KAIXIANG LIN

Github & Google Scholar & Homepage

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EDUCATION

Michigan State University *Aug. 2015 - Aug. 2020*
Ph.D. student in Computer Science & Engineering
Advisor: Dr. Jiayu Zhou

University of Science and Technology of China *Sept. 2010 - July 2014*
B.E. in Electronic Information Engineering

PROFESSIONAL EXPERIENCE

Applied Scientist II at **Amazon Lab 126, Sunnyvale, CA** *Oct 5th 2020 - present*

- Embodied Artificial Intelligence.

Research Intern at **Google Display Ads, Mountain View, CA** *May 28th - Aug. 30th 2019*

- Applied learning to rank algorithms (including our ranking policy gradient) to display format selection problems. Seven models checked into production for three ranking tasks.

- Increased revenue by 1.14% based on five days online A/B testing.

Research Intern at **Didi AI Labs, Beijing** *May - Aug. 2017, 2018*

- Designed and implemented constrained multi-armed bandit algorithm for a multi-channel marketing project. Return on Investment (ROI) increased over 23% with the same scale of investment. This algorithm was running online at the end of my internship.

- Proposed and implemented a novel multi-agent deep reinforcement learning algorithm for large scale fleet management that is able to coordinate large number of agents and increase the GMV over 15% based on a simulator that is calibrated with real data.

SELECTED PUBLICATIONS

Zhaonan Qu*, **Kaixiang Lin***, Jayant Kalagnanam, Zhaojian Li, Jiayu Zhou, Zhengyuan Zhou. "Federated Learning's Blessing: FedAvg has Linear Speedup", in submission, 2020. (* **equal contribution**).

Zhuangdi Zhu, **Kaixiang Lin**, Jiayu Zhou. "Transfer Learning in Deep Reinforcement Learning: A Survey" in submission, 2020.

Boyang Liu, Ding Wang, **Kaixiang Lin**, Pang-Ning Tan, Jiayu Zhou. "Robust Collaborative Autoencoder for Unsupervised Anomaly Detection", in submission, 2020.

Zhuangdi Zhu, **Kaixiang Lin**, Bo Dai, Jiayu Zhou. "Learning Sparse Rewarded Tasks from Sub-Optimal Demonstrations", in submission, 2020.

Zhuangdi Zhu, **Kaixiang Lin**, Bo Dai, Jiayu Zhou. "Off-Policy Imitation Learning from Observations", Thirty-fourth Conference on Neural Information Processing Systems (NeurIPS), 2020.

Kaixiang Lin and Jiayu Zhou. "Ranking Policy Gradient", International Conference on Learning Representations (ICLR), 2020.

Kaixiang Lin, Renyu Zhao, Zhe Xu, Jiayu Zhou. "Efficient Large-Scale Fleet Management via Multi-Agent Deep Reinforcement Learning", the 24th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD), 2018. [**Research track Oral**][**Acceptance rate: 10.9%**]

Kaixiang Lin, Shu Wang, Jiayu Zhou. "Collaborative Deep Reinforcement Learning", Preprint, 2017.

Liyang Xie, Inci M. Baytas, **Kaixiang Lin**, Shu Wang, Jiayu Zhou. "Privacy-preserving distributed multi-task learning with asynchronous updates", the 23rd ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD), 2017.

Inci M. Baytas, **Kaixiang Lin**, Fei Wang, Anil K. Jain and Jiayu Zhou. "PhenoTree: Interactive Visual Analytics for Hierarchical Phenotyping from Large-Scale Electronic Health Records", IEEE Transaction on Multimedia, 2016.

Kaixiang Lin and Jiayu Zhou. "Interactive Multi-Task Relationship Learning", IEEE International Conference on Data Mining (ICDM), 2016.[**Oral**][**Acceptance rate: 8.5%**]

Inci M. Baytas, **Kaixiang Lin**, Fei Wang, Anil K. Jain and Jiayu Zhou. "Stochastic Convex Sparse Principal Component Analysis" EURASIP Journal on Bioinformatics and Systems Biology, 2016.

Kaixiang Lin, Jianpeng Xu, Inci M. Baytas, Shuiwang Ji and Jiayu Zhou. "Multi-Task Feature Interaction Learning", the 22nd ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD), 2016. [**Research track**][**Acceptance rate: 18.1%**]

Jianpeng Xu, **Kaixiang Lin**, Pang-Ning Tan and Jiayu Zhou."Synergies that Matter: Efficient Interaction Selection via Sparse Factorization Machine", SIAM International Conference on Data Mining (SDM) 2016.

HONORS AND AWARDS

Conference Travel Grant: SDM2016, KDD2016, SDM2017, SDM2018, KDD2018
Best Poster Award, Doctoral Forum, SDM2017

INVITED TALKS

- LinkedIn Tech Talk: "Ranking Policy Gradient: Towards Sample-efficient Reinforcement Learning", Aug 9th, 2019.

SERVICES

Program Committee (PC) member:

- AAAI 2021, ICLR 2021.
- ICML 2020, IJCAI 2020, NeurIPS 2020, ICLR 2020, AAAI 2020.
- IJCAI 2019, IEEE BigData 2019, ICDM 2018, IEEE BigData 2018.

Journal Reviewer:

- Machine Learning
- ACM Transactions on Intelligent Systems and Technology (TIST)
- IEEE Transactions on Neural Networks and Learning Systems (TNNLS)
- Transactions on Knowledge and Data Engineering (TKDE)
- The Transportation Research Board (TRB) 98th Annual Meeting
- International Journal of Machine Learning and Cybernetics (JMLC)
- Neurocomputing
- Pattern Recognition
- Data Mining and Knowledge Discovery
- Transactions on Knowledge Discovery from Data (TKDD)