Qingyu Song

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EDUCATION

Ph.D. 2021-2025 Computer Science and Engineering, The Chinese University of Hong Kong, Hong Kong.
Advisor: Prof. Hong Xu

M.S. 2018-2021 Control Engineering, Tsinghua University, Beijing, China.
Advisor: Prof. Jianming Hu

B.S. 2014-2018 Software Engineering, Harbin Institute of Technology, Weihai, China.
Advisor: Dr. Xuefeng Piao

RESEARCH INTEREST

Learning to Optimize: Data-driven algorithm construction for solving optimization problems.
Deep Learning Efficiency: Theoretical training analysis and improvement, e.g., strategy improvement for optimizer and model initialization.

PUBLICATIONS

Conference Proceedings

C6. **Q. Song**, W. Lin, J. Wang, H. Xu. Towards Robust Learning to Optimize with Theoretical Guarantees. In IEEE/CVF CVPR 2024.

C5. **Q. Song**, J. Wang, J. Li, G. Liu, H. Xu. A Learning-only Method for Multi-Cell Multi-User MIMO Sum Rate Maximization. In IEEE INFOCOM, 2024.

C4. Y. Zhang, W. Lin, S. Chen, **Q. Song**, J. Lu, Y. Shao, B. Yu, H. X. Fed2Com: Towards Efficient Compression in Federated Learning. In IEEE ICNC, 2024.

C3. **Q. Song**, R. Ming, J. Hu, H. Niu, M. Gao. Graph Attention Convolutional Network: Spatiotemporal Modeling for Urban Traffic Prediction. In IEEE ITSC, 2020.

C2. J. Chen, **Q. Song**, C. Zhao, Z. Li. Graph Database and Relational Database Performance Comparison on a Transportation Network. In ICACDS, 2020.

C1. **Q. Song**, J. Hu, R. Zhang, Y. Zhang. An Urban Topological Map Generation Method for Traffic Flow Prediction Based on Road Segment Clustering with Floating Vehicle Trajectory Dataset. In COTA CICTP, 2019.

Workshops

W2. **Q. Song**, G. Liu, H. Xu. Learning to Optimize Non-Convex Sum-Rate Maximization Problems. In ICML 2023, 1st Workshop on Synergy of Scientific and Machine Learning Modeling.

W1. **Q. Song**, G. Liu, H. Xu. Towards a Learning-Only Approach for Non-Convex Sum Rate Maximization. In ACM SigMetrics 2023, 1st Workshop on Learning-augmented Algorithms: Theory and Applications.

WORK EXPERIENCE

Nov 2022 - May 2023   Visiting Student, Huawei
Project: Learning-based Precoding for MIMO Interference Reduction.
Advisor: Dr. Guochen Liu

Mar 2018 - Aug 2018   Undergraduate Research Assistant, Tsinghua University
Project: Traffic Flow Prediction with Graph Neural Networks.
Advisor: Prof. Jianming Hu

Oct 2017 - Jan 2018   Research and Development Intern, NEBULA-LINK Internet Technology Co., Ltd.
Project: ADAS Android App Development and Data Analysis.
Advisor: Dr. Yizhi Wang

May 2016 - Sep 2017   Undergraduate Intern, Harbin Institute of Technology
Project: Android App Development.
Advisor: Dr. Xuefeng Piao

TEACHING ASSISTANT

Spring 2022   CUHK CSCI 4430 / ESTR 4120, Data Communication and Computer Networks

Spring 2021   CUHK CSCI 4430, Data Communication and Computer Networks

Fall 2021   CUHK ENGG 2760A / ESTR 2018: Probability for Engineers

AWARDS

Mar 2024   Student Travel Grant, IEEE INFOCOM 2024.

Jul 2023   Registration Grant, ICML 2023, 1st Workshop on Synergy of Scientific and Machine Learning Modeling

2021 - 2025 Postgraduate Studentship, CUHK

2019 - 2020 Scholarship with First Honor, Second Honor, SIGS, THU

Jun 2018   Outstanding Graduate Award at Provincial Level, HIT

2015 - 2017 Scholarship with First Honor, Second Honor, HIT

Updated July 2024