Jinghui Chen

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RESEARCH INTERESTS

Machine Learning, Optimization and Adversarial Machine Learning

EDUCATION

University of California, Los Angeles (UCLA) 09/2019 - Present
Ph.D. in Department of Computer Science
Advisor: Quanquan Gu

University of Virginia (UVa) 08/2015 - 06/2019
Ph.D. in Department of Computer Science
Advisor: Quanquan Gu

University of Science and Technology of China (USTC) 09/2011 - 06/2015
B.S. in Electronic Engineering and Information Science

RESEARCH EXPERIENCE

Microsoft 06/2020 - 09/2020
Research Intern
Building efficient and scalable adversarial training algorithms for large-scale practical systems in Microsoft.
- Mentor: Yu Cheng

Twitter 06/2019 - 08/2019
Machine Learning Intern
Improving the pipeline for Twitter user recommendation with deep neural networks.
- Mentor: Yao Wu

JD.COM Silicon Valley Research Center 05/2018 - 08/2018
Research Intern
Improving the efficiency and effectiveness on generating adversarial examples.
- Mentor: Jinfeng Yi

IBM T.J Watson Research Center 05/2016 - 08/2016
Research Intern
Building state-of-the-art outlier detection algorithm with deep autoencoder ensembles.
- Mentors: Saket Sathe, Charu Aggarwal

University of Hannover, Germany 02/2015 - 06/2015
Research Intern
Improving threshold selection by using calibrated probabilities for random forest classifier.
- Mentor: Florian Baumann

University of Birmingham 07/2014 - 09/2014
Research Intern
Learning context-dependent regions from human activities.

- Mentor: Lars Kunze

PUBLICATIONS

∗ Equal contributions

[1] **Jinghui Chen**, Quanquan Gu, RayS: A Ray Searching Method for Hard-label Adversarial Attack, in Proc of the 26th ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD), San Diego, CA, USA 2020.

[2] **Jinghui Chen**, Dongruo Zhou, Yiqi Tang, Ziyan Yang, Yuan Cao and Quanquan Gu, Closing the Generalization Gap of Adaptive Gradient Methods in Training Deep Neural Networks, in Proc. of 29th International Joint Conference on Artificial Intelligence (IJCAI), Yokohama, Japan , 2020.

[3] Xiao Zhang*, **Jinghui Chen***, Quanquan Gu and David Evans, Understanding the Intrinsic Robustness of Image Distributions using Conditional Generative Models, In Proc of the 23rd International Conference on Artificial Intelligence and Statistics (AISTATS), Palermo, Sicily, Italy, 2020

[4] **Jinghui Chen**, Dongruo Zhou, Jinfeng Yi, Quanquan Gu, A Frank-Wolfe Framework for Efficient and Effective Adversarial Attacks, in Proc. of the 34th Conference on Artificial Intelligence (AAAI), New York, New York, USA, 2020

[5] Pan Xu*, **Jinghui Chen***, Quanquan Gu, Global Convergence of Langevin Dynamics Based Algorithms for Nonconvex Optimization, In Proc. of the 32nd Advances in Neural Information Processing Systems (NeurIPS), Montréal, Canada, 2018 **(Spotlight, Top 3.5%)**

[6] **Jinghui Chen**, Pan Xu, Lingxiao Wang, Jian Ma, Quanquan Gu, Covariate Adjusted Precision Matrix Estimation via Nonconvex Optimization, in Proc. of the 35th International Conference on Machine Learning (ICML), Stockholm, Sweden, 2018 **(Long Oral Presentation, Top 4.8%)**

[7] **Jinghui Chen**, Quanquan Gu, Fast Newton Hard Thresholding Pursuit for Sparsity Constrained Nonconvex Optimization, in Proc of the 23rd ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD), Halifax, Nova Scotia, Canada, 2017

[8] **Jinghui Chen**, Saket Sathe, Charu Aggarwal, Deepak Turaga, Outlier Detection with Autoencoder Ensembles, in Proc of 2017 SIAM International Conference on Data Mining (SDM), Houston, Texas, USA

[9] **Jinghui Chen**, Quanquan Gu, Stochastic Block Coordinate Gradient Descent for Sparsity Constrained Optimization, in Proc of the 32th International Conference on Uncertainty in Artificial Intelligence (UAI), New York / New Jersey, USA, 2016

[10] Florian Baumann, **Jinghui Chen**, Karsten Vogt, Bodo Rosenhahn, Improved threshold Selection by using Calibrated Probabilities for Random Forest Classifiers, 12th Conference on Computer and Robot Vision (CRV), Halifax, Nova Scotia, Canada, 2015

PREPRINTS & WORKSHOPS

[1] **Jinghui Chen** Yu Cheng, Zhe Gan, Quanquan Gu and Jingjing Liu, Efficient Robust Training via Backward Smoothing, arXiv:2010.01278, 2020.

[2] Boxi Wu*, **Jinghui Chen***, Deng Cai, Xiaofei He and Quanquan Gu, Does Network Width Really Help Adversarial Robustness?, arXiv:2010.01279, 2020.

