

Hong-Ming Chiu

PhD Student at UIUC ECE

Email: hmchiu2@illinois.edu

Website: <https://hong-ming.github.io>

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)

Doctor of Philosophy – Dept. of Electrical and Computer Engineering (ECE)

Advisor: Richard Yi Zhang.

Champaign, IL

Aug. 2021 – Present

National Yang Ming Chiao Tung University (NYCU)

Bachelor of Science in Electronics Engineering

Hsinchu, Taiwan

Sep. 2016 – Jun. 2020

RESEARCH & WORK EXPERIENCE

UIUC Coordinated Science Lab

Research Assistant (half-time). Supervisor: Prof. Richard Yi Zhang.

Champaign, IL

Aug. 2021 – Present

NYCU Artificial Intelligence and Multimedia Lab

Research Assistant (full-time). Supervisor: Prof. Wen-Huang Cheng.

Hsinchu, Taiwan

Jul. 2020 – Feb. 2021

USC Signal Transformation, Analysis and Compression Group

Summer Research. Supervisor: Prof. Antonio Ortega & Prof. Carrson C. Fung

Los Angeles, CA

Jul. 2019 – Aug. 2019

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

- [1] **Hong-Ming Chiu**, Hao Chen, Huan Zhang, Richard Y. Zhang. “SDP-CROWN: Efficient Bound Propagation for Neural Network Verification with Tightness of Semidefinite Programming.” 2025 International Conference on Machine Learning. (**Spotlight paper, one of 313/12107 submissions.**)
- [2] **Hong-Ming Chiu** and Richard Y. Zhang. “Well-conditioned Primal-Dual Interior-point Method for Accurate Low-rank Semidefinite Programming.” Preprint.
- [3] 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.
- [4] **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.
- [5] 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.
- [6] **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.
- [7] **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

- 2025 **Fast and Accurate Estimation of Low-Rank Matrices from Noisy Measurements via Preconditioned Non-Convex Gradient Descent:** TC34 – Advanced Optimization methods in Data Science, INFORMS Annual Meeting. Atlanta, GA, Oct 28.
- 2025 **Well-Conditioned Primal-Dual Interior-Point Method for Accurate Low-Rank Semidefinite Programming:** Sessions 1S – Advances in Semidefinite Programming: Relaxations, Hierarchies, and

- Optimization Techniques, International Conference on Continuous Optimization. University of Southern California, CA. Jul 21.
- 2024 **Well-Conditioned Primal-Dual Interior-Point Method for Accurate Low-Rank Semidefinite Programming:** WA208 – Low-Rank Semidefinite Optimization, Algorithms, Software and Applications, International Symposium on Mathematical Programming. Montreal, Canada. Jul 24.
- 2023 **Neural Network Certification via Nonconvex Low-Rank Semidefinite Relaxations:** MS331 – Algorithms and Applications of Large-Scale SDPs, SIAM Conference on Optimization. Seattle, WA. June 3.

PROFESSIONAL ACTIVITIES

- 2025 **ICML** Paper Reviewer. Vancouver, Canada. Jul 15.
- 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.