Xuanqing Liu

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Education

- **University of California, Los Angeles** — Los Angeles, CA
  Ph.D. student in computer science. Advisor: Cho-Jui Hsieh — *2018 -*
- **University of California, Davis** — Davis, CA
  Ph.D. student in computer science. Advisor: Cho-Jui Hsieh — *2016 - 2018*
- **Peking University** — Beijing, China
  B.Sc in physics. Advisor: Qite Li and Yansong Feng — *2011 - 2016*
  †Thesis: Simulation and Optimization of Cosmic Ray Muon Imaging Detector

Industrial Experience

- Summer/Fall 2019. Amazon Inc. (A9 division). *Applied Research Intern*
  Topic: Machine translation for advanced search engine.
- Fall/Winter 2018. Google Research. *Research Intern*
  Topics: Model compression, data poisoning, graph neural networks.
- Summer 2018. Criteo AI Research. *Research Intern*
  Topic: Gradient boosting neural networks for commercial ads prediction.

Research Interests

Optimization: Convex and non-convex optimization for models in machine learning.

- Extending inexact subsampled Newton-type method to support non-smooth regularizers.
- Variance reduction SGD with random batch size, cache-aware SAGA.
- Efficient solver for Trust-region subproblem.

Robust training of deep neural networks: threats and defense methods.

- Neural networks that are robust to adversarial attacks.
- Adversarial neural networks.

Sequential learning and NLP. Improving inference speed; capturing long term dependencies in Transformer models.

Pre-prints & Publications

Full list: https://scholar.google.com/citations?user=47EBD1QAAAAJ

- Sarkhan Badirli, **Xuanqing Liu**, Zhengming Xing, Avradeep Bhowmik, Sathiya S. Keerthi. *Gradient Boosting Neural Networks: GrowNet*. ArXiv preprint (2020).
- Lu Wang, **Xuanqing Liu**, Jinfeng Yi, Zhi-Hua Zhou, Cho-Jui Hsieh. *Evaluating the Robustness of Nearest Neighbor Classifiers: A Primal-Dual Perspective*. ArXiv preprint (2019).
- **Xuanqing Liu**, Cho-Jui Hsieh, Jason D. Lee, Yuekai Sun. *An Inexact Subsampled Proximal Newton-type Method for Large-scale Machine Learning*. ArXiv preprint (2017).
- **Xuanqing Liu**, Jason D. Lee, Cho-Jui Hsieh. *Better Generalization by Efficient Trust-region Method*. Draft.

- **Xuanqing Liu**, Hsiang-Fu Yu, Inderjit Dhillon, Cho-Jui Hsieh. *Learning to Encode Position for Transformer with Continuous Dynamical Model*. ICML (2020).
- **Xuanqing Liu**, Tesi Xiao, Si Si, Qin Cao, Sanjiv Kumar, Cho-Jui Hsieh. *How Does Noise Help Robustness? Stabilizing Neural ODE Networks with Stochastic Noise*. CVPR 2020 ***(oral presentation)***
- **Xuanqing Liu**, Si Si, Xiaojin(Jerry) Zhu, Yang Li, Cho-Jui Hsieh. *A Unified Framework for Data Poisoning Attack to Graph-based Semi-supervised Learning*. NeurIPS 2019.
- Wei-Lin Chiang, **Xuanqing Liu**, Si Si, Yang Li, Samy Bengio, Cho-Jui Hsieh. *Cluster-GCN: An Efficient Algorithm for Training Deep and Large Graph Convolutional Networks*. KDD 2019 ***(oral presentation)***.
- **Xuanqing Liu**, Cho-Jui Hsieh. *From Adversarial Training to Generative Adversarial Networks*. CVPR 2019.
- **Xuanqing Liu**, Yao Li*, Chongruo Wu*, Cho-Jui Hsieh. *Adv-BNN: Improved Adversarial Defense through Robust Bayesian Neural Network*. ICLR 2019.
- **Xuanqing Liu**, Minhao Cheng, Huan Zhang, Cho-Jui Hsieh. *Towards Robust Neural Networks via Random Self-ensemble*. ECCV 2018.
- **Xuanqing Liu**, Cho-Jui Hsieh. *Fast Variance Reduction Method with Stochastic Batch Size*. ICML 2018.

Teaching

- UC Davis ECS 171. Machine Learning.
- UCLA CS 260. Machine Learning Algorithms.
- UCLA CS 180. Introduction to Algorithms and Complexity.

Academic Services

Reviewer for ICML, NeurIPS, CVPR, ECCV, ICCV, WACV, IJCAI, AAAI and TPAMI.

Programming Languages and Tools

- **Programming Languages:** C/++, Python, Java, etc.
- **Tools:** PyTorch, Tensorflow, Theano, MPI/OpenMP.
- **GitHub:** https://github.com/xuanqing94.

Awards, Grants & Honours

NeurIPS student travel grant 2019
ICLR student travel grant 2019
Graduate Scholars Fellowship at UC Davis 2016
The Okamatsu Scholarship at Peking University 2014