Program Booklet

Host

Sponsors

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Silver

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Welcome Message from General Co-Chairs

On behalf of the organizing committee, it is our great pleasure to welcome you to Beijing, China for the 10th Asian Conference on Machine Learning (ACML 2018). ACML is a premium forum to provide inspiring environment for researchers and practitioners in machine learning and related fields to share their new ideas, progresses and achievements. The conference this year is hosted by Beijing Jiaotong University, which will take place at the International Conference Center within the university campus with pleasant late-autumn scenery. We have a three-day attractive program consisting of keynote and invited talks, tutorials, workshops, and the main track technical paper presentation in both oral and poster form.

We wish to express our gratitude to the organizing committee members for their great efforts in ensuring the success of the conference: Program Co-Chairs Jun Zhu and Ichiro Takeuchi, Journal Track Co-Chairs Masashi Sugiyama and Yung-Kyun Noh, Workshop Co-Chairs Sinno J. Pan and Yu-Feng Li, Tutorial Co-Chairs Liwei Wang and Grigorios Tsoumakas, Publication Chair Sheng-Jun Huang, Sponsorship Chair Tao Qin. We feel deeply thankful to Honorary Co-Chairs Zhi-Hua Zhou and Hiroshi Motoda for their continuing and enlightening guidance and support. Our heart-felt thanks go to Local Arrangements Co-Chairs Liping Jing and Caiyan Jia, and all the local team members for their tireless works in taking care of logistic problems and keeping the conference organization on track.

We appreciate the ACML Steering Committee for their vote and confidence in accepting Beijing Jiaotong University to host ACML 2018 in Beijing, and their sponsorship for best student paper award and student travel grants. We are also indebted to our Program Committee for their crucial work in establishing a very high-quality technical program of ACML 2018.

We are grateful to the hosting organization Beijing Jiaotong University, and our sponsors Intel, ByteDance, Amazon AWS, Squirrel AI Learning, SoftBank, Science China Information Sciences, for their institutional and financial support to ACML 2018.

Last but not least, we would like to sincerely thank all the authors, participants and attendees of ACML 2018 – there would be no conference without you.

Welcome and enjoy the conference and your stay in Beijing!

Jian Yu  
Beijing Jiaotong University, China  
General Co-Chair

Min-Ling Zhang  
Southeast University, China  
General Co-Chair
Welcome Message from Program Co-Chairs

Welcome to the Tenth Asian Conference on Machine Learning (ACML 2018) in Beijing, China. The ACML continues the tradition of having high-quality and original research papers in the area of machine learning following nine previous successful events held in China, Japan, Taiwan, Singapore, Australia, Vietnam, Hong Kong, New Zealand, and Korea respectively. ACML aims at providing a leading international forum for researchers in machine learning and related fields to share their original research findings, new ideas and achievements. Despite originating in the Asia-Pacific region, ACML has become a worldwide conference: This year accepted papers are based in Canada, Germany, France, Finland, Netherland, India, and the Northeast of the USA, as well as the Asia-Pacific region.

This year, there were 230 submissions for the two cycles of the conference track. A strict double-blind reviewing process was enforced, and each paper was assigned with one Senior Program Committee member and at least three Program Committee members, who provided expert opinions and contributed with discussions after author response to their reviews. Finally, 57 are accepted into the main program, for an acceptance rate of 24.8%. Those accepted proceedings are published in volume 95 of Proceedings of Machine Learning Research. As in the last two years, this year ACML also ran an additional journal track. The journal track Co-Chairs oversee the reviewing process of 35 submissions, out of which 7 papers are selected for publication in the Springer journal Machine Learning, for an acceptance rate of 20%.

For ACML this year the overall number of accepted papers, from both the journal and proceedings tracks, were 64 from 265 submissions for a 24.1% total acceptance rate.

The accepted papers from the two tracks cover a broad range of topics, including Bayesian and probabilistic machine learning, deep learning, optimization and sparsity, weakly-supervised / unsupervised learning, multi-label / multi-instance / crowdsourced learning, adversarial / reinforcement learning and privacy, and applications to real world problems. All participants of ACML 2018 are welcome to joining these presentations and we hope you enjoy the active discussions among participants.

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Program Co-Chair

Ichiro Takeuchi
Nagoya Institute of Technology, Japan
Program Co-Chair
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Hiroshi Motoda  Osaka University, Japan

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Yuhong Guo  Carleton University, Canada
Kohei Hatano  Kyusyu University, Japan
Steven Hoi  Singapore Management University, Singapore
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Conference Organization

Makoto Yamada          RIKEN AIP, Japan
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Junping Zhang          Fudan University, China
Kun Zhang              Carnegie Mellon University, USA

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Hang Li                Toutiao, China
Chih-Jen Lin           National Taiwan University, Taiwan
Hiroshi Motoda         Osaka University, Japan
Masashi Sugiyama       RIKEN / The University of Tokyo, Japan (Co-Chair)
Zhi-Hua Zhou           Nanjing University, China (Chair)
Conference Sponsors

Platinum:

Gold:

Silver:

Bronze:
Conference Information

Conference Venue
ACML 2018 will be held in the campus of Beijing Jiaotong University (BJTU), China. The conference venue is International Conference Center of BJTU, which is connected to the Mechanical Engineering Building. BJTU is a national key university under the direct administration of the Ministry of Education and now is jointly supported by the Ministry of Education, the China Railway Corporation and Beijing Municipal Government. BJTU is one of the first universities selected into the “National 211 Project” and the “985 Innovative Platforms for Key Disciplines Project”, one of the first institutions authorized to confer Master's and Doctoral degrees. The campus of BJTU covers an area of nearly 67 hectares.

