

NUTCHANON JARIYANURUT

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EDUCATION

National Taiwan University, Taiwan, M.S., Integrated Circuit Design and Automation, Graduate School of Advanced Technology *GPA: 4.2* (as of the first semester) Sep 2023 - Present
Chulalongkorn University, Thailand, B.S., Electrical Engineering *GPA: 3.99* Aug 2019 - Jun 2023
Mahidol Wittayanusorn School, Thailand, *GPA: 4.00* May 2016 - Feb 2019

WORK/RESEARCH EXPERIENCE

High-Speed Circuits Lab *under the supervision of Prof. Tai-Cheng Lee Taipei, Taiwan*, Sep 2023 - Present

- Optimize power conversion efficiency of the cross-coupled rectifier for RF energy harvesting and design the matching network of it. Use Virtuoso ADE and bridge the software to Python to automate the simulation and measurement in the research. In addition, design the system-level architecture for RF energy harvesting.
- (As of now) Literature review on Sigma-Delta Converter and Class-D amplifier.

Silicon Craft Technology PLC Analog Design Trainee Bangkok, Thailand, May 2022 - July 2022

- [Link]. Designed two-stage op-amp to meet the required specifications, with Python coding to automate and accelerate the design process.
- Literature review on wireless power transfer technology utilizing NFC frequency.

PROJECTS

Analog IC Design Mini-Project (2023)

- [Link]. Utilized SkyWater SKY130 PDK, verified the results of the paper designing supply-insensitive voltage-controlled oscillator (VCO). The circuits are edited in xschem and simulation is done by ngspice.

Senior Project (2022 - 2023)

- [Report in Thai]. Designed wireless power transfer system utilizing NFC frequency (13.56 MHz) to reach the power conversion efficiency of 70%. Collaborated with Silicon Craft Technology PLC.

Digital IC Design Mini-Projects (2022)

- [Link]. Layoutting non-overlapping clock in Microwind 3 using 0.12 μm technology to meet specifications.
- [Link]. Layoutting one-bit serial adder in Microwind 3 using 0.12 μm technology to meet 10 GHz spec. Functional verification by Xilinx Vivado.

Member in EIC (Robotic club in the Faculty of Engineering) (2019 - 2022)

- [Link1]. [Link2]. In the EE team, made the robot for the RoboCup 2023 @Home open platform league, designed the controller of base motors using Odrive 3.6, and Python to test and control the system. The robot received the second place in the league.

Embedded System Mini-Project (2022)

- Designed system controlling multiple sensors and multiple actuators simultaneously using FreeRTOS as a pilot model for smart home.

Participated in Digital Design Thailand 2021 Camp (2021)

- Learned about FPGA and digital design using VHDL, made TX/RX UART modules, and an interface to receive bitmap file on a computer and to display it on an HDMI monitor.

Project in High School (2018-2019)

- Invented wood density measuring instrument by measuring speed of sound in wood by piezoelectric effect. (Received Second Place in National Round, Young Scientist Competition 2018, Thailand.)

SKILLS

Programming and Embedded	MATLAB, Python, VHDL/Verilog, C/C++, Linux
Circuit Design	Virtuoso ADE, Xilinx Vitis/Vivado
3D Prototyping	Fusion 360, AutoCAD

RELEVANT COURSEWORKS

Analog and Digital IC Design, Embedded Systems, Linear & Digital Control Systems, Optimization Techniques, Stochastic Processes, Media Compression Techniques

UNDERGRADUATE EXTRACURRICULAR ACTIVITIES

- Member of Academic Team, Engineering Student Committee, Chulalongkorn University (2021 - 2022)** - organized events such as 2022 online faculty's job fair in which more than 80 companies and 1600 participants involved, organized the academical workshops in 18 departments of Faculty of Engineering for 240 high school students.
- Works in Tutoring:** Wrote the 400-page free-to-download book for National Chemistry Olympiad camp in Thailand, now has over 6000 downloads.
- Graphical** Adobe Illustrator, L^AT_EX, Web Design (HTML, CSS, Jekyll & Liquid)

LANGUAGE

TOEFL: 29/27/20/26 (Reading/Listening/Speaking/Writing)