

Yu-Chi Lin

Email: yuchi@berkeley.edu

EDUCATION

University of California, Berkeley

August 2021 – present

- Ph.D., Electrical Engineering and Computer Sciences (EECS)
- Advisor: Prof. Ali M. Niknejad
- Area of Specification: mm-Wave IC, mixed-signal IC, biomedical sensor

National Tsing Hua University, Hsinchu, Taiwan

September 2017 – June 2021

- B.S., Electrical Engineering (EE)

GPA: **4.23/4.3 (rank 1/102)**

RESEARCH EXPERIENCE & PROJECT

38-mm Smartwatch Liquid-Crystal Display Driver

August 2021 – December 2021

- Drove 272×340 1.4V light-to-dark transition full swing pixels sequentially at 60Hz fresh rate
- Built 2-stage op-amp with GDPK 0.045μm CMOS process, with telescopic-cascode, class AB amplifier, Miller compensation, and single biasing current source

RISC-V CPU Processor

August 2021 – December 2021

- Implemented RISC-V ISA with 3-stage pipelined CPU, cache memory, and control status register (CSR)
- Designed configurable direct-mapped and 2-way set associative cache with write-back and -through policies
- Front-end Verilog design and simulation, and back-end synthesis and PAR with ASAP7 7nm process

Terahertz (THz) None-line-of-sight (NLOS) Imaging

February 2020 – June 2021

Prof. Shang-Hua Yang, Yang Research Group, EE, NTHU

- Submitted proposal to **Ministry of Science and Technology (MOST)**, Taiwan
- Asynchronous optical sampling (ASOPS) Terahertz time-domain spectroscopy (THz-TDS) system

IC Lab QR Code Decoder

September 2020 – January 2021

- Decoded rotated 25×25 QR code within 64×64 random-background bitmap images into URL web address
- Ranked A and won second-place in synthesis contest (over half of classmates are graduate students) (performance index (PI) is defined as the product of total area, timing constrain, and total simulation cycles)

ASCII and utf-8 Files Encoding

February 2020 – June 2020

- Achieved 70% fewer storage space for utf-8 text files with Huffman encoding scheme

MOS Fabrication

February 2020 – June 2020

- Fabricated MOS from silicon wafer in Tsing Hua Lab (Class 1000, The Federal Standard 209E), highest-class cleanroom in Taiwan's academia
- Characterized MOS with carrier mobility and threshold voltage through two-probe measurement

Terahertz Curvature Sensing System

June 2019 – January 2020

- Undergraduate Project Oral and Poster Presentation Competition (**rank 1/53**), EE, NTHU
- Characterized surface roughness based on THz continuous wave scattering

Full-Custom Eight Frequency Mode Clock Generator

September 2019 – January 2020

- Built full-custom eight frequency mode clock divider with 0.18μm CMOS process, with three-bit half-adders, double-edged-triggered flip-flops, and True Single Phase Clock (TSPC)
- Gate-level, transistor-level and layout specifications, pre-layout and post-layout simulation
- Won the performance competition with the smallest layout area consumption

Logic design Puzzle Tetris game

January 2018 - June 2018

- Established Tetris and innovative jigsaw puzzle in Verilog HDL with Xilinx Vivado on FPGA board
- Integrated with counter, timer, keyboard, speaker, LCD, LED

TECHNICAL SKILLS

Cleanroom Fabrication

- MOS silicon wafer fabrication
- Introduction to Solid-State Electronics Device (A+)
- Solid-state Electronics Laboratory-Semiconductor Processing (A+)

Analog Circuit Design

- Cadence, Hspice, Laker, Composer
- Analog Integrated Circuits (EE 240A) (A), Introduction to Integrated Circuit Design (A+)

Digital Circuit Design

- Verilog hardware description language (HDL), logic synthesis, logic equivalence checking, layout place and route, FPGA and ASIC design and implementation
- Introduction to Digital Design and Integrated Circuits (EECS 251A) (A+)
- Introduction to Digital Design and Integrated Circuits Lab (EECS 251LA) (A)
- Logic Design Lab (A+), IC Design Lab (A+)

Optical System

- Terahertz (THz) photonics and applications
- Frequency-domain and time-domain THz spectroscopy, THz tomography

Biomedical Engineering

- Homunculus Man modelling, Ultrasound and MRI imaging simulation
- Psychology and Modern Life (A+), Life Science (A), Introduction to Biomedical Imaging (A)

Software Programming

- C (advanced), C++, Matlab, Python, Linux OS
- Algorithms (A+), Data Structures (A+)

SELECTED AWARDS & HONORS

Taiwan-UC Berkeley Fellowships	August 2021
- top 5 UC Berkeley PhD students from Taiwan	
Dr. I-Chi Mei Memorial Medal	June 2021
- NTHU graduate with the highest distinction (7 out of 2000 in the class of 2021)	
Scholarship of the Outstanding Student in Engineering, Chinese Institute of Engineers	June 2021
- only recipient from NTHU, highest prestigious award to top 10 senior undergraduates in Taiwan	
The Memorial Scholarship to Mr. Lin Hsiung Chen	November 2020
- largest scale scholarship awarded to top 50 college students in Taiwan	
Shun-I Chu and Zyxel Scholarship (top 15 third-year students in NTHU)	June 2020
Presidential Award (top 2% in class), NTHU	March / October 2018, October 2019, March 2020, October 2021
Broke Games Record in 800M race, sports day, NTHU	November 2019
Overseas Exchange Scholarship, EE, NTHU	July 2019
- Summer Session, University of California, Berkeley, CA, US	

TEACHING EXPERIENCE

EE231002 Introduction to Programming

September 2020 – January 2021

Prof. Mi-Chang Chang, EE, NTHU

- In-class computer lab tutorial for nearly all electrical engineering freshmen

EECS206001 Discrete Mathematics

September 2019 – January 2021

Prof. Wing-Kai Hon, Department of Computer Science (CS), NTHU

- Exams and assignments tutorial for over 250 students from different disciplines in English

SELECTED EXTRACURRICULAR & LEADERSHIP

Member, Track and Field school team, NTHU

October 2018 – June 2021

*Member, International Sports Affair Training course program,
Sports Administration of Ministry of Education and Chinese Taipei Olympic Committee*

April 2019 – June 2021

Member, Leadership in Service Program, Office of Student Affairs, NTHU

August 2019 – June 2021

School Representative,

April 2019, November 2020

National Intercollegiate Athletic Games, Chinese Taipei University Sports Federation

Staff, Late Night Movie Theater, Arts Center, NTHU

January 2018 - June 2019

Member, Female College Students Leadership Program, Ministry of Education, Taiwan

August 2018