Venue Address
International Conference Center, Beijing Jiaotong University
Address: No.3 Shangyuancun, Haidian District, Beijing, China
Phone: +86 10 51684931

Way to reach Beijing Jiaotong University from Beijing Capital International Airport

- **Airport Shuttle**
  1) Take the Airport Shuttle Line #4 (a.k.a. Gong-Zhu-Fen Line) at Terminal 1, 2 or 3 and get off at Bei-Tai-Ping-Zhuang Station;
  2) Transfer to City Bus #16 (30 meters walking), get on at Bei-Tai-Ping-Qiao-Xi station and get off at Beijing Jiaotong University Station. Duration is about 100 minutes, and fare is 27 RMB. For more information on Airport Shuttle, please visit the airport website.

- **Subway**
  1) Take the Airport Express Railway at Terminal 2 or 3 and get off at Dong-Zhi-Men Station;
  2) Transfer to Subway #2 (510 meters walking), get on at Dong-Zhi-Men Station and get off at Xi-Zhi-Men Station;
  3) Transfer to City Bus #16 or #26 (630 meters walking), get on at Di-Tie-Xi-Zhi-Men Station and get off at Bei-Xia-Guan Station, with 90 meters walking to Beijing Jiaotong University. Duration is about 90 minutes, and fare is 31 RMB. For more information on Beijing subway, please visit the subway website.

- **Taxi**
  Take a taxi at Terminal 1, 2 or 3. Duration is about 50 minutes, and fare is about 120 RMB.
Beijing Jiaotong University Main Campus Map
Registration
The registration desk will open on the foyer of conference venue (International Conference Center, Beijing Jiaotong University) as follows:
* Wednesday, November 14 7:30am – 6:00pm
* Thursday, November 15 8:00am – 6:00pm
* Friday, November 16 8:00am – 6:00pm
Pre-registrants can pick up a registration kit there. The conference registration kit includes a conference bag, program booklet, a copy of digital proceedings, name badge, coupons for lunches, reception and banquet. All attendees must wear their name badges at all times to gain admission to all conference sessions, and to the reception, lunch and banquet. Tutorial & Workshop fee includes one lunch, refreshment break, and program booklet.

Presentation and Equipment
All rooms assigned for oral presentations, workshops and tutorials are equipped with an LCD projector with VGA connector and screen. During the single track of the conference, each paper will be presented in both oral and poster form.

Oral Presentation will be held in Lecture Hall with one session on November 14 afternoon, three sessions on November 15, and the remaining three sessions on November 16. The time slot assigned for long presentation (L) is 17 minutes including 2-minutes Q/A, and that for short presentation (S) is 10 minutes including 1-minute Q/A. Slides can be presented by either conference or personal laptop. Speakers are advised to report to their session chair a few minutes prior to the session and check that their presentation slides can be properly displayed.

Poster Presentation will be held in Multi-functional Hall during lunch time. The size of poster board is 1.0m (width) * 2.0m (height), and the authors are suggested to prepare their poster no larger than 0.9m (width) * 1.8m (height). Poster material must be in place by 11:00am before the poster session. It will remain in place until the end of the poster session. Stationery will be provided in the registration desk. Speakers are responsible for handling their poster and all posters left after 6:00pm will be discarded.
**Directions for connecting to Wi-Fi**

You can connect to Wi-Fi by the following steps:

1. Search and connect Wi-Fi named `web.wlan.bjtu` or `local.wlan.bjtu`.
   
   You can connect to the Internet by either link.

   ![Wi-Fi Options](image)

   **web.wlan.bjtu**
   - Connected (average quality)
   **local.wlan.bjtu**
   - Saved (average quality)

2. Then the default browser will automatically open the online login page.
   
   If you connect the `web.wlan.bjtu` you will see the web page as shown below:

   ![Login Page](image)

   If you connect the `local.wlan.bjtu` you will see the web page like this:

   ![Login Page](image)
3. There are two accounts prepared for you. You can choose either of them to enter the account and password, and then click the login button. (Marked with a red circle in the image above).

**For web.wlan.bjtu**
Account: 90012737
Password: acml2018

**For local.wlan.bjtu**
Account: 90012738
Password: acml2018

4. Please try these directions if you experience trouble connecting:
   1) If you have connected the Wi-Fi successfully, but the login page doesn’t appear automatically. You can enter the URL manually in your browser.
      http://10.10.43.3/ is for local.wlan.bjtu
      http://10.1.61.1/a70.htm is for web.wlan.bjtu
   2) Your network suddenly can’t be used. You can try another account and login again.
   3) All the directions mentioned above can be applied to computers and mobile phones.

