed
- Schrijvers, Okke - Unsupervised Learning / Representation Learning, Tue, Mon
- Schulman, John - Reinforcement Learning, Mon, Mon
- Schwing, Alexander - Multi-label, multi-task, and neural networks, Wed, Tue
- Scleroff, Stan - Learning Theory, Tue, Wed
- Scott, Clayton - Optimization, Wed, Wed
- Seetapun, David - Neural Networks and Deep Learning, Mon, Tue
- Sejdicinovic, Dino - Kernel Methods, Wed, Wed
- Selman, Bart - Approximate Inference, Mon, Tue
- Sengupta, Shubho - Neural Networks and Deep Learning, Mon, Tue, Neural Networks and Deep Learning, Mon, Tue
- Serdyukov, Pavel - Learning Theory, Tue, Wed
- Sevi, Harry - Matrix Factorization / Neuroscience Applications, Mon, Mon
- Shabanian, Samira - Neural Networks and Deep Learning I, Tue, Wed
- Shah, Amar - Neural Networks and Deep Learning, Mon, Mon - Machine Learning Applications, Mon, Tue, Machine Learning Applications, Mon, Tue
- Shah, Nihar - Learning Theory, Tue, Tue, Crowdsourcing and Interactive Learning, Wed, Wed
- Shah, Nisarg - Learning Theory, Tue, Wed
- Shaham, Uri - Neural Networks and Deep Learning I, Wed, Tue
- Shalev-Shwartz, Shai - Optimization (Continuous), Mon, Mon - Optimization / Online Learning, Mon, Tue, Optimization (Continuous), Wed, Tue, Learning Theory, Wed, Wed
- Shalit, Uri - Unsupervised Learning / Representation Learning, Tue, Mon
- Shamir, Ohad - Optimization / Online Learning, Mon, Tue, Optimization / Online Learning, Mon, Tue, Online Learning, Mon, Tue, Online Learning, Mon, Tue
- Shang, Li - Dimensionality Reduction / Private Learning, Wed, Wed
- Shang, Wenling - Neural Networks and Deep Learning, Mon, Tue
- Shariff, Roshan - Bandit Problems, Mon, Tue
- Shashua, Amnon - Neural Networks and Deep Learning I, Tue, Wed
- Shen, Jie - Sparsity and Compressed Sensing, Tue, Mon
- Shibagaki, Atsushi - Feature Selection and Dimensionality Reduction, Wed, Tue
- Shimizu, Nobuyuki - Statistical Learning Theory, Mon, Tue
- Shimkin, Nahum - Bandit Problems, Mon, Tue
- Shin, Jinwoo - Crowdsourcing and Interactive Learning, Wed, Wed
- Shmakov, Konstantin - Structured Prediction / Monte Carlo Methods, Mon, Tue
- Si, Si - Metric and Manifold Learning / Kernel Methods, Mon, Tue
- Sibony, Eric - Ranking and Preference Learning, Wed, Tue
- Sidford, Aaron - Optimization / Online Learning, Mon, Tue, Matrix Factorization and Related Topics, Tue, Wed - Optimization (Continuous), Tue, Wed - Silver, David - Reinforcement Learning, Tue, Wed
- Simchowitz, Max - Optimization (Continuous), Tue, Wed
- Şimşek, Özgür - Reinforcement Learning, Mon, Mon
- Simsekli, Umut - Monte Carlo Methods, Wed, Wed
- Sindhvani, Vikas - Matrix Factorization and Related Topics, Wed, Wed
- Singer, Yaron - Optimization (Combinatorial), Tue, Mon
- Singer, Yoram - Transfer Learning / Learning Theory, Mon, Tue
- Singh, Ashudeep - Ranking and Preference Learning, Wed, Tue
- Singh, Bharat - Multi-label, multi-task, and neural networks, Wed, Tue
- Singh, Satinder - Reinforcement Learning, Mon, Mon
- Singh, Vikas - Matrix Factorization / Neuroscience Applications, Mon, Mon
- Singla, Adish - Crowdsourcing and Interactive Learning, Wed, Tue
- Smola, Alex - Optimization (Continuous), Mon, Mon
- Socher, Richard - Neural Networks



