林宗毅 (Chung-Yi Lin)

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Education

California Institute of Technology Pasadena, CA, USA
Master of Science in Electrical Engineering 2020 (Qualified)
– GPA: 4.20/4.30

National Taiwan University Taipei, Taiwan
Master of Science in Communication Engineering 2018
– GPA: 4.30/4.30

Bachelor of Science in Electrical Engineering 2015
– Rank: 7/201

Technical Skills

Fluent	Python, C++, MATLAB
Knowledge	Haskell, MongoDB, C, JavaScript, HTML, CSS
English	TOEFL iBT: 110 (R30, L28, S23, W29)

Experience

Research Assistant California Institute of Technology
Convergence-Rate Tradeoff in Gradient Descents, advised by Prof. Victoria Kostina 2018 – 2020
– Characterize the minimax convergence rate for various classes of quantized gradient algorithms
– Propose and implement an error-compensated quantization scheme achieving the optimality

Research Assistant National Taiwan University
Community Detection: A Statistical Approach, advised by Prof. I-Hsiang Wang 2016 – 2018
– Characterize the minimax misclassification ratio of clustering in random hypergraphs
– Propose and implement a graph-Laplacian algorithm that achieves the optimal minimax risk

Summer Intern Academia Sinica
Network Information Diffusion, advised by Dr. De-Nian Yang 2017
– Analyze influence maximization in social networks and the socially tenuous groups

Course Projects

Face Recognition *Special Project*, advised by Prof. Jian-Jiun Ding
– Build a graphical user interface that aids labeling and training human face data (in MATLAB)

Congestion-Aware Network *Introduction to Wireless and Mobile Networking*
– Develop a traffic light system that reduces the average waiting time (in C++)

Polar Coding *Electrical Engineering Lab—Communication System*
– Implement the Polar code and analyze its capacity-achieving property (in C++)

Related Courses

Information	Digital Speech Processing, Quantum Systems, Information Theory
Network	Graph Theory, Queueing Theory, Network Information Theory
Communication	MIMO Systems, Error-Correcting Codes, Data Compression
Analysis	Convex Optimization, Statistical Inference, Random Processes, Real Analysis

Publications

[1] Chung-Yi Lin, Victoria Kostina, and Babak Hassibi, "Achieving the Fundamental Convergence Communication Tradeoff with Differentially Quantized Gradient Descent", *arXiv preprint*, February, 2020.

[2] I Chien, Chung-Yi Lin, and I-Hsiang Wang, "On the Minimax Misclassification Ratio of Hypergraph Community Detection", *IEEE Transactions on Information Theory*, pp. 8095 to 8118, vol. 65, issue 12, December 2019.

[3] I Chien, Chung-Yi Lin, and I-Hsiang Wang, "Community Detection in Hypergraphs: Optimal Statistical Limit and Efficient Algorithms", *International Conference on Artificial Intelligence and Statistics*, pp. 871 to 879, 2018. (Poster presentation at Lanzarote, Canary Islands)

[4] Chung-Yi Lin, I Chien, and I-Hsiang Wang, "On the Fundamental Statistical Limit of Community Detection in Random Hypergraphs", *IEEE International Symposium on Information Theory*, pp. 2178 to 2182, 2017. (Oral presentation at Aachen, Germany)

Teaching-Assistant Experience

California Institute of Technology

– Fundamentals of Information Transmission and Storage 2020

National Taiwan University

– Mathematical Principles of Machine Learning 2018

– Principle of Communications 2017

– Probability and Statistics 2017

Honors and Awards

Honorary Member, The Phi Tau Phi Scholastic Honor Society of the Republic of China
Awarded to the top 3% of master graduates excellent in academic performance and moral conduct.
Presidential Awards (4 times), National Taiwan University
Awarded to the top 5% of students in the department of Electrical Engineering each semester.