If you have any questions, please ask volunteers for help. We will be happy to help you.
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Abstract: Unsupervised learning is widely recognized as one of the most important challenges facing machine learning nowadays. However, in spite of hundreds of papers on the topic being published every year, current theoretical understanding and practical implementations of such tasks, in particular of clustering, is very rudimentary. My talk focuses on clustering. I claim that the most significant challenge for clustering is model selection. In contrast with other common computational tasks, for clustering, different algorithms often yield drastically different outcomes. Therefore, the choice of a clustering algorithm, and their parameters (like the number of clusters) may play a crucial role in the usefulness of an output clustering solution. However, currently there exists no methodical guidance for clustering tool-selection for a given clustering task. Practitioners pick the algorithms they use without awareness to the implications of their choices, and the vast majority of theory of clustering papers focuses on analyzing the resources (time, sample sizes etc.) needed to solve optimization problems that arise from picking some concrete clustering objective. However, the benefits of picking an efficient algorithm for a given objective pale in comparison to the costs of mismatch between the clustering objective picked and the intended use of clustering results. I will argue the severity of this problem and describe some recent proposals aiming to address this crucial lacuna.

Biography: Shai Ben-David grew up in Jerusalem, Israel. He attended the Hebrew University studying mathematics, physics and psychology and received his PhD for a thesis in set theory. After a post doctorate at the University of Toronto he joined the CS Department at the Technion (Israel Institute of Technology). In August 2004 he joined the School of Computer Science at the University of Waterloo - his current affiliation. Over the years, Prof Ben-David has held visiting faculty positions at the Australian National University, Cornell University, ETH Zurich, TTI Chicago and the Simons institute at Berkeley. Prof. Ben-David has served as a program chair for the major machine learning theory conferences (COLT and ALT, and area chair for ICML, NIPS and AISTATS). He has co-authored the textbook “Understanding machine learning” and well over a hundred research papers on ML theory, computational complexity and logic.
Chair: Dr. Yung-Kyun Noh

“Machine Learning in Autonomous Systems: Theory and Practice”

Prof. Daniel D. Lee, Cornell Tech & Samsung Research

Abstract: Current artificial intelligence (AI) systems for perception and action incorporate a number of techniques: optimal observer models, Bayesian filtering, probabilistic mapping, trajectory planning, dynamic navigation and feedback control. I will briefly describe and demonstrate some of these methods for autonomous driving and for legged and flying robots. In order to model data variability due to pose, illumination, and background changes, low-dimensional manifold representations have long been used in machine learning. But how well can such manifolds be processed by neural networks? I will highlight the role of neural representations and discuss differences between synthetic and biological approaches to computation and learning.

Biography: Dr. Daniel D. Lee is currently Professor in Electrical and Computer Engineering at Cornell Tech and Executive Vice President for Samsung Research. He previously was the UPS Foundation Chair Professor in the School of Engineering and Applied Science at the University of Pennsylvania. He received his B.A. summa cum laude in Physics from Harvard University and his Ph.D. in Condensed Matter Physics from the Massachusetts Institute of Technology in 1995. After completing his studies, he was a researcher at AT&T and Lucent Bell Laboratories in the Theoretical Physics and Biological Computation departments. He is a Fellow of the IEEE and AAAI and has received the National Science Foundation CAREER award and the Lindback award for distinguished teaching. He was also a fellow of the Hebrew University Institute of Advanced Studies in Jerusalem, an affiliate of the Korea Advanced Institute of Science and Technology, and organized the US-Japan National Academy of Engineering Frontiers of Engineering symposium and Neural Information Processing Systems (NIPS) conference. His research focuses on understanding general computational principles in biological systems, and on applying that knowledge to build intelligent robotic systems that can learn from experience.
Abstract: Something Old: In this talk I will first describe some of our recent work with hierarchical probabilistic models that are not deep neural networks. Nevertheless, these are currently among the state of the art in classification and in topic modelling: k-dependence Bayesian networks and hierarchical topic models, respectively, and both are deep models in a different sense. These represent some of the leading edge machine learning technology prior to the advent of deep neural networks. Something New: On deep neural networks, I will describe as a point of comparison some of the state of the art applications I am familiar with: multi-task learning, document classification, and learning to learn. These build on the RNNs widely used in semi-structured learning. The old and the new are remarkably different. So what are the new capabilities deep neural networks have yielded? Do we even need the old technology? What can we do next? Something Borrowed: to complete the story, I'll introduce some efforts to combine the two approaches, borrowing from earlier work in statistics.

Biography: Wray Buntine is a full professor at Monash University from 2014 and is director of the Master of Data Science, the Faculty of IT's newest and in-demand degree. He was previously at NICTA Canberra, Helsinki Institute for Information Technology where he ran a semantic search project, NASA Ames Research Center, University of California, Berkeley, and Google. He is known for his theoretical and applied work and in probabilistic methods for document and text analysis, social networks, data mining and machine learning.
Chair: Prof. Min-Ling Zhang

“AI for Transportation”

Dr. Jieping Ye, Didi AI Labs & University of Michigan

Abstract: Didi Chuxing is the world’s leading mobile transportation platform that offers a full range of app-based transportation options for 550 million users. Every day, DiDi’s platform receives over 100TB new data, processes more than 40 billion routing requests, and acquires over 15 billion location points. In this talk, I will show how AI technologies have been applied to analyze such big transportation data to improve the travel experience for millions of users.