- and Deep Learning, Tue, Mon - Neural Networks and Deep Learning, Tue, Mon
- Sohn, Kihyuk - Neural Networks and Deep Learning, Mon, Tue
- Solomon, Justin - Unsupervised Learning / Representation Learning, Tue, Mon
- Soltanolkotabi, mahdi - Optimization (Continuous), Tue, Wed
- Song, Jiaming - Neural Networks and Deep Learning I, Tue, Wed
- Song, Le - Matrix Factorization and Related Topics, Mon, Tue, Kernel Methods, Wed, Wed
- Song, Yang - Multi-label, multi-task, and neural networks, Wed, Tue
- Sontag, David - Structured Prediction / Monte Carlo Methods, Mon, Mon - Structured Prediction / Monte Carlo Methods, Mon, Tue
- Soon, Cheng - Bayesian Nonparametric Methods, Mon, Mon - Learning Theory, Tue, Wed
- Sra, Suvrit - Optimization (Continuous), Mon, Mon - Metric and Manifold Learning / Kernel Methods, Mon, Tue, Metric and Manifold Learning / Kernel Methods, Mon, Tue, Metric and Manifold Learning / Kernel Methods, Mon, Tue, Metric and Manifold Learning / Kernel Methods, Mon, Tue
- Sridharan, Karthik - Online Learning, Mon, Mon
- Srikumar, Vivek - Neural Networks and Deep Learning I, Tue, Wed
- Stanic, Aleksandar - Neural Networks and Deep Learning I, Mon, Tue
- Steinberg, Daniel - Gaussian Processes, Wed, Tue
- Stinson, Patrick - Monte Carlo Methods, Wed, Tue
- Stone, Peter - Reinforcement Learning, Tue, Mon
- Strathmann, Heiko - Sampling / Kernel Methods, Tue, Mon
- Studer, Christoph - Machine Learning Applications, Mon, Tue
- Su, Qinliang - Graphical Models, Mon, Tue
- Sugiyama, Masashi - Unsupervised Learning / Applications, Tue, Wed
- Suh, Changho - Graph Analysis/ Spectral Methods, Wed, Tue
- Suh, Jina - Crowdsourcing and Interactive Learning, Wed, Tue
- Sun, Wen - Applications and Time-Series Analysis, Wed, Tue
- Sung, Wonyong - Neural Networks and Deep Learning, Mon, Tue
- Sutskever, Ilya - Reinforcement Learning, Tue, Wed
- Sutton, Charles - Neural Networks and Deep Learning, Tue, Mon
- Suzuki, Taiji - Statistical Learning Theory, Mon, Tue, Unsupervised Learning / Applications, Tue, Wed
- Swaminathan, Adith - Ranking and Preference Learning, Wed, Tue
- Syed, Umar - Online Learning, Mon, Tue
- Syrkkanis, Vasilis - Online Learning, Mon, Mon
- Szepesvari, Csaba - Optimization / Online Learning, Mon, Tue
- Szepesvári, Csaba - Bandit Problems, Mon, Tue, Online Learning, Mon, Tue, Reinforcement Learning, Tue, Wed -
- Szlak, Liran - Online Learning, Mon, Tue
- Szlam, Arthur - Neural Networks and Deep Learning I, Mon, Tue
- Szörényi, Balázs - Online Learning, Mon, Tue
- Tagami, Yukihiro - Statistical Learning Theory, Mon, Tue
- Takac, Martin - Optimization (Continuous), Mon, Mon - Optimization (Continuous), Wed, Tue
- Takeuchi, Ichiro - Feature Selection and Dimensionality Reduction, Wed, Tue
- Takeuchi, Jun'ichi - Statistical Learning Theory, Mon, Tue
