

Junde Li

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Education

Pennsylvania State University

Jan. 2019 – Present

PhD student in Computer Science and Engineering

Advisor: Swaroop Ghosh

City University of Hong Kong

Oct. 2016

MSc in Engineering Management, GPA: 4.02/4.3, ranked 1/88

Qingdao University

Jun. 2015

BSc in Logistics Management, GPA: 82.69/100

Research Interests

Autonomous Systems, Machine Learning. I am interested in computer vision, autonomous vehicles, robotics, and quantum machine learning for acceleration.

Publications

- C4. **J. Li**, S. Ghosh. (2020). Random Relabeling for Efficient and Certified Machine Unlearning. Advances in Neural Information Processing Systems (NeurIPS). (In Preparation)
- C3. **J. Li**, S. Ghosh. (2020). Quantum Soft QUBO Suppression for Accurate Object Detection. European Conference on Computer Vision (ECCV). (Under Review)
- C2. **J. Li**, N. Gattu, S. Ghosh. (2020). FAuto: An Efficient GMM-HMM FPGA Implementation for Behavior Estimation in Autonomous Systems. International Joint Conference on Neural Networks (IJCNN).
- C1. **J. Li**, M. Alam, A. Ash-Saki, S. Ghosh. (2020). Hierarchical Improvement of Quantum Approximate Optimization Algorithm for Object Detection. International Symposium on Quality Electronic Design (ISQED). (Invited paper)
- J1. **J. Li**, Q. Ma, A. Chan, & S. Man. (2019). Health Monitoring through Wearable Technologies for Older Adults: Smart Wearables Acceptance Model. Applied Ergonomics. (2019) 162-169.

Work Experiences

Pennsylvania State University

05/2019 - Present

Research Assistant

State College, PA

Advisor: Swaroop Ghosh

1. **Optimization:** Formulated bounding box suppression of object detection as QUBO problem and utilized hybrid quantum-classical quantum approximation optimization algorithm for redundant detection suppression.
2. **Computer Vision:** We developed a new hybrid algorithm, Quantum-soft-QS, by harnessing quantum supremacy, for improving object detection accuracy compared to traditional non-maximum suppression.
3. **Autonomous Vehicles:** Holistically introduced the application of Hidden Markov Model with Gaussian emissions for driving behavior estimation of autonomous vehicles and designed a customized FPGA system on chip for speedup and better power efficiency.

Pennsylvania State University
(Head) Teaching Assistant, CMPSC 360 Discrete Mathematics
Hold weekly recitation classes and office hours

01/2019 - Present
State College, PA

Matrix Auto Technology Ltd
A.I. Software Engineer (Autonomous Driving)
Advisor: Jean Lam

10/2018 – 12/2018
Hong Kong

MAT is a startup company providing self-driving car solutions and services.

1. Participated in developing vehicle localization using particle filter, based on initial location from sensors.
2. Designed self-driving car workflow prototype based on paper review on environmental perception, localization, path planning, prediction, and control.

ASM Pacific Technology Ltd
Process Engineer (R&D)
Advisor: Damon Deng, Pak Kin Leung

07/2018 – 10/2018
Hong Kong

ASMP is a leading integrated solution provider in semiconductor and electronics industries.

1. Pre-processed images taken from silicone pads for recognizing wafer ID by Photo OCR pipelines.
2. Coordinated with control, mechanical, software and vision teams for making machine improvements.
3. Conducted research and development in computer vision and application for visual inspection.

City University of Hong Kong
P/T Research Assistant
Advisor: Alan Chan

07/2016 – 12/2018
Hong Kong

Department of System Engineering and Engineering Management

1. Took part in several research projects associated with Human Factors, Data Analytics, and Machine Learning in fields of risk-taking behaviors of construction workers, and health technology.
2. Designed the research processes, proposed suitable research methods, and applied research grant as co-I.

Professional Services

Reviewer for IEEE Transactions on Mobile Computing
Sub-reviewer for IEEE Embedded Systems Letters
Sub-reviewer for Design Automation Conference
Sub-reviewer for International Conference on Hardware/Software Co-design and System Synthesis
Sub-reviewer for International Conference on Computer Design
Sub-reviewer for ACM/International Symposium on Low Power Electronics and Design

Honors and Awards

Self-driving Car Nanodegree, Udacity	2018
Distinction, City University of Hong Kong	2016
Outstanding Student Thesis Award, Qingdao University	2015
Excellent Student Award, Qingdao University	2013
Merit Scholarships, Qingdao University	2011 - 2013

Technical Skills

Programming Languages:	Python, C/C++, MATLAB, Java, R
Deep Learning Toolboxes:	Pytorch, Tensorflow, Caffe, OpenCV
Hardware:	Verilog, High-level Synthesis