Gan Bei Ru

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EDUCATION Singapore University of Technology and Design (SUTD)

- Bachelor of Engineering (Engineering Product Development), **Sept 2021 to Present**
  Focus Track: Electrical Engineering
- Expected Date of Graduation: May 2025

WORK EXPERIENCES

Research and Development Intern, Racer Technology **Aug 2023 to Dec 2023**

- Acquired knowledge about ISO 13485, plastic injection moulding design practices.
- Designed and developed a functional PCB for a dermatoscope using Altium Designer and debugged fabricated PCBs. PCBs were functioning and presented to the client.
- Assisted in modifications of plastic enclosure of dermatoscope to fit PCBA design.
- Tested plastic functionality with FDM 3D print prototypes.
- Conducted Solidworks FEA simulations for snap-fit joints.

Silicon Validation and Automation Intern, Infineon Technologies Singapore **May 2024 to Sept 2024**

- Acquired knowledge about post-silicon validation for BGA chips
- Developed an automation test flow script using C# and socket programming to control instruments and access test registers in the test chip samples. Test flow script generates customised JTAG signals according to bit fields.
- Usage of measurement tools such as logic analyser, mixed domain oscilloscope and source meter to obtain measurements from chips
- Post-processed measured data and visualised data using python libraries, such as Matplotlib, Seaborn, Pandas.
- Proposed new setup to improve thermal cycling measurements for die temperature sensors. Created CAD models for prototype fabrication and Solidworks Flow Simulations to predict the performance of new setup design.

ACADEMIC RESEARCH PROJECTS (Singapore University of Technology and Design Singapore)

FPGA CMOD A7 Password Generator **Jan 2024 to May 2024**

- Created Verilog code for the switching of the two sensors for data collection to feed into LSFR pseudo random number generator.
- Programmed Arduino using Arduino IDE to display output of FGPA random number onto LCD display and mapped numbers to characters used for passwords.

12V to 24V DC-DC Non-Synchronous Boost Converter **Jan 2024 to May 2024**

- Designed circuit in EasyEDA and simulated circuit in Multisim
- Conducted component selection to fabricate PCB with supplier and debugged fabricated PCBs using Oscilloscope. Fabricated prototype was able to light up two towers of 100 through-hole red and blue LED lights in parallel, drawing about 6A current in total.
- Project won first runner-up position for module award.

3 Stage Voltage Control Oscillator **Sept 2024 to Dec 2024**

- Designed schematics of VCO with added duty cycle correction in Cadence Virtuoso.
- Implemented pre-layout and post-layout simulations with parasitics using Cadence ADE L tool.
- Analysed waveforms generated from the simulations

Project Cuvero **Sept 2024 to Present**

- Designed a novel brush head for cleaning curved glass surface using 3D CAD tools such as Solidworks and conducted mechanical FEA simulations on design.
- Fabricated design using metal machining and 3D printing.

CO-CURRICULAR ACTIVITIES

CNY Lightup Project, Committee Member in 2023, Group Leader in 2024 **June 2022 to Jan 2024**

- Worked with architecture students to design light installations in Chinatown for the lunar new year.
- Designed and created CADs for portions of the light installation using Solidworks, Blender, Illustrator and Procreate.
- Learned more about project, stakeholder management, and being receptive to criticisms.

Scale Up Project in Collaboration with MINDS **May 2023 to Sept 2023**

- Developed the hardware design and schematics using EasyEDA for MQTT weighing scale project.
- Soldered a functional Veroboard prototype of weighing scale hardware.
- Created base code for ESP32 in Arduino IDE for weighing scale to create visual and audio indicators to remind users that desired weight has reached.
- CAD and printed 3D casing for weighing scale.

Teaching Assistant for Circuits and Electronics **Jan 2024 to Apr 2024**

- Assisted my professor in facilitating cohort lesson teachings and lab sessions for basic electronics classes in the University Module.
- Planned and assisted in lesson and activity planning.

ADDITIONAL INFORMATION

- Technical Skills: Cadence Virtuoso and ADE L Simulation, EasyEDA, Altium Designer, LTSPICE, Multisim, Hardware debugging (Oscilloscope, Logic Analysers, Power Supplies) and Soldering, Siemens NX, Solidworks CAD and Simulation, Fusion 360 CAD, 3D printing, Arduino and Arduino IDE, ESP-32, Python, C#, Web dev basic, Matlab basic, Kicad basic, Verilog basic, Adobe Lightroom, Photoshop, Illustrator, Blender and Figma
- Language Proficiency: English and Chinese
- Interests: Taking photographs of nature, visiting art museums and learning new skills