- Talathi, Sachin - Neural Networks and Deep Learning I, Tue, Wed
- Tang, Bangsheng - Neural Networks and Deep Learning I, Wed, Tue
- Tao, Dacheng - Transfer Learning / Learning Theory, Mon, Tue
- Tat, Yin - Optimization (Continuous), Mon, Mon
- Taylor, Gavin - Multi-label, multi-task, and neural networks, Wed, Tue
- Teh, Yee-Whye - Kernel Methods, Wed, Wed
- Tewari, Ambuj - Optimization, Wed, Wed
- Thirion, Bertrand - Matrix Factorization / Neuroscience Applications, Mon, Mon
- Thomas, Philip - Reinforcement Learning, Tue, Wed - Optimization (Continuous), Wed, Wed
- Thomaz, Edison - Graphical Models, Mon, Tue
- Tiomoko, Hafiz - Matrix Factorization / Neuroscience Applications, Mon, Mon
- Tong, Anh - Unsupervised Learning / Applications, Tue, Wed
- Tosh, Christopher - Sampling / Kernel Methods, Tue, Mon
- Tran, Dustin - Approximate Inference, Tue, Mon
- TREMBLAY, Nicolas - Clustering, Mon, Mon
- Trouillon, Théo - Matrix Factorization and Related Topics, Mon, Tue
- Tschannen, Michael - Neural Networks and Deep Learning I, Mon, Tue
- Tschiatschek, Sebastian - Crowdsourcing and Interactive Learning, Wed, Tue
- Tse, David - Graph Analysis/ Spectral Methods, Wed, Tue
- Tu, Stephen - Optimization (Continuous), Tue, Wed
- Turner, Richard - Approximate Inference, Tue, Mon - Gaussian Processes, Wed, Tue
- Ubaru, Shashanka - Matrix Factorization and Related Topics, Tue, Wed
- Ueda, Naonori - Supervised Learning, Wed, Wed
- Ulyanov, Dmitry - Neural Networks and Deep Learning I, Mon, Tue
- Urban, Gregor - Neural Networks and Deep Learning, Mon, Tue
- Uria, Benigno - Neural Networks and Deep Learning II, Tue, Wed
- Urtasun, Raquel - Multi-label, multi-task, and neural networks, Wed, Tue
- Ustinovskiy, Yury - Learning Theory, Tue, Wed
- Vadhan, Salil - Privacy, Anonymity, and Security, Wed, Wed
- Valko, Michal - Sampling / Kernel Methods, Tue, Mon
- van, Aàron - Neural Networks and Deep Learning, Mon, Tue
- Van, Benjamin - Reinforcement Learning, Tue, Mon
- van, Hado - Reinforcement Learning, Mon, Mon
- Van der Schaar, Mihaela - Machine Learning Applications, Mon, Tue, Applications and Time-Series Analysis, Wed, Tue
- Vandemeent, Jan-Willem - Monte Carlo Methods, Wed, Tue
- Vanderghelyst, Pierre - Clustering, Mon, Mon
- Varoquaux, Gaël - Matrix Factorization / Neuroscience Applications, Mon, Mon
- Vassilvitskii, Sergei - Online Learning, Mon, Tue
- Vayatis, Nicolas - Optimization (Continuous), Tue, Wed
- Vechev, Martin - Neural Networks and Deep Learning, Tue, Mon
- Vedaldi, Andrea - Neural Networks and Deep Learning I, Mon, Tue
- Veldt, Nate - Graph Analysis/ Spectral Methods, Wed, Tue
- Vempaty, Aditya - Neural Networks and Deep Learning II, Tue, Wed
- Venkatraman, Arun - Applications and Time-Series Analysis, Wed, Tue
