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, AI SoC Design. 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