

# Shao-Hung Chiu

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## EDUCATION

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**Carnegie Mellon University, Pittsburgh, PA**

*Master of Science in Electrical and Computer Engineering*

*Aug. 2019 – Dec. 2020*

GPA: 3.89 / 4.00

Courseworks: (2019 Fall) Foundations of Computer Systems, How to Write Fast Code (HPC), Analytical Modeling and Designs of Computer Systems (2020 Spring) Computer Architecture and Systems, Java programming, Cloud Computing

**National Tsing Hua University, Hsinchu, Taiwan**

*Bachelor of Electrical Engineering*

*Sep. 2015 – Jan. 2019*

Overall GPA: 4.0/4.3 Major GPA: 4.19/4.3

Relevant Courses: Computer Architecture, OS, Algorithms, Digital Systems Design, Microprocessor Systems

## SKILLS

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**Programming Languages:** C/C++, Java, Python, MATLAB

**Tools:** Verilog, Linux OS, EC2, EMR

**Languages:** English, Chinese (Native)

## WORK EXPERIENCE

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**ASPEED Technology Inc., Hsinchu, Taiwan**

*Intern*

*Jul. 2018 – Aug. 2018*

- Researched Super Resolution algorithms within recent 2 years with low computation complexity and assisted ASPEED to evaluate potential IP usage
- Introduced Efficient Inference Engine Design to illustrate domain-specific algorithms and architecture by giving a talk to 30 staff members in ASPEED
- Built machine learning models and clarified analytical tools on several frameworks such as Caffe and Tensorflow for ASPEED's further research

**BIIC Lab, Hsinchu, Taiwan**

*Research Assistant*

*Oct. 2017 – Jan. 2018*

- Collaborated with Gamania to operate on real-world video data up to hundreds of GB and innovated on potential interview assisting products
- Performed machine learning techniques on Human Behavioral Analysis, reaching almost 70% accuracy on image data
- Implemented various feature extraction methods with Python package OpenCV for further analysis and better accuracy

## ACADEMIC PROJECTS

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**Fast Kernel of G3PCX, Pittsburgh, PA**

*Carnegie Mellon University*

*Sep. 2019 – Dec. 2019*

- Analyzed genetic algorithms and identified bottleneck operations and independent chains to achieve instruction-level parallelism
- Designed fast kernels and corresponding data structures to accelerate computations to over 80% of theoretical peak
- Exploited SIMD instructions of intel AVX architecture to avoid dependent chains throughout computations and reached 2x speed for crucial functions

**Self-Driving Car with Raspberry Pi, Hsinchu, Taiwan**

*National Tsing Hua University*

*Jan. 2018 – Jan. 2019*

- Developed a lane following algorithm achieving prompt controls up to 6 frames per seconds by utilizing OpenCV and fitting polynomials with Python3.5
- Scheduled entire 2-semester project and led discussion in routine meetings
- Coordinated 4 teammates' work into 1 stable system involving XBEE, MobileNet, lane following and positioning

**Traveling Salesperson Accelerator, Hsinchu, Taiwan**

*National Tsing Hua University*

*Dec. 2018 – Jan. 2019*

- Transferred C code to RISCv simulator with elaborate memory management and specific data structures for accurate profiling and further co-processor designs
  - Designed RTL-level accelerator to boost up computations with co-processor interface, reducing 59% cycle numbers of bottleneck function
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