Biography: Dr. Jieping Ye is head of Didi AI Labs, a VP of Didi Chuxing and a Didi Fellow. He is also an associate professor of University of Michigan, Ann Arbor. His research interests include big data, machine learning, and data mining with applications in transportation and biomedicine. He has served as a Senior Program Committee/Area Chair/Program Committee Vice Chair of many conferences including NIPS, ICML, KDD, IJCAI, ICDM, and SDM. He has served as an Associate Editor of Data Mining and Knowledge Discovery, IEEE Transactions on Knowledge and Data Engineering, and IEEE Transactions on Pattern Analysis and Machine Intelligence. He won the NSF CAREER Award in 2010. His papers have been selected for the outstanding student paper at ICML in 2004, the KDD best research paper runner up in 2013, and the KDD best student paper award in 2014.
Deep learning has achieved great success in many machine learning tasks and has major academic and industrial impacts. Deep architecture design has been one of the key topics in deep learning. Most of architecture designs are empirical and in lack of guiding principles. This tutorial will review some of the recent work on linking dynamic systems with deep architecture, and understanding deep neural network training as optimal control. It will show how we can take advantage of the rich knowledge in dynamic system and optimal control to provide guidance in designing new and effective deep architectures. On the other hand, such perspective also enables us to bring deep learning in applied mathematics to tackle challenging problems.
“Dual Learning: Algorithms, Applications and Challenges”

Tao Qin, Microsoft Research Asia, China

While structural duality is common in AI, most learning algorithms have not exploited it in learning/inference. Dual learning is a new learning framework that leverages the primal-dual structure of AI tasks to obtain effective feedback or regularization signals to enhance the learning/inference process. Dual learning has been studied in different learning settings. This tutorial will first introduce several dual learning algorithms: (1) dual unsupervised learning, (2) dual supervised learning, (3) dual transfer learning, and (4) dual inference. Then it will cover multiple applications, including neural machine translation, image understanding, sentiment analysis, question answering/generation, image translation, etc. At the end, the tutorial will describe several challenges of dual learning, such as theoretical understanding, efficiency and scalability, and discuss future research directions.
ACML 2018 Workshop on Multi-output Learning (ACML-Mol’18)

Motivation and Objectives

Multi-output learning aims to predict multiple outputs for an input, where the output values are characterized by diverse data types, such as binary, nominal, ordinal and real-valued variables. Such learning tasks arise in a variety of real-world applications, ranging from document classification, computer emulation, sensor network analysis, concept-based information retrieval, human action/causal induction, to video analysis, image annotation/retrieval, gene function prediction and brain science. Due to its popularity in applications, multi-output learning has also been widely explored in machine learning community, such as multi-label/multi-class classification, multi-target regression, hierarchical classification with class taxonomies, label sequence learning, sequence alignment learning, and supervised grammar learning, and so on. The theoretical properties of existing approaches for multi-output data are still not well understood. This triggers practitioners to develop novel methodologies and theories to deeply understand multi-output learning tasks. Moreover, the emerging trends of ultrahigh input and output dimensionality, and the complexly structured objects, lead to formidable challenges for multi-output learning. Therefore, it is imperative to propose practical mechanisms and efficient optimization algorithms for large-scale applications. Deep learning has gained much popularity in today’s research, and has been developed in recent years to deal with multi-label and multi-class classification problems. However, it remains non-trivial for practitioners to design novel deep neural networks that are appropriate for more comprehensive multi-output learning domains.

Organizers

Weiwei Liu, University of New South Wales, Australia
Xiaobo Shen, Nanyang Technological University, Singapore
Yew-Soon Ong, Nanyang Technological University, Singapore
Ivor W. Tsang, University of Technology Sydney, Australia
Chen Gong, Nanjing University of Science and Technology, China

Workshop Homepage

https://acml-mol.github.io/
The 3rd Asian Workshop on Reinforcement Learning (AWRL’18)

Background and Motivation
The Asian Workshop on Reinforcement Learning (AWRL) focuses on both theoretical foundations, models, algorithms, and practical applications. We intend to make this an exciting event for researchers and practitioners in RL worldwide as a forum for the discussion of open problems, future research directions and application domains of RL. AWRL 2018 will consist of keynote talks, invited paper presentations, and discussion sessions spread over a one-day period.

Organizers
Paul Weng, University of Michigan-Shanghai Jiao Tong University Joint Institute, China
Yang Yu, Nanjing University, China
Zongzhang Zhang, Soochow University, China
Li Zhao, Microsoft Research Asia, China

Workshop Homepage
http://awrl.cc/2018.html
ACML 2018 Workshop on Machine Learning in China (MLChina’18)

Background and Motivation
During the past decade, machine learning researches in China have been growing in a blooming way. This is witnessed by the increasing number of works appeared in major machine learning related conferences and journals, and also numerous successful applications of machine learning techniques in major Chinese high-tech companies such as Huawei, Tencent, Baidu, Alibaba, etc. There are also many domestic machine learning conferences regularly held in China which attract a significant number of participants, such as the biennial Chinese Conference on Machine Learning, the annual Chinese Workshop on Machine Learning and Applications, the annual Chinese Vision and Learning Seminar, etc.

To take full advantage of the opportunity that ACML is to be held in Beijing, a dedicated full-day workshop for machine learning researchers and practitioners in China is organized. This workshop would be a great chance for sharing ideas and expertise among interested participants, encouraging students and junior researchers to get suggestions and advices from senior experts, and also fostering connections and possible collaborations between Chinese and International machine learning communities.

Organizers
Deyu Meng, Xi’an Jiaotong University, China
Lijun Zhang, Nanjing University, China

Workshop Homepage
https://mlchina18.github.io/
ACML 2018 Workshop on Machine Learning in Education

Background and Motivation
As AlphaGo defeated the world’s best Go player in 2016, AI is brought into the classroom to individualize learning in the form of adaptive learning. It analyzes the students and note their weaknesses and strengths, then changes the course around so that students can polish up areas which they may be struggling with. It also responds to the students’ needs and personalize the course to best fit their talents. We take this chance to discuss the most recent development of machine learning technology used in education and to provide a forum for communication of researchers active in machine learning used in education.

