# 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, Quantum Machine Learning.** I am interested in machine learning, computer vision, autonomous vehicles, robotics, and their FPGA embedded system design and optimization, and quantum machine learning.

## Publications

C4.  **J. Li**, S. Ghosh. (2020). Inverse 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**                                          *State College, PA*

*Research Assistant,* Advisor: Swaroop Ghosh

    ***Quantum-Classical Machine Learning:*** 1) Formulated bounding box suppression of object detection as QUBO problem, and utilized hybrid quantum-classical quantum approximation optimization algorithm for detection bounding box suppression; 2) We developed another new hybrid algorithm, Quantum-soft-QS, by harnessing quantum supremacy, for improving object detection accuracy compared to traditional non-maximum suppression.

    ***A.I. SoC Design and Optimization****: Holistically introduced the application of Hidden Markov Model

with Gaussian emissions for autonomous vehicles, and designed and optimized a customized FPGA system on chip; it achieved 10.39x speedup compared to software implementation, and power efficiency of 2.59 TOPS/W.

**Pennsylvania State University**                                                    *State College, PA*
*(Head) Teaching Assistant,* CMPSC 360 Discrete Mathematics                   Spring 2019 - Present
Hold weekly recitation classes and office hours

**Matrix Auto Technology Ltd**                                                     10/2018 – 12/2018
*A.I. Software Engineer (Autonomous Driving)*                                         *Hong Kong*
Advisor: Jean Lam
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**                                                     07/2018 – 10/2018
*Process Engineer (R&D)*                                                              *Hong Kong*
Advisor: Damon Deng, Pak Kin Leung
ASMPT 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**                                                   07/2016 – 12/2018
*P/T Research Assistant*                                                              *Hong Kong*
Advisor: Alan Chan
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