- Ver, Greg - Unsupervised Learning / Representation Learning, Tue, Mon
- Vikram, Sharad - Graph Analysis/ Spectral Methods, Wed, Tue
- Vinogradskaya, Julia - Gaussian Processes, Wed, Tue
- Viswanath, Pramod - Graph Analysis/ Spectral Methods, Wed, Tue, Causal Inference, Wed, Wed
- Vladymyrov, Max - Metric and Manifold Learning / Kernel Methods, Mon, Tue
- Vlassis, Nikos - Matrix Factorization and Related Topics, Tue, Wed
- Vojnovic, Milan - Ranking and Preference Learning, Wed, Tue
- Wai, Kar - Bayesian Nonparametric Methods, Mon, Mon
- Wainrib, Gilles - Matrix Factorization / Neuroscience Applications, Mon, Mon
- Wainwright, Martin - Learning Theory, Tue, Wed
- Wallach, Hanna - Bayesian Nonparametric Methods, Mon, Mon
- Wang, Baoxiang - Online Learning, Mon, Tue
- Wang, Bingyu - Multi-label, multi-task, and neural networks, Wed, Tue
- Wang, Changhu - Neural Networks and Deep Learning II (Computer Vision), Mon, Tue
- Wang, Chong - Neural Networks and Deep Learning, Mon, Tue
- Wang, Chu - Crowdsourcing and Interactive Learning, Wed, Tue
- Wang, Po-Wei - Optimization (Continuous), Tue, Wed
- Wang, Shengjie - Neural Networks and Deep Learning, Mon, Tue
- Wang, Weiran - Unsupervised Learning / Representation Learning, Tue, Mon
- Wang, Xiangyu - Feature Selection and Dimensionality Reduction, Wed, Tue
- Wang, Xiaogang - Neural Networks and Deep Learning II (Computer Vision), Mon, Tue
- Wang, Yi - Neural Networks and Deep Learning, Mon, Tue
- Wang, Yichen - Matrix Factorization and Related Topics, Mon, Tue
- Wang, Yingfei - Crowdsourcing and Interactive Learning, Wed, Tue
- Wang, Yu-Xiang - Optimization (Continuous), Wed, Tue
- Wang, Zhaoran - Optimization (Continuous), Tue, Wed - Supervised Learning, Wed, Wed
- Wang, Zhiqian - Neural Networks and Deep Learning, Mon, Tue
- Wang, Ziyu - Reinforcement Learning, Mon, Mon
- Wayne, Greg - Neural Networks and Deep Learning II, Tue, Wed
- Wei, Kai - Optimization (Combinatorial), Tue, Mon
- Wei, Tao - Neural Networks and Deep Learning II (Computer Vision), Mon, Tue
- Welbl, Johannes - Matrix Factorization and Related Topics, Mon, Tue
- Weller, Adrian - Structured Prediction / Monte Carlo Methods, Mon, Tue, Structured Prediction / Monte Carlo Methods, Mon, Wed
- Welling, Max - Neural Networks and Deep Learning I, Tue, Tue, Neural Networks and Deep Learning, Wed, Wed
- Wen, Chang - Neural Networks and Deep Learning II (Computer Vision), Mon, Tue
- Wen, Yandong - Neural Networks and Deep Learning II (Computer Vision), Mon, Tue
- Wen, Zheng - Online Learning, Mon, Tue - Reinforcement Learning, Tue, Tue
- Wernsing, John - Neural Networks and Deep Learning I, Tue, Wed
- Wexler, Yonatan - Learning Theory, Wed, Wed
- Wiatowski, Thomas - Neural Networks and Deep Learning I, Mon, Tue
- Wierstra, Daan - Neural Networks and Deep Learning, Mon, Mon -



