

# NUTCHANON JARIYANURUT

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## EDUCATION

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**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

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

- (As of now) Literature review on Class-D amplifier for high-bandwidth application. Currently focus on the system-level simulations in both MATLAB and Verilog-A.
- (Previous topic) 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.

**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

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**Final Project of the THz Circuits and Systems course at NTU (2024)**

- Designing the voltage-controlled oscillator (LC-VCO) with a center frequency of 77 GHz and a tuning range of 64.5 GHz to 79.7 GHz and apply this module to the phase-locked loop.

**Final Project of the VLSI Testing course at NTU (2024)**

- Programming the code for diagnosing the single stuck-at fault in a digital circuits by implementing the algorithm from Waicukauski (1989). Implementation on C++.

**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.

**Undergraduate 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  $\mu\text{m}$  technology to meet specifications.
- [Link]. Layoutting one-bit serial adder in Microwind 3 using 0.12  $\mu\text{m}$  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.

## SKILLS

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

## UNDERGRADUATE EXTRACURRICULAR ACTIVITIES

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- 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 7000 downloads.
- Graphical** Adobe Illustrator, L<sup>A</sup>T<sub>E</sub>X, Web Design (HTML, CSS, Jekyll & Liquid)

## LANGUAGE

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