Chi-Heng (Henry) Lin

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Education

Georgia Institute of Technology, Atlanta, GA   09/2017 - present

Ph.D. in Electrical and Computer Engineering

GPA: 4.0/4.0. Selected Courses: advanced digital signal processing, Machine learning theory, nonlinear optimization

Columbia University, New York, NY   09/2015 - 12/2016

M.A. in Statistics

GPA: 4.0/4.0. Selected Courses: financial engineering, game theory, probability theory, information theory

National Taiwan University (NTU), Taipei, Taiwan   09/2007 - 06/2013

B.S. & M.S. in Electrical Engineering

GPA: 3.8/4.0. Selected Courses: real analysis, communication theory, advanced calculus, stochastic processes

Research Projects

Understanding the role of data augmentations in self-supervised learning, Neural Data Science Lab, Georgia Tech

- Analyze the behavior of the mitigation of double descent phenomenon with data augmentation
- Application to the development of good augmentations in self-supervised learning methodologies

Optimal transport for interpretable data alignment, Neural Data Science Lab, Georgia Tech

- Develop low-rank distribution alignment method for data analysis
- Application to domain adaptation and neural data analysis

Theoretical analysis on momentum acceleration of neural networks, Machine Learning Theory Group, Georgia Tech

- Analyze Polyak's momentum on neural network training
- Application to modern deep learning models

Bayesian Optimization for Modular Black-box Systems with Switching Costs, Neural Data Science Lab, Georgia Tech

- Design fast hyperparameter tuning algorithm leveraging modular structure information.
- Application to large scale multi-stage neuroimaging pipeline

Publications

Under Review:

[1] Mehdi Azabou, Mohammad Gheshlaghi Azar, Ran Liu, Chi-Heng Lin, Erik Christopher Johnson, Kiran Bhaskaran Nair, Max Dabagia, Bernardo Avila Pires, Lindsey Kitchell, Keith B Hengen, William Gray-Roncal, Michal Valko, Eva L Dyer. Mine your Own View: self-supervised learning through across-sample prediction. *Submitted to NeurIPS 2022.*

[2] Ran Liu, Mehdi Azabou, Max Dabagia, Chi-Heng Lin, Mohammad Gheshlaghi Azar, Keith B Hengen, Michal Valko, Eva L Dyer. Drop, swap, and generate: a self=supervised approach for generating neural activity. *Submitted to NeurIPS 2022.*

Accepted:

[1] Chi-Heng Lin, Mehdi Azabou, Eva L Dyer. Making transport more robust and interpretable by moving data through a small number of anchor points. *ICML* 2021.

[2] Chi-Heng Lin, Joseph D Miano, Eva L Dyer. Bayesian optimization for modular black-box systems with switching costs. *UAI* 2021.

[3] Jun-Kun Wang, Chi-Heng Lin, Jacob Abernethy. A Modular Analysis of Provable Acceleration via Polyak's Momentum: Training a Wide ReLU Network and a Deep Linear Network. *ICML* 2021.

[4] Jun-Kun Wang, Chi-Heng Lin, Jacob Abernethy. Escaping Saddle Points Faster with Stochastic Momentum. *ICLR* 2020.

[5] Ebrahim Baktash, Chi-Heng Lin, Xiaodong Wang, Mahmood Karimi. Downlink Linear Precoders based on Statistical CSI for Multi-Cell MIMO-OFDM. *Wireless Communications and Mobile Computing*, 2017.

[6] Chi-Heng Lin, De-Niang Yang, Ji-Tang Lee, Wanjium Liao. Efficient Error-Resilient Multicasting for Multi-View 3D Videos in Wireless Networks. *IEEE GLOBECOM,* Dec 2016.

[7] Fan-Min Tseng and Chi-Heng Lin and Kwang-Cheng Chen. In-network computations of machine-to-machine communications for wireless robotics. *Wireless Pers Commun 2013.*

Miscellaneous

Honors and Awards:

IDEaS-TRIAD Research Scholarship, Georgia Tech,

Davis Award (two times), Department of Statistics in Columbia University,

Scholarship to Study Abroad, Taiwan Ministry of Education

Presidential Award, Electrical Engineering in National Taiwan University

Skills:

Languages:

Chinese (native), English (full professional proficiency)

Programmings:

C/C++, R, Python, MATLAB, Wolfram Mathematica