[3] Difan Zou, Lingxiao Wang, Pan Xu, **Jinghui Chen**, Weitong Zhang and Quanquan Gu, Epidemic Model Guided Machine Learning for COVID-19 Forecasts in the United States, medRxiv:2020.05.24.20111989, 2020.

[4] **Jinghui Chen**, Quanquan Gu, RayS: A Ray Searching Method for Hard-label Adversarial Attack, ICML 2020 Workshop on Uncertainty & Robustness in Deep Learning.

[5] **Jinghui Chen**, Quanquan Gu, RayS: A Ray Searching Method for Hard-label Adversarial Attack, ECCV 2020 Workshop on Adversarial Robustness in the Real World.

[6] **Jinghui Chen**, Lingxiao Wang, Xiao Zhang, Quanquan Gu, Robust Wirtinger Flow for Phase Retrieval with Arbitrary Corruption, arXiv:1704.06256, 2017.

TEACHING EXPERIENCES	**Teaching Assistant**	Fall 2020
	Course: Introduction to Algorithms and Complexity (Undergrad)	UCLA
	Head Teaching Assistant	Spring 2019
	Course: Special Topics in Computer Science: Machine Learning (Undergrad)	UVa
	Head Teaching Assistant	Fall 2018
	Course: Special Topics in Computer Science: Machine Learning (Undergrad)	UVa
	Guest Lecturer	Spring 2018
	Course: Machine Learning (Grad)	UVa
	Teaching Assistant	Spring 2017
	Course: Discrete Event Simulation (Undergrad)	UVa
	Teaching Assistant	Fall 2016
	Course: Optimization for Machine Learning (Grad)	UVa
	Teaching Assistant	Spring 2016
	Course: Data Engineering (Undergrad)	UVa
	Teaching Assistant	Fall 2015
	Course: Practice and Application of Data Science (Grad)	UVa

INVITED TALKS	**RayS: A Ray Searching Method for Hard-label Adversarial Attack**	
	ACM SIGKDD Conference on Knowledge Discovery and Data Mining	08/2020
	User Similarity Improvements with Deep Neural Networks	
	Twitter SF Headquarter	08/2019
	Closing the Generalization Gap of Adaptive Gradient Methods in Training Deep Neural Networks	
	JD.COM Silicon Valley Research Center	08/2018
	Covariate Adjusted Precision Matrix Estimation via Nonconvex Optimization	
	International Conference on Machine Learning	07/2018
	Outlier Detection with Autoencoder Ensembles	
	SIAM International Conference on Data Mining	04/2017
	Nonconvex Statistical Learning Methods	
	UVA CDDA Workshop	04/2016

ACADEMIC SERVICES	**Program Committee**
	• AAAI Conference on Artificial Intelligence (AAAI)
	• IEEE International Conference on Big Data (BigData)
	• International Joint Conference on Artificial Intelligence (IJCAI)
	Conference Reviewer
	• International Conference on Machine Learning (ICML)

- Neural Information Processing Systems (NeurIPS)
- International Conference on Artificial Intelligence and Statistics (AISTATS)
- International Conference on Learning Representations (ICLR)

Journal Reviewer
- IEEE Transactions on Neural Networks and Learning Systems (TNNLS)
- IEEE Transactions on Circuits and Systems for Video Technology (TCSVT)
- IEEE Transactions on Knowledge and Data Engineering (TKDE)
- IEEE Access
- PLOS ONE
- Neurocomputing
- Pattern Recognition Letters
- Machine Learning

AWARDS	

- UCLA Graduate Division Fellowship — 09/2020
- KDD 2020 Student Travel Award — 08/2020
- NeurIPS 2019 Student Travel Award — 12/2019
- NeurIPS 2018 Student Travel Award — 12/2018
- ICML 2018 Student Travel Award — 07/2018
- KDD 2017 Student Travel Award — 08/2017
- SDM 2017 Student Travel Award — 04/2017
- "Xing Ye" Scholarship — 09/2014
- National Second prize of Contemporary Undergraduate Mathematical Contest in Modeling — 10/2013
- Outstanding Student Scholarship in Fundamental Science by Ministry of Education — 09/2013
- "Zhang Zongzhi" Scientific Scholarship — 09/2013
- Honorable Mention of Mathematical Contest in Modeling — 04/2013
- Outstanding Student Scholarship (gold award) — 10/2012
- Outstanding Freshmen Scholarship (bronze award) — 09/2011

OPEN SOURCE

Core member for project Combating COVID-19
`covid19.uclaml.org`
Our prediction model has been adopted by Centers for Disease Control and Prevention (CDC), California COVID Assessment Tool (CalCat) by California Department of Public Health (CDPH), and the COVID-19 Forecast Hub by the Reich Lab of the University of Massachusetts Amherst.

Contributor to COVID-19 Forecast Hub
`https://github.com/reichlab/covid19-forecast-hub`

Main Contributor for Model Robustness, ADBD Leaderboard
`https://github.com/uclaml/RayS`

Main Contributor for Padam Repository
`https://github.com/uclaml/Padam`

Main Contributor for Frank-Wolfe Adversarial Attack Repository
`https://github.com/uclaml/Frank-Wolfe-AdvML`