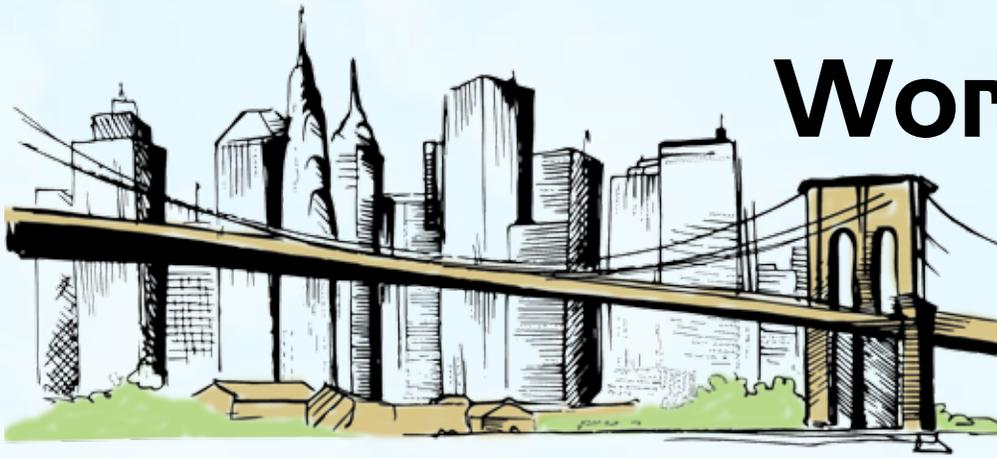
Neural Networks and Deep Learning II, Tue, Wed
 Winther, Ole - Approximate Inference, Tue, Mon - Neural Networks and Deep Learning, Wed, Tue
 Wipf, David - Approximate Inference, Mon, Tue
 Wong, Weng-Keen - Graphical Models, Mon, Tue
 Wood, Frank - Monte Carlo Methods, Wed, Tue, Monte Carlo Methods, Wed, Tue
 Woodruff, David - Feature Selection and Dimensionality Reduction, Wed, Tue
 Wright, Steve - Optimization (Combinatorial), Tue, Mon
 Wu, Weijie - Optimization (Continuous), Tue, Wed
 Wu, Yifan - Bandit Problems, Mon, Tue
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 Wu, Zheng - Learning Theory, Tue, Wed
 Wytock, Matt - Optimization (Continuous), Tue, Wed
 Xia, Lirong - Ranking and Preference Learning, Wed, Tue
 Xiao, Bo - Neural Networks and Deep Learning, Mon, Tue
 Xiao, Yichi - Online Learning, Mon, Mon
 Xie, Bo - Matrix Factorization and Related Topics, Mon, Tue
 Xie, Jianwen - Neural Networks and Deep Learning, Mon, Mon
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 Xiong, Caiming - Neural Networks and Deep Learning, Tue, Mon
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 Xu, Hongteng - Causal Inference, Wed, Wed
 Xu, Huan - Optimization (Continuous), Mon, Mon - Sparsity and Compressed Sensing, Tue, Mon
 Xu, Jia - Learning Theory, Wed, Tue
 Xu, QianQian - Learning Theory, Wed, Tue
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 Yang, Scott - Bandit Problems, Mon, Tue
 Yang, Tianbao - Online Learning, Mon, Mon - Online Learning, Mon, Mon
 Yang, Yiming - Graph Analysis/Spectral Methods, Wed, Tue
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 Yang, Zhuoran - Supervised Learning, Wed
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 Yi, Yung - Crowdsourcing and Interactive Learning, Wed, Wed
 Yogatama, Dani - Neural Networks and Deep Learning, Mon, Tue
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 Yu, Lei - Neural Networks and Deep Learning I, Wed, Tue
 Yu, Rose - Dimensionality Reduction / Private Learning, Wed, Tue
 Yu, Yaoliang - Sampling / Kernel Methods, Tue, Mon
 Yu, Zhiding - Neural Networks and Deep Learning II (Computer Vision), Mon, Tue
 Yuan, Yang - Learning Theory, Wed, Tue, Learning Theory, Wed, Tue
 Yue, Yisong - Reinforcement Learning, Tue, Wed
 Yun, Seyoung - Ranking and Preference Learning, Wed, Tue
 Zadeh, Pourya - Metric and Manifold Learning / Kernel Methods, Mon, Tue
 Zadimoghaddam, Morteza - Optimization (Combinatorial), Tue, Mon - Dimensionality Reduction / Private Learning, Wed, Tue
 Zahavy, Tom - Reinforcement Learning, Mon, Mon
 Zaremba, Wojciech - Neural Networks and Deep Learning II, Tue, Wed
 Zha, Hongyuan - Causal Inference, Wed, Wed
 Zhai, Shuangfei - Neural Networks and Deep Learning I, Mon, Tue
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 Zhang, Aonan - Bayesian Nonparametric Methods, Mon, Mon
 Zhang, Bo - Neural Networks and Deep Learning, Mon, Mon
 Zhang, Huishuai - Sparsity and Compressed Sensing, Tue, Mon
 Zhang, Jiong - Optimization (Combinatorial), Tue, Mon

