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LIU ZICHEN

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EDUCATION

National University of Singapore

Aug 2016 - May 2020

Bachelor of Engineering in Electrical Engineering, Honours, Highest Distinction

Department of Electrical and Computer Engineering, 4.89/5

Hanyang International Summer School, South Korea

Jul 2018

Studied courses including project management, engineering professionalism

Peking University Summer School, China

Jul 2017

Studied courses including economics

ACHIEVEMENTS

Awarded *Senior Middle 2 Scholarship* by Ministry of Education, Singapore

2015

Awarded *Science & Technology Scholarship* by NUS

2016 - 2020

Won the Table Tennis singles for semi-final during the *NUS Inter-Hall Games* and contributed to my team clinching the overall championship (Male) title

2016

Awarded *Dean's List* for being placed in the top 5% of the cohort

All eligible semesters

Awarded *High Achievement Award* in Innovation and Research

2020

Awarded *Outstanding Undergraduate Researcher Prize* for the potential and originality of my thesis

2020

PUBLICATION

DANCE: A Deep Attentive Contour Model for Efficient Instance Segmentation. *Zichen Liu, Jun Hao Liew, Xiangyu Chen, Jiashi Feng; Proceedings of the IEEE/CVF Winter Conference on Applications of Computer Vision (WACV), 2021, pp. 345-354*

PROJECTS

ARM Processor

Built a pipelined ARM processor (ARMv3) at the micro-architecture level on FPGA using Verilog HDL

Text Detection and Recognition

Implemented a pipeline for scene text detection and recognition based on CNN and RNN

Neural Network on the System-on-Chip

Built an automated training and testing pipeline of a fully connected network on an embedded system with *Zynq-7000* using C/C++ and Verilog; supports hardware acceleration by FPGA

OPEN-SOURCE

MOSEC

Machine learning model serving framework written in Rust and Python to provide high efficiency and flexibility. Project Page: <https://mosecorg.github.io/mosec/>

EXPERIENCE

Shopee, Singapore

June 2020 - Present

Data Scientist In charge of several computer vision projects. Designer and core developer of general **image text service**, which is a micro-service to provide various image text related CV capabilities, including text detection and OCR. Designer and core developer of **interactive segmentation tool**, which directly runs algorithms on the browser based on WebAssembly, supporting users' real-time annotation and feedback.

Shopee, Singapore

January 2019 - May 2020

Data Science Intern Focuses on general computer vision related tasks. Specifically, built deep learning models for projects including small object detection, Chinese text detection and recognition, automated image product segmentation. Directly contributed to aforementioned online services.

Learning and Vision Lab, NUS

May 2019 - May 2020

Final Year Project Focuses on deep learning algorithms for instance segmentation. Developed new techniques for training a network to locate accurate object masks and outperformed the previous state-of-the-art.

SKILLS

Programming Languages Python, Golang, Rust, Java, JavaScript, C/C++, Assembly, Verilog

Electrical Engineering FPGA, ARM, Circuits, Antenna Design, RF Simulation

Computer Science Algorithms and Data Structures, Operating System, Computer Network, Database

Software Engineering Docker, Kubernetes, CI/CD, Prometheus, RESTful API, gRPC

Artificial Intelligence Computer Vision, PyTorch, ONNX, Model Serving

SERVICES

Conference Reviewer WACV2022

EXTRA-CURRICULAR

Vice Head of Logistics and Welfare, NUS Chinese Society

Aug 2017 - May 2018

Coordinated with department members to set up and hold *The 10th National Calligraphy Contest* in NUS

Collaborated with members in the society to prepare and execute the *Date or Not* show attracting over 300 audiences

Executive of NUS ECE Club

Aug 2017 - May 2018

Collaborated with team members to plan and conduct workshops for *Raspberry pi* and *3D printing* to benefit students across faculties to learn useful skills

Member of Table Tennis Competition Team (M), NUS Sheares Hall

Aug 2016 - May 2017

Participated in *NUS Inter-Hall Games 2016* and contributed to my team winning the overall championship (Male) title