

Updated: December 1, 2021

# LIU ZICHEN

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## EDUCATION

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### 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

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Awarded *Outstanding Undergraduate Researcher Prize* for the potential and originality of my thesis *2020*

Awarded *High Achievement Award* in Innovation and Research *2020*

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

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 *Science & Technology Scholarship* by NUS *2016 - 2020*

Awarded *Senior Middle 2 Scholarship* by Ministry of Education, Singapore *2015*

## PUBLICATION

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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

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### 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

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### 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

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### Sea, Singapore

October 2021 - Present

*Research Engineer* At Sea AI Lab, focusing on reinforcement learning system.

### Shopee, Singapore

June 2020 - October 2021

*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

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**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

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**Conference Reviewer** WACV2022

## EXTRA-CURRICULAR

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### Vice Head of Logistics and Welfare, NUS Chinese Society

Aug 2017 - May 2018

Coordinated with department members to set up and hold *The 10<sup>th</sup> 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