Zhang, Kun - Transfer Learning / Learning Theory, Mon, Tue
 Zhang, Lijun - Online Learning, Mon, Mon - Online Learning, Mon, Mon
 Zhang, Shengyu - Online Learning, Mon, Tue
 Zhang, Tong - Neural Networks and Deep Learning, Tue, Mon - Supervised Learning, Wed, Wed
 Zhang, Yuchen - Optimization (Continuous), Wed, Wed
 Zhang, Yue - Feature Selection and Dimensionality Reduction, Wed, Tue
 Zhang, Yuting - Neural Networks and Deep Learning, Wed, Wed
 Zhang, Zhongfei - Neural Networks and Deep Learning I, Mon, Tue
 Zhao, Han - Graphical Models, Mon, Tue
 Zhao, Peilin - Optimization (Continuous), Tue, Wed
 Zhao, Tuo - Optimization (Continuous), Wed, Wed
 Zhao, Zhibing - Ranking and Preference Learning, Wed, Tue
 Zheng, Yin - Neural Networks and Deep Learning I, Wed, Tue, Neural Networks and Deep Learning, Wed, Tue
 Zhong, Kai - Optimization (Continuous), Wed, Tue
 Zhong, Victor - Neural Networks and Deep Learning, Tue, Mon
 Zhou, Dengyong - Statistical Learning Theory, Mon, Tue, Statistical Learning Theory, Mon, Tue
 Zhou, Hanning - Neural Networks and Deep Learning I, Wed, Tue
 Zhou, Mingyuan - Bayesian Nonparametric Methods, Mon, Mon
 Zhou, Yingbo - Neural Networks and Deep Learning, Mon, Mon - Unsupervised Learning / Representation Learning, Tue, Mon
 Zhou, Zhi-hua - Online Learning, Mon, Mon
 Zhu, Jun - Neural Networks and Deep Learning, Mon, Mon - Bayesian Nonparametric Methods, Mon, Mon
 Zhu, Song-Chun - Neural Networks and Deep Learning, Mon, Mon
 Zhu, Xiaojin - Transfer Learning / Learning Theory, Mon, Tue, Crowdsourcing and Interactive Learning, Wed, Tue
 Zhu, zhenyao - Neural Networks and Deep Learning, Mon, Tue
 Zico, J. - Optimization (Continuous), Tue, Wed
 Zou, James - Matrix Factorization and Related Topics, Mon, Tue

