Robin Teng

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Education

University of California – Santa Barbara   *Santa Barbara, CA, USA*
Bachelor of Science in Electrical Engineering with Physics Minor   *Sept 2022 – Present*

- **Expected Graduation Date:** June 2026
- **GPA:** 3.4
- **Coursework:** Solid State Device Physics, Photonics, Logic and Design, Signal Analysis, Electromagnetism, Thermal Dynamics, Quantum Physics, Data Structures and Algorithms, Machine Learning, Circuit design, Manufacturing Methods, Materials, Calculus, Linear Algebra, Statistics and other supplementary math courses .....

Personal Experience

UCSB Nanofabrication Facility   *Santa Barbara, CA, USA*
Process Engineer Intern   *March 2024 - Present*

- I Record various data on different tools/machines which are then analysed and used to calibrate each of the machines in the fab. Some of the tools that I am proficient on are:
- lithography: Photo-lithography with ASML DUV, Spinning P/N photo-resist, using developer
- Dry etching: Various ICP etching machines, I did a lot of etch with SiO_2 and Indium Phosphide(InP). For SiO_2 I also did some Fluorine based etching.
- Wet etching: I've used NH_4OH, H_2SO_4, H_2O_2. I use 3:1 mix of H_2SO_4 and H_2O_2 to synthesis Piranha Acid/Solution which I use to reclaim wafers.
- Deposition: PECVD of SiO_2 and Si_3N_4(low stress) and gold sputtering on samples for reduced charging in SEM.
- Metrology: SEM for taking photo of the each patterns and ridges of etches and lithography, Ellipsometer for film thickness and refractive index, Flexus for measuring film stress and bow on wafer for deposition, Surfscan for particle counts and Haze regions on wafer, Profilometer for etch depth/rate, Mapping Reflectometer for wafer mapping, uniformity, refractive index and thickness, general purpose optical microscope

OPUS Lab Research   *Santa Barbara, CA, USA*
Undergraduate Researcher   *Nov 2023 - Present*

- Our research is about efficient computing through the use of probabilistic computing on physics based models namely Boltzmann machines and Emulations of Ising machine on FPGAs
- I work with a grad student and did simulations of probabilistic computing logics on matlab
- Currently my main work is on experimenting with the use of Boltzmann Model on the transformer architecture used for training LLMs from the 2017 paper "attention is all you need". Being a energy based model along with with its stochastic nature, Boltzmann machine can be especially efficient for optimization problems which are widly present in the transformer architecture(attention mechanism, back-propagation...

UCSB Society of Automotive Engineers(SAE)   *Santa Barbara, CA, USA*
vehicle control unit designer   *Sept 2022 - Jan 2024*

- Collaborated with a four-person team to develop a state machine for the VCU in C++.
- We ran all processes on a Teensy 4.1 which controls the motor input output, charging logic, sensor input processing and error interrupts.
- Our car went on to compete at Formula SAE Michigan

Cybercon Inc Internship   *Remote*
mass stock data analysis   *Jun 2020*

- Worked with another intern under a mentor remotely on Jupiter notebook to analyse real time market data using algorithms.
- Over the one month period we used python with Numpy, Pandas, Matplotlib and Scikit-learn, along with some other pre-existing index algorithm(RSI, MACD...) to crunch data and predict future trends.

Personal Projects: *Home, New Zealand*
Self-hosted Cloud Server   *Aug 2023*

- Running a Ubuntu server out of my garage and hosting a cloud server with Apache2 on my domain, has a RAID 5 configuration, you can take a peek here: https://nextcloud.inecdote.com(takes a while to load in US)

LoRa Communication Radio Network   *Nov 2023*

- I built a Encrypted radio communication mesh network from multiple 915MHz radio communication nodes which could be connected via Bluetooth to send/relay messages between.
- Has a stable range of 15km, this was especially useful since cellular signal did not cover all the rural areas of New Zealand where I sometimes stayed.

More projects on my personal website that I built: www.robinteng.com   *Aug 2024*

Skills

Programming	Python, C++, Matlab, Linux Bash, LaTeX, Git, HTML/CSS/JavaScript, SQL.
CAD	Solidworks, Fusion 360, EAGLE PCB, KiCad, 3D Printing Slicer, Blender.
Manufacturing/Fabrication	Clean room skills as listed in experiences, 3D printing, CNC machining, laser cutting/engraving, band/miter/cold cut saw for metal and wood, composite layup, MIG welding, soldering.