Hong-Ming Chiu
PhD Student at UIUC ECE

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RESEARCH INTERESTS

I am broadly interested in **optimization** and **machine learning**. My current research focuses on developing theoretical foundations for **trustworthy machine learning** and practical algorithms for **neural network robustness verification**.

EDUCATION

University of Illinois Urbana Champaign (UIUC)	**Champaign, IL**
Doctor of Philosophy – Dept. of Electrical and Computer Engineering (ECE)	**Aug. 2021 – Present**
Advisor: Richard Yi Zhang.	
National Yang Ming Chiao Tung University (NYCU)	**Hsinchu, Taiwan**
Bachelor of Science in Electronics Engineering	**Sep. 2016 – Jun. 2020**

RESEARCH & WORK EXPERIENCE

UIUC Coordinated Science Lab	**Champaign, IL**
Research Assistant (half-time). Supervisor: Prof. Richard Yi Zhang.	**Aug. 2021 – Present**
NYCU Artificial Intelligence and Multimedia Lab	**Hsinchu, Taiwan**
Research Assistant (full-time). Supervisor: Prof. Wen-Huang Cheng.	**Jul. 2020 – Feb. 2021**
USC Signal Transformation, Analysis and Compression Group	**Los Angeles, CA**
Summer Research. Supervisor: Prof. Antonio Ortega & Prof. Carrson C. Fung	**Jul. 2019 – Aug. 2019**

PUBLICATIONS　　　(Paper and source code are available on https://hong-ming.github.io/#mypublications)

[1] **Hong-Ming Chiu** and Richard Y. Zhang. "Well-conditioned Primal-Dual Interior-point Method for Accurate Low-rank Semidefinite Programming." Preprint.

[2] Gavin Zhang, **Hong-Ming Chiu** and Richard Y. Zhang. "Fast and Accurate Estimation of Low-Rank Matrices from Noisy Measurements via Preconditioned Non-Convex Gradient Descent." 2024 International Conference on Artificial Intelligence and Statistics.

[3] **Hong-Ming Chiu** and Richard Y. Zhang. "Tight Certification of Adversarially Trained Neural Networks via Nonconvex Low-Rank Semidefinite Relaxations." 2023 International Conference on Machine Learning.

[4] Gavin Zhang, **Hong-Ming Chiu** and Richard Y. Zhang. "Accelerating SGD for Highly Ill-Conditioned Huge-Scale Online Matrix Completion." 2022 Advances in Neural Information Processing Systems.

[5] **Hong-Ming Chiu**, Carrson C. Fung and Antonio Ortega, "Graph Learning and Augmentation Based Interpolation of Signal Strength for Location-Aware Communications," 2020 European Signal Processing Conference.

[6] **Hong-Ming Chiu**, Kuan-Chih Lin and Tian Sheuan Chang, "Run Time Adaptive Network Slimming for Mobile Environments," 2019 IEEE International Symposium on Circuits and Systems.

SELECTED TALKS

2024 **Well-conditioned primal-dual interior-point method for accurate low-rank semidefinite programming:** WA208 – Low-rank semidefinite optimization, algorithms, software and applications. Montreal, Canada. Jul 24.

2023 **Neural Network Certification via Nonconvex Low-Rank Semidefinite Relaxations:** Minisymposium on Algorithms and Applications of Large-Scale SDPs, SIAM Conference on Optimization. Seattle, WA. June 3.

PROFESSIONAL ACTIVITIES

2024 **NeurIPS** Paper Reviewer. Vancouver, Canada. December 15.
2024 **ICLR** Paper Reviewer. Vienna, Austria. May 11.
2024 **AISTATS** Paper Reviewer. Valencia, Spain. May 4.
2023 **NeurIPS** Paper Reviewer. New Orleans, LA. December 10.
2023 **ICML** Paper Reviewer. Honolulu, HI. July 23.
2023 **AISTATS** Paper Reviewer. Valencia, Spain. April 25.
2022 **NeurIPS** Paper Reviewer. New Orleans, LA. November 28.
2020 **ACM Multimedia** Paper Reviewer. Seattle, WA. October 12.