outstanding reviewer awards.

Akshay Balsubramani
 Gilles Blanchard
 Josip Djolonga
 Miroslav Dudik
 Søren Hauberg
 Qirong Ho
 Nikos Karampatziakis
 Vladimir Kolmogorov
 Edo Liberty
 Daniel Lowd
 Tengyu Ma
 Lester Mackey
 Julien Mairal
 Gergely Neu
 Jennifer Neville
 Pascal Poupart
 Nikhil Rao
 Afshin Rostamizadeh
 Sivan Sabato
 Peter Sadowski
 Lawrence Saul
 Mark Schmidt
 Yefgeny Seldin
 Uri Shalit
 Ryan Tibshirani
 Robert Tillman
 Guy Van Den Broeck
 Theophane Weber
 David Weiss
 Minjie Xu
 Yuchen Zhang



Workshops

JUNE 23RD & 24TH

Maps On
Next Page

Thursday

- **Gimli: Geometry in Machine Learning**
Crowne Plaza: Times Square
- **Machine Learning for Digital Education and Assessment Systems**
Marriott: Times Square
- **Human Interpretability in Machine Learning**
Microsoft; Central Park
- **Multi-View Representation Learning**
Marriott: Carnegie-Booth
- **Visualization for Deep Learning**
Marriott: Astor
- **Reliable Machine Learning in the Wild**
Marriott: Empire
- **Neural Networks Back To The Future**
Crowne Plaza: Broadway
- **Deep Learning Workshop**
Marriott: Westside Ballroom 3,4
- **Abstraction in Reinforcement Learning**
Marriott: Marquis
- **Advances in non-convex analysis and optimization**
Westin: Majestic
- **Machine Learning for Music Discovery**
Marriott: Wilder
- **Theory and Practice of Differential Privacy (TPDP 2016)**
Marriott: O'Neil

Friday

- **Data-Efficient Machine Learning**
Marriott: Astor
- **Computational Biology**
Marriott: Cantor/Jolson
- **Anomaly Detection 2016**
Microsoft: Central Park
- **Automatic Machine Learning (AutoML)**
Marriott: Empire
- **Machine Learning Systems**
Marriott: Soho
- **#data4good: Machine Learning in Social Good Applications**
Marriott: Wilder
- **Theory of Deep Learning**
Marriott: Westside Ballroom 3,4
- **On-Device Intelligence**
Marriott: Odets
- **Online advertising systems**
Marriott: Carnegie-Booth
- **Optimization Methods for the Next Generation of Machine Learning**
Westin: Majestic
- **Computational Frameworks for Personalization**
Marriott: O'Neil

