FULI QIAO

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EDUCATION

Pennsylvania State University (PSU) **State College, U.S.**

Ph.D. of Computer Science and Engineering | GPA: 3.38/4.0 Aug.2021-present

- Relevant Coursework: Algorithm Design and Analysis, Distributed System, Pattern Recognition and Machine Learning, Computer Architecture, Operating Systems

Shanghai Jiao Tong University (SJTU) **Shanghai, China**

Master of Engineering in Cyberspace Security | GPA: 3.73/4.0 Sep.2018-Mar.2021

- Relevant Coursework: Communication Principle and Systems, Graph and Networks, Stochastic Processes and Queuing Theory, Techniques-Database

Southeast University (SEU) **Nanjing, China**

Bachelor of Science in Mathematics and Applied Mathematics | GPA: 3.4/4.0 Aug.2014-Jun.2018

- Relevant Coursework: Mathematical Analysis, Advanced Algebra, Mathematical Physics Equation, Modern Algebra, Mathematical statistics, Topology, Operations Research

PUBLICATIONS

- **Fuli Qiao**, Mianxiong Dong, Kaoru Ota, Siyi Liao, Jun Wu, Jianhua Li, "Making Big Data Intelligent Storable at the Edge: Storage Resource Intelligent Orchestration," 2019 IEEE Global Communications Conference (GLOBECOM), Waikoloa, HI, USA, 2019, pp. 1-6
- **Fuli Qiao**, Jun Wu, Jianhua Li, Ali Kashif Bashir, Shahid Mumtaz, Usman Tariq, "Trustworthy Edge Storage Orchestration in Intelligent Transportation Systems Using Reinforcement Learning," in IEEE Transactions on Intelligent Transportation Systems, vol. 22, no. 7, pp. 4443-4456, July 2021. (High cited in ESI)
- **Fuli Qiao**, Shan Lin, "Data-driven prediction of fine-grained EV charging behaviors in public charging stations," In Proceedings of the Twelfth ACM International Conference on Future Energy Systems (e-Energy '21), New York, NY, USA, 2021, pp. 276–277.

RESEARCH INTERESTS

- Network Systems, Machine Learning

RESEARCH EXPERIENCE

Electric Vehicle Charging Station Availability Prediction | Advisor: Prof. Shan Lin

Stony Brook University, New York *Jul.2020-May.2021*

- Predicted electric vehicle charging station availability using real data through different sequence-to-sequence methods using Transformer and LSTM; compared results to the XGBoost model
- Recognized certain regular user charging patterns (arrive/departure time, charging rate over time for users' vehicles) to improve the prediction accuracy
- Compared performances of different time granularity models from the perspective of RMSE, MAPE, and consumed time

Big Data Intelligent Storage at the Network Edge | Advisor: Prof. Jun Wu, Prof. Jianhua Li

Information Content Analysis Technology Engineering Laboratory (SJTU) *Oct.2018-May.2019*

- Proposed a novel unified storage architecture for big data in the edge-cloud, which supports edge services in order to extend Hadoop at the edge

- Devised a dynamic storage policy-making mechanism based on Q-learning
- Demonstrated that the task processing delay is reduced by 30% and the lowest economic cost is reduced by 15%

Trustworthy Edge Storage in Intelligent Transportation Systems

Information Content Analysis Technology Engineering Laboratory (SJTU) *Aug.2019-Jan.2020*

- Proposed a distributed trustworthy storage architecture with reinforcement learning in ITS
- Devised a trust evaluation mechanism based on the interaction between cooperative devices
- Corroborated that our proposed distributed trustworthy storage architecture outperforms the comparison ones in terms of trustworthiness and efficiency through simulation results

Optimization of Economic Dispatch and Unit Commitment based Reinforcement-Learning in Smart Grid | Advisor: Prof.Guanghui Wen

Network Group Intelligence Laboratory (Southeast University) *Jan.2018-Jun.2018*

- Propositioned a new centralized Q-learning algorithm and a novel distributed Q-learning optimization algorithm based on First order discrete time average uniform theory
- Demonstrated that the distributed algorithms found optimal strategies 100 times faster in the searching process, based on 15000 simulation trials

Attitude stabilization of rigid spacecraft controlling based quaternion | Advisor: Prof.Wenwu Yu

Network Group Intelligence Laboratory (Southeast University) *Dec.2015-May 2017*

- Proposed a novel adaptive control law with sliding mode controller and designed the Lyapunov function to solve the stabilization of the nonlinear system
- Proved the system under the designed protocol can be bounded in fixed time without upper bounds of inertia uncertainty and external disturbance

INDUSTRY EXPERIENCE

Task Scheduling Problem in Edge/Cloud Computing Scenarios Research Assistant (internship)

NOKIA SHANGHAI BELL, Bell Labs & CTO China, FN *Apr.2020-Jun.2020*

- Suggested resource scheduling of edge nodes based on the multi-dimensional binning problem
- Designed greedy binning algorithms with different objectives for Waste-oriented best-fit and Transmission-oriented best-fit
- Compared the transmission costs, resource consumption costs, and the waste rate of edge node CPU and Memory under different schemes

AWARDS

2021 University Graduate Fellowship (UGF) in the College of Engineering, PSU

2021 Outstanding Graduates in Shanghai (Top 1%)

2020 National Scholarship for Postgraduates (CN ¥20000, Top 1%)

2019 IEEE GLOBECOM Student Travel Award (USD $1000)

2019 Second Prize in National Post-Graduate Mathematical Contest in Modeling (Top 13%)

2019&2020 Excellent Student Leader of Shanghai Jiao Tong University (Top 5%)

2016 Scholarly exchange to Department of Electronic Engineering, University of Cambridge