Topics of Interest
Interested topics include, but are not limited to:
- Personalized learning paths
- Content Analytics
- Scoring
- Automating repetitive tasks
- Learning analytics

Organizers
- Dr. Wei Cui, Shanghai Yixue Education Technology Ltd., China
- Prof. Xiangen Hu, University of Memphis
- Dr. Sam Wang, SRI international (Stanford Research Institute), USA
- Dr. Zhen Xue, Shanghai Yixue Education Technology Ltd., China

Workshop Homepage
Session 1  Bayesian and Probabilistic Machine Learning
(4 long presentations (L) + 5 short presentations (S))

Chair: Prof. Wray Buntine

#1.1 Good Arm Identification via Bandit Feedback (L)
Hideaki Kano, Junya Honda, Kentaro Sakamaki, Kentaro Matsuura, Atsuyoshi Nakamura, Masashi Sugiyama

#1.2 Bayesian Optimistic Kullback-Leibler Exploration (L)
Kanghoon Lee, Geon-Hyeong Kim, Pedro Ortega, Daniel D. Lee, Kee-Eung Kim

#1.3 Annotation Cost-sensitive Active Learning by Tree Sampling (L)
Yu-Lin Tsou, Hsuan-Tien Lin

#1.4 Structured Gaussian Processes with Twin Multiple Kernel Learning (L)
Çiğdem Ak, Önder Ergönül, Mehmet Gönen

#1.5 Feature-correlation-aware Gaussian Process Latent Variable Model (S)
Ping Li, Songcan Chen

#1.6 Hypernetwork-based Implicit Posterior Estimation and Model Averaging of Convolutional Neural Networks (S)
Kenya Ukai, Takashi Matsubara, Kuniaki Uehara

#1.7 Profitable Bandits (S)
Mastane Achab, Stephan Clémençon, Aurélien Garivier

#1.8 Fast Randomized PCA for Sparse Data (S)
Xu Feng, Yuyang Xie, Mingye Song, Wenjian Yu, Jie Tang

#1.9 Efficient Mechanisms for Peer Grading and Dueling Bandits (S)
Chuang-Chieh Lin, Chi-Jen Lu
Session 2  Multi-label, Multi-Instance and Crowdsourcing  
(4 long presentations (L) + 5 short presentations (S))

Chair: Dr. Sheng-Jun Huang

#2.1 Supervised Representation Learning for Multi-label Classification (L)  
Ming Huang, Fuzhen Zhuang, Xiao Zhang, Xiang Ao, Zhengyu Niu, Min-Ling Zhang, Qing He

#2.2 Millionaire: A Hint-guided Approach for Crowdsourcing (L)  
Bo Han, Quanming Yao, Yuangang Pan, Ivor W. Tsang, Xiaokui Xiao, Qiang Yang, Masashi Sugiyama

#2.3 Knowledge Guided Multi-instance Multi-label Learning via Neural Networks in Medicines Prediction (L)  
Junyuan Shang, Shenda Hong, Yuxi Zhou, Meng Wu, Hongyan Li

#2.4 Distinguishing Question Subjectivity from Difficulty for Improved Crowdsourcing (L)  
Yuan Jin, Mark Carman, Ye Zhu, Wray Buntine

#2.5 Making Classifier Chains Resilient to Class Imbalance (S)  
Bin Liu, Grigorios Tsoumakas

#2.6 Deep Correlation Structure Preserved Label Space Embedding for Multi-label Classification (S)  
Kaixiang Wang, Ming Yang, Wanqi Yang, YiLong Yin

#2.7 Deep Multi-instance Learning with Dynamic Pooling (S)  
Yongluan Yan, Xinggang Wang, Xiaojie Guo, Jiemin Fang, Wenyu Liu, Junzhou Huang

#2.8 A Joint Selective Mechanism for Abstractive Sentence Summarization (S)  
Junjie Fu, Gongshen Liu

#2.9 A Self-Attentive Hierarchical Model for Jointly Improving Text Summarization and Sentiment Classification (S)  
Hongli Wang, Jiangtao Ren
Session 3  Optimization and Sparsity
(4 long presentations (L) + 5 short presentations (S))

Chair: Dr. Taiji Suzuki

#3.1 Preconditioned Conjugate Gradient Methods in Truncated Newton Frameworks for Large-scale Linear Classification (L)
Chih-Yang Hsia, Wei-Lin Chiang, Chih-Jen Lin

#3.2 N-ary Decomposition for Multi-class Classification (L)
Joey Tianyi Zhou, Ivor W. Tsang, Shen-Shyang Ho, Klaus-Robert Müller

#3.3 An Accelerated Variance Reducing Stochastic Method with Douglas-Rachford Splitting (L)
Jingchang Liu, Linli Xu, Shuheng Shen, Qing Ling

#3.4 CHS-NET: A Cascaded Neural Network with Semi-Focal Loss for Mitosis Detection (L)
Yanbo Ma, Jiarui Sun, Qiuhao Zhou, Kaili Cheng, Xuesong Chen, Yong Zhao

#3.5 Construction of Incoherent Dictionaries via Direct Babel Function Minimization (S)
Huan Li, Zhouchen Lin