Workshop Maps

MARRIOTT MARQUIS

4TH FLOOR

- ODETS
- O'NEIL
- WILDER

5TH FLOOR

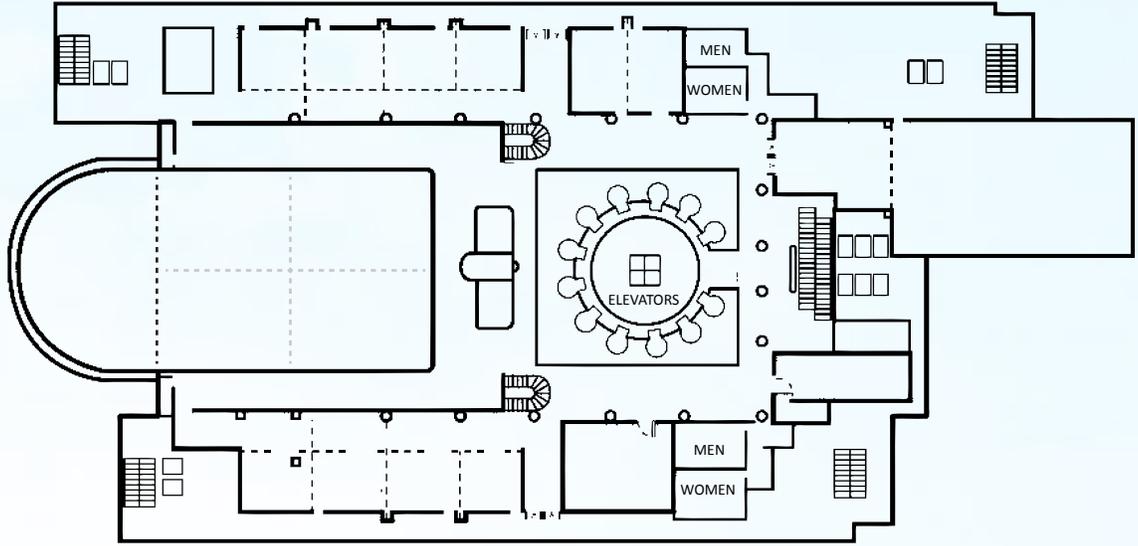
- CARNEGIE-BOOTH
- WESTSIDE BALLROOMS

7TH FLOOR

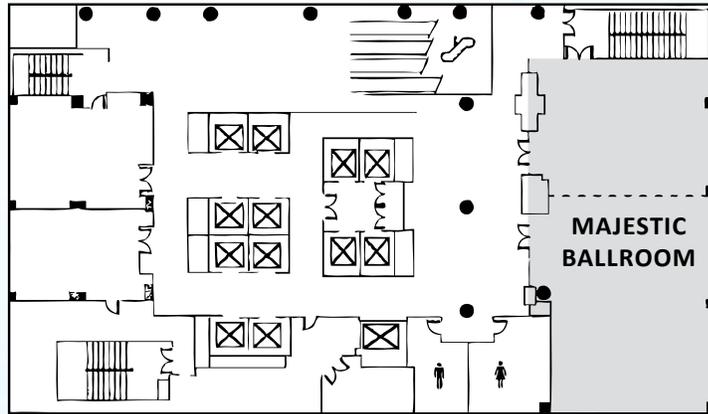
- ASTOR BALLROOM
- EMPIRE
- SOHO
- TIMES SQUARE

9TH FLOOR

- CANTOR/JOLSON
- MARQUIS



WESTIN NEW YORK - MAJESTIC BALLROOM

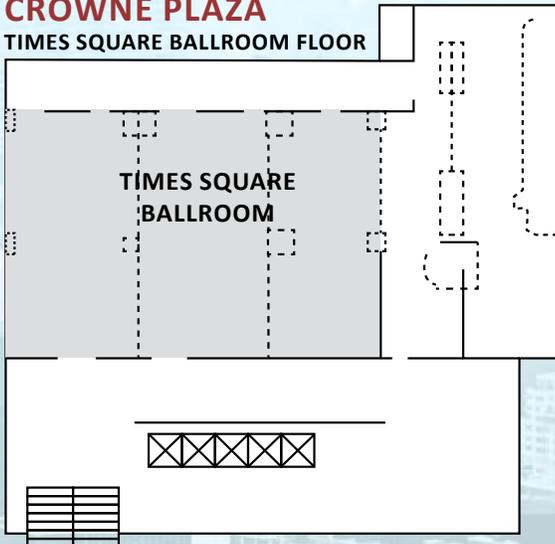


Microsoft Office
Entrance is between
42nd and 41st on 8th Ave.

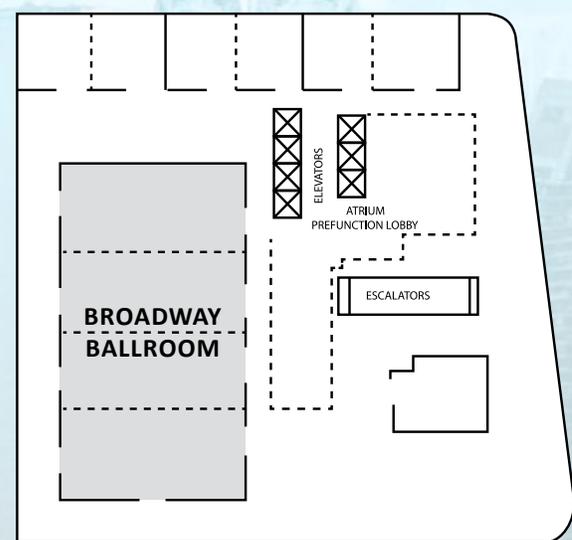
Central Park Conference
Room is Located on the
6th floor

CROWNE PLAZA

TIMES SQUARE BALLROOM FLOOR



CROWNE PLAZA - 4TH FLOOR



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