Yi Chien (Jason) Lin

Incoming PhD student at USC ECE

☐ (+886) 928-687-447 | ✉ jasonlin316@gmail.com | ⬛ jasonlin316 | ⬛ jasonlin316

Education

National Taiwan University, Department of Electrical Engineering (NTUEE) *Taipei, Taiwan*

B.S. in Electrical Engineering *Sept. 2016 - Exp. Jun. 2020*

- **Cumulative GPA** : 3.72/4.3
- **Research Interest** : VLSI, Digital Design, Integrated Circuits and System, Computer Architecture
- **Graduate Level Courses** : DSP in VLSI Design, Parallel Computing
- **Relevant Courses** : Integrated Circuit Design, Computer Architecture, Integrated Circuits Design Lab, Electronics, Digital Circuit Lab

Research Experience

Micro System Research Lab *Taipei, Taiwan*

Undergraduate Researcher | Advised by Prof. Tzi-Dar Chiueh *July. 2019 - PRESENT*

RISC-V CPU

- Taped-out a 5-stage pipelined RISC-V CPU on an 1.5mm x 1.5mm chip with 180nm technology.
- Designed extension module to support vector arithmetic. Speed up convoultion calculation 5x times faster.
- Performed the entire IC design flow, from design to synthesis, place & route, verification and tape-out.

Convolutional Neural Network (CNN) Training Accelerator

- Researched on CNN hardware accelerator that is designed to optimize training process.
- Reduced hardware complexity by using 8-bit floating point for calculation, instead of commonly used 32-bit floating point.

Data Processing System Lab *Taipei, Taiwan*

Undergraduate Researcher | Advised by Prof. Yi-Chang Lu *Sept. 2018 - June. 2019*

Systolic Array for Smith-Waterman Algorithm

- Designed Application Specific Integrated Circuit (ASIC) for DNA sequence alignment.
- Implemented Smith-Waterman, a dynamic programming algorithm that would calculate similarity of two DNA sequence.
- Run 136x times faster than software benchmark by leveraging parallelism.

Working Experience

Hewlett &Packard Inc. (HP) *Taipei, Taiwan*

Electrical Engineering R&D Intern at Commercial Notebook Team *July. 2019 - PRESENT*

Camera-Assisted Touchpad

- Developed a software that could enhance efficiency of cursor movement when using a notebooks' touchpad.
- Used webcam to track user's face orientation, and predicted which part of the screen the user was trying to access.
- Reduced 50% of the distance needed for swiping by teleporting the cursor to the predicted area.

Smart Scenario Detector

- Developed a system that provide users with different preference settings based on different scenario.
- Used internet connections to identify where the user was (e.g. at school, at home), and different applications would show up on the desktop.

Awards

2019   **3rd Prize**, NTUEE Undergraduate Innovation Award

Patents

2019   **PCT/US20/13419**, "Face Orientation Based Cursor Positioning on Display Screens" Application in progress.

Course Projects

32-point Fast Fourier Transform Processor

Digital Signal Processing (DSP) chip, Course Project of DSP in VLSI

- Implemented with radix-2 algorithm and single path delay architecture.
- Achieved 58dB average signal-to-noise ratio.

RSA-256 Decoder on FPGA

COURSE PROJECT OF DIGITAL CIRCUIT LAB

- Supported data transfer between computers and FPGA through RS-232 protocal.
- Speeded up decryption process 40x times faster than that with solely software.

Image Tone Classifier and Sorting Engine

IMAGE SIGNAL PROCESSING ASIC

- Designed hardware accelerator that could identify the dominant color of the picture and calculate its color intensity.
- Sorted pictures by its color intensity with insertion sort.
- Ran 38x times faster than software written in C++.

Functionally Reduced AND-INVERTER Graphs (FRAIG)

COURSE PROJECT OF DATA STRUCTURE AND PROGRAMMING

- A simple EDA tool that helps circuit optimization.
- Supported merging of equivalent logic gates.
- Featured unused gate sweeping and graph simplifying through structural hash.

Skills

Programming	Verilog, Python, C++
Tools	Cadence NC-Verilog, Synopsys Design Compiler, Cadence Innovus
Tests	**GRE** V:154, Q:169, AW:3.5
	TOEFL iBT 108 (R:29, L:29, W:27, S:23)

Leadership and Extracurricular Activities

NTUEE Camp, Film and Photography Team   *Taipei, Taiwan*

LEADER   *July. 2019*

- Lead a group of 11 people to make news report and commercials about the camp during the period.
- Achieved 2K views on YouTube with the news report.

NTUEE Student Association, Marketing Team   *Taipei, Taiwan*

LEADER   *Sept. 2018 - June. 2019*

- Lead a group of 20 people and taught members about film making and propagation.
- Achieved 25K views on Facebook with the advertisement for NTUEE Week.

Digital Movie Creator Club   *Taipei*

EDUCATION OFFICER   *Sept. 2017 - June. 2018*

- Guided 10 new members to team up and finish a five-minute film.
- Arranged courses that fully go through the creation of a film.
- Contacted with directors, script writers and related experts to share experience or give lecture in class.