#3.6 Joint Patch-Group Based Sparse Representation for Image Inpainting (S)
Zhiyuan Zha, Xin Yuan, Bihan Wen, Jiantao Zhou, Ce Zhu

#3.7 A Scalable Heterogeneous Parallel SOM Based on MPI/CUDA (S)
Yao Liu, Jun Sun, Qing Yao, Su Wang, Kai Zheng, Yan Liu

#3.8 Optimization Algorithm Inspired Deep Neural Network Structure Design (S)
Huan Li, Yibo Yang, Dongmin Chen, Zhouchen Lin

#3.9 ASVRG: Accelerated Proximal SVRG (S)
Fanhua Shang, Licheng Jiao, Kaiwen Zhou, James Cheng, Yan Ren, Yufei Jin
Session 4 Deep Learning  
(4 long presentations (L) + 5 short presentations (S))

Chair: Prof. Ivor Tsang

#4.1 Boosting Dynamic Programming with Neural Networks for Solving NP-hard Problems (L)  
Feidiao Yang, Tiancheng Jin, Tie-Yan Liu, Xiaoming Sun, Jialin Zhang

#4.2 Learning Selfie-Friendly Abstraction from Artistic Style Images (L)  
Yicun Liu, Jimmy Ren, Jianbo Liu, Jiawei Zhang, Xiaohao Chen

#4.3 Batch Normalized Deep Boltzmann Machines (L)  
Hung Vu, Tu Dinh Nguyen, Trung Le, Wei Luo, Dinh Phung

#4.4 Collaboratively Weighting Deep and Classic Representation via L2 Regularization for Image Classification (L)  
Shaoning Zeng, Bob Zhang, Yanghao Zhang, Jianping Gou

#4.5 Discriminative Feature Representation for Person Re-identification by Batch-contrastive Loss (S)  
Guopeng Zhang, Jinhua Xu

#4.6 Multidimensional Time Series Anomaly Detection: A GRU-based Gaussian Mixture Variational Autoencoder Approach (S)  
Yifan Guo, Weixian Liao, Qianlong Wang, Lixing Yu, Tianxi Ji, Pan Li

#4.7 ReSet: Learning Recurrent Dynamic Routing in ResNet-like Neural Networks (S)  
Iurii Kemaev, Daniil Polykovskiy, Dmitry Vetrov

#4.8 ZoomNet: Deep Aggregation Learning for High-Performance Small Pedestrian Detection (S)  
Chong Shang, Haizhou Ai, Zijie Zhuang, Long Chen, Junliang Xing

#4.9 RICAP: Random Image Cropping and Patching Data Augmentation for Deep CNNs (S)  
Ryo Takahashi, Takashi Matsubara, Kuniaki Uehara
#1.1 Good Arm Identification via Bandit Feedback (L)  
#1.2 Bayesian Optimistic Kullback-Leibler Exploration (L)  
#1.3 Annotation Cost-sensitive Active Learning by Tree Sampling (L)  
#1.4 Structured Gaussian Processes with Twin Multiple Kernel Learning (L)  
#1.5 Feature-correlation-aware Gaussian Process Latent Variable Model (S)  
#1.6 Hypernetwork-based Implicit Posterior Estimation and Model Averaging of Convolutional Neural Networks (S)  
#1.7 Profitable Bandits (S)  
#1.8 Fast Randomized PCA for Sparse Data (S)  
#1.9 Efficient Mechanisms for Peer Grading and Dueling Bandits (S)  

#2.1 Supervised Representation Learning for Multi-label Classification (L)  
#2.2 Millionaire: A Hint-guided Approach for Crowdsourcing (L)  
#2.3 Knowledge Guided Multi-instance Multi-label Learning via Neural Networks in Medicines Prediction (L)  
#2.4 Distinguishing Question Subjectivity from Difficulty for Improved Crowdsourcing (L)  
#2.5 Making Classifier Chains Resilient to Class Imbalance (S)  
#2.6 Deep Correlation Structure Preserved Label Space Embedding for Multi-label Classification (S)  
#2.7 Deep Multi-instance Learning with Dynamic Pooling (S)  
#2.8 A Joint Selective Mechanism for Abstractive Sentence Summarization (S)  
#2.9 A Self-Attentive Hierarchical Model for Jointly Improving Text Summarization and Sentiment Classification (S)  

#3.1 Preconditioned Conjugate Gradient Methods in Truncated Newton Frameworks for Large-scale Linear Classification (L)  
#3.2 N-ary Decomposition for Multi-class Classification (L)  
#3.3 An Accelerated Variance Reducing Stochastic Method with Douglas-Rachford Splitting (L)  
#3.4 CHS-NET: A Cascaded Neural Network with Semi-Focal Loss for Mitosis Detection (L)  
#3.5 Construction of Incoherent Dictionaries via Direct Babel Function Minimization (S)  
#3.6 Joint Patch-Group Based Sparse Representation for Image Inpainting (S)  
#3.7 A Scalable Heterogeneous Parallel SOM Based on MPI/CUDA (S)  
#3.8 Optimization Algorithm Inspired Deep Neural Network Structure Design (S)  
#3.9 ASVRG: Accelerated Proximal SVRG (S)
#4.1 Boosting Dynamic Programming with Neural Networks for Solving NP-hard Problems (L)
#4.2 Learning Selfie-Friendly Abstraction from Artistic Style Images (L)
#4.3 Batch Normalized Deep Boltzmann Machines (L)
#4.4 Collaboratively Weighting Deep and Classic Representation via L2 Regularization for Image Classification (L)
#4.5 Discriminative Feature Representation for Person Re-identification by Batch-contrastive Loss (S)
#4.6 Multidimensional Time Series Anomaly Detection: A GRU-based Gaussian Mixture Variational Autoencoder Approach (S)
#4.7 ReSet: Learning Recurrent Dynamic Routing in ResNet-like Neural Networks (S)
#4.8 ZoomNet: Deep Aggregation Learning for High-Performance Small Pedestrian Detection (S)
#4.9 RICAP: Random Image Cropping and Patching Data Augmentation for Deep CNNs (S)
Session 5 Deep/Adversarial/Reinforcement Learning and Privacy
(4 long presentations (L) + 5 short presentations (S))

