Jia Yu Law

A passionate person in science, technology, and life.

About me

Master of Engineering (MEng) in Electrical and Electronic Engineering, pursuing career opportunities in FPGA design.

Technical Skills

HDL	**MATLAB**
Python	**GitHub**
HTML	**CSS**
JavaScript	**Bootstrap**
SQL	**LTspice**
Xilinx ISE	**Raspberry Pi**
Arduino	**C/C++**
Documentation	**LaTeX**
Adobe Illustrator	**KiCad EDA**
Excel	**AutoCAD**

Competition

University Open Virtual Hackathon 2020
by Universiti Teknologi Malaysia

- Consolation prize, final pitching stage.
- Designed a computer vision based container code recognition program using Intel OpenVino Toolkit in C++ to increase cargo port automation level, in a team of 5.

Contacts

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Languages

English
Mandarin
Malay

Past Projects

FYP - Design and Characterization of Non-Volatile Flip-Flop (NVFF)

Education

2019-2023 — **MEng (Hons) Electrical and Electronic Engineering**
· University of Nottingham Malaysia (UNM)

- Undergraduate year 1 result: 91.83% average (Distinction)
- Undergraduate year 2 result: 80.33% average (Distinction)
- Undergraduate year 3 result: 80.67% average (Distinction)
- Dean's Excellence Scholarship Award (Top 8%), 2020, 2021, 2022
- Relevant modules:
  - HDL for Programmable Logic with Project, VLSI Design, Digital Communications, Digital Signal Processing, Advanced Control System Design, Power Networks, Power Electronic Applications and Control, Analogue Electronics, Electrical Machines, Drive Systems and Applications, Fields, Waves and Antennas, Advanced Engineering Mathematics

2018–2019 — **Foundation in Engineering**
· University of Nottingham Malaysia (UNM)

- Enrolled with High Achiever Scholarship Award, 2018
- Result: 93% average (Distinction)
- Dean's Excellence Scholarship Award, 2019

2013–2017 — **Malaysian Certificate of Education (SPM)**
· SMK Tengku Mahkota

- Result: 10 As (7 A+ 2A 1A-)

Work Experience

08/2023-Present — **Graduate Trainee - FPGA IP Software Development Engineer**
· Intel / Altera, Bayan Lepas, Penang [Hybrid]
Involved in the development & maintenance of 5G communication IP cores (O-RAN, eCPRI, etc.). Related exposure includes Perl & TCL scripting, GNU make, UNIX Linux, shell scripting, regression test automation, FPGA hardware test, Quartus Prime software, FPGA design flow (simulation, compilation, timing analysis, lint & CDC), RTL design, UVM.

06-09/2022 — **Summer Research Intern**
· E&E Engineering Department, UNM [Hybrid]
Research was carried out utilizing 11 metal oxide semiconductor (MOS) sensors to investigate the potential of the sensors in achieving non-invasive fruit identification using machine learning algorithms.

06-09/2022 — **Agricultural Project Under Independent Contractor**
· Remote work
Development of a durian fall detection & notification system based on the concept of internet of things (IoT). Keywords: Web app, Flask, SQL, ESP8266

06-09/2021 — **Industrial Training**
· Keysight Technologies, Bayan Lepas, Penang [Remote]
Development of a test automation framework for Keysight IoT device regulatory test software at software R & D department. The framework is based on optical character recognition (OCR) and image recognition. Keywords: Test automation, Eggplant software.

- Research-based project. Design and simulation of NVFF on LTspice using different transistor Predictive Technology Models (PTM).

FPGA-based SPI Temperature Measurement System

- VHDL design of a temperature measurement system, implemented on Spartan-3E Starter Kit board. The design uses SPI protocol to receive temperature value from MAX6675 ADC which is connected to a thermocouple. The temperature values are interfaced with data converter, LCD, LED, DPRAM, etc. for data display and storage.

FPGA-based RS232 Controller

- VHDL design of a RS232 controller, implemented on Spartan-3E FPGA (Nexys2). The design allows full-duplex communication between the FPGA and a general-purpose computer over data cable.

Wildlife Monitoring Wireless Sensor Network (WSN)

- Development of a web application as control interface of the WSN, using Python Flask framework and hosted on AWS Lightsail instance.

MATLAB Ray Tracing GUI

- Development of multiple MATLAB GUIs that calculate electric field intensity from transmitter to receiver based on multiple order reflection and knife edge diffraction theorem.

Doppler Radar Speed Detector

- Digital signal processing with STM32 microcontroller and doppler radar sensor to estimate the speed of moving object based on Doppler effect.

PCB Design of Forward Converter (DC-DC Converter)

- Design and implementation of a closed loop forward converter circuit.

Computer Vision in Python

- Traffic sign detection using Haar cascade, recognition using CNN.
- Face recognition.

Arduino / RPi Robot Car

- Line following, obstacle avoidance, Bluetooth wireless control, etc.
- 3D design of line-following sensor holder.

Extracurricular Activities

10/2021