Chair: Prof. Chih-Jen Lin

#5.1 Deep Fully-Connected Part-Based Models for Human Pose Estimation (L)
Rodrigo de Bem, Anurag Arnab, Stuart Golodetz, Michael Sapienza, Philip Torr

#5.2 Adversarial TableQA: Attention Supervision for Question Answering on Tables (L)
Minseok Cho, Reinald Kim Amplayo, Seung-won Hwang, Jonghyuck Park

#5.3 Adversarial Neural Machine Translation (L)
Lijun Wu, Yingce Xia, Fei Tian, Li Zhao, Tao Qin, Jianhuang Lai, Tie-Yan Liu

#5.4 Person Re-identification by Mid-level Attribute and Part-based Identity Learning (L)
Guopeng Zhang, Jinhua Xu

#5.5 Cartoon-to-Photo Facial Translation with Generative Adversarial Networks(S)
Junhong Huang, Mingkui Tan, Yuguang Yan, Chunmei Qing, Qingyao Wu,
Zhuliang Yu

#5.6 Refining Synthetic Images with Semantic Layouts by Adversarial Training (S)
Tongtong Zhao, Yuxiao Yan, JinJia Peng, HaoHui Wei, Xianping Fu

#5.7 CCNet: Cluster-Coordinated Net for Learning Multi-agent Communication
Protocols with Reinforcement Learning (S)
Xin Wen, Zheng-Jun Zha, Zilei Wang, Liansheng Zhuang, Houqiang Li

#5.8 SecureNets: Secure Inference of Deep Neural Networks on an Untrusted Cloud (S)
Xuhui Chen, Jinlong Ji, Lixing Yu, Changqing Luo, Pan Li

#5.9 TVT: Two-View Transformer Network for Video Captioning (S)
Ming Chen, Yingming Li, Zhongfei Zhang, Siyu Huang
Session 6 Weakly-supervised or Unsupervised Learning  
(4 long presentations (L) + 5 short presentations (S))

Chair: Dr. Yu-Feng Li

#6.1 RDEC: Integrating Regularization into Deep Embedded Clustering for Imbalanced Datasets (L)  
Yaling Tao, Kentaro Takagi, Kouta Nakata

#6.2 Clustering Uncertain Graphs with Node Attributes (L)  
Yafang Li, Xiangnan Kong, Caiyan Jia, Jianqiang Li

#6.3 Clustering Induced Kernel Learning (L)  
Khanh Nguyen, Nhan Dam, Trung Le, Tu Dinh Nguyen, Dinh Phung

#6.4 Extracting Invariant Features From Images Using An Equivariant Autoencoder (L)  
Denis Kuzminykh, Daniil Polykovskiy, Alexander Zhebrak

#6.5 Co-regularized Multi-view Subspace Clustering (S)  
Hong Yu, Tiantian Zhang, Yahong Lian, Yu Cai

#6.6 Unsupervised Heterogeneous Domain Adaptation with Sparse Feature Transformation (S)  
Chen Shen, Yuhong Guo

#6.7A Faster Sampling Algorithm for Spherical k-means (S)  
Rameshwar Pratap, Anup Deshmukh, Pratheeksha Nair, Tarun Dutt

#6.8 Deep Embedded Clustering with Data Augmentation (S)  
Xifeng Guo, En Zhu, Xinwang Liu, Jianping Yin

#6.9 An Empirical Evaluation of Sketched SVD and its Application to Leverage Score Ordering (S)  
Hui Han Chin, Paul Pu Liang
Session 7 Machine Learning Application
(3 long presentations (L) + 7 short presentations (S))

Chair: Prof. Ichiro Takeuchi

#7.1 End-to-End Learning of Multi-scale Convolutional Neural Network for Stereo Matching (L)
Li Zhang, Quanhong Wang, Haihua Lu, Yong Zhao

#7.2 End-to-End Time Series Imputation via Residual Short Pants (L)
Lifeng Shen, Qianli Ma, Sen Li

#7.3 Relative Attribute Learning with Deep Attentive Cross-image Representation (L)
Zeshang Zhang, Yingming Li, Zhongfei Zhang

#7.4 Underwater Image Restoration Based on Convolutional Neural Network (S)
Yan Hu, Keyan Wang, Xi Zhao, Hui Wang, Yunsong Li

#7.5 Stock Price Prediction Using Attention-based Multi-Input LSTM (S)
Hao Li, Yanyan Shen, Yanmin Zhu

#7.6 Who Are Raising Their Hands? Hand-Raiser Seeking Based on Object Detection and Pose Estimation (S)
Huayi Zhou, Fei Jiang, Ruimin Shen

#7.7 Concorde: Morphological Agreement in Conversational Models (S)
Daniil Polykovskiy, Dmitry Soloviev, Sergey Nikolenko

#7.8 Character-based BiLSTM-CRF Incorporating POS and Dictionaries for Chinese Opinion Target Extraction (S)
Yanzeng Li, Tingwen Liu, Diying Li, Quangang Li, Jinqiao Shi, Yanqiu Wang

#7.9 A Data Driven Approach to Predicting Rating Scores for New Restaurants (S)
Xiaochen Wang, Yanyan Shen, Yanmin Zhu

#7.10 Fast Dynamic Convolutional Neural Networks for Visual Tracking (S)
Zhiyan Cui, Na Lu, Xue Jing, Xiahao Shi
#5.1 Deep Fully-Connected Part-Based Models for Human Pose Estimation (L)
#5.2 Adversarial TableQA: Attention Supervision for Question Answering on Tables (L)
#5.3 Adversarial Neural Machine Translation (L)
#5.4 Person Re-identification by Mid-level Attribute and Part-based Identity Learning (L)
#5.5 Cartoon-to-Photo Facial Translation with Generative Adversarial Networks(S)
#5.6 Refining Synthetic Images with Semantic Layouts by Adversarial Training (S)
#5.7 CCNet: Cluster-Coordinated Net for Learning Multi-agent Communication Protocols with Reinforcement Learning (S)
#5.8 SecureNets: Secure Inference of Deep Neural Networks on an Untrusted Cloud (S)
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#6.7 A Faster Sampling Algorithm for Spherical k-means (S)
#6.8 Deep Embedded Clustering with Data Augmentation (S)
#6.9 An Empirical Evaluation of Sketched SVD and its Application to Leverage Score Ordering (S)

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#7.10 Fast Dynamic Convolutional Neural Networks for Visual Tracking (S)
Welcome Reception  
Wednesday, 14 November, 6:30pm - 8:30pm  
Venue: Ya-Shi Hall, Grand Building, Beijing Friendship Hotel  
The Friendship Hotel of Beijing is one of the largest garden-style hotels in Asia. Located in the heart of ZhongGuanCun Hi-Tech Zone. This provides an excellent space for ACM 2018 participants to interact and socialize whilst being surrounded by original ecological beauty.  
Shuttle bus will leave for reception venue at 18:10 (board at the parking lot near the campus south gate of Beijing Jiaotong University).

Conference Banquet  
Thursday, 15 November, 7:00pm - 9:00pm  
Venue: Zhengyuan Da-Zhai-Men (Shouti South Road)  
Zhengyuan Da-Zhai-Men (the Grand Mansion) is fashionable and glamorous with a touch of archaized breath; You can feast on Grand Mansion banquet, Beijing local snacks, exquisite folk performing arts and modern amusements. Grand Mansion dishes represent a miracle of Chinese national catering culture. They are endowed with delicacy, nourishment and grandness of royal court dishes as well as dexterity and flavor of folk dishes. Performances of Grand Mansion are elegant and excellent, which can satisfy your demands for delicious dishes, wonderful performances and far-sounding music. Various classical dramas, local operas and classical local special performances are really wonderful.  
Shuttle bus will leave for banquet venue at 18:40 (board at the parking lot near the campus south gate of Beijing Jiaotong University), and return to Beijing Friendship Hotel after conference banquet.

Lunches  
Wednesday to Friday, 14 - 16 November  
HongGuoYuan Hotel (within university campus, 300m to conference venue)
Beijing Friendship Hotel (main hotel)
Location: 3.6 km away from the venue
Address: 1 Zhongguancun South Street, Haidian District, Beijing, China
Phone: +86-10-68498888
Website: http://www.friendshipshotel.com/en/
Nearby subway: RENMIN University Station (Line #4), Exit #D, with 0.2 km to hotel
Airport Shuttle: Line #4 (Shuttle stop: Beijing Friendship Hotel Station)

Shuttle Bus Schedule for Beijing Friendship Hotel

**Wednesday, 14 November**
Beijing Friendship Hotel ➔ Beijing Jiaotong University (departure time: 7:40am)
Beijing Jiaotong University ➔ Beijing Friendship Hotel (departure time: 6:10pm)

**Thursday, 15 November**
Beijing Friendship Hotel ➔ Beijing Jiaotong University (departure time: 7:40am)
Beijing Jiaotong University ➔ Banquet venue (departure time: 6:40pm)
Banquet venue ➔ Beijing Friendship Hotel (departure time: after banquet)

**Friday, 16 November**
Beijing Friendship Hotel ➔ Beijing Jiaotong University (departure time: 7:50am)
Beijing Jiaotong University ➔ Beijing Friendship Hotel (departure time: 6:40pm)

Boarding site at Beijing Friendship Hotel: parking lot behind the Grand Building
Boarding site at Beijing Jiaotong University: parking lot near the campus south gate

Jiayuan Hotel
Location: 1.6 km away from the venue
Address: 6 Daliushu Road, Haidian District, Beijing, China
Phone: +86-10-62272288
Website: http://www.bjjiayuanhotel.com/en/index.htm
Nearby subway: WEIGONGCUN Station (Line #4), with 1.2 km to hotel

HongGuoYuan Hotel
Location: 0.3 km away from the venue
Address: 3 Shangyuancun, Beijing Jiaotong University, Haidian District, Beijing, China
Phone: +86-10-51685100
Nearby subway: XIZHIMEN Station (Line #2, #4, #13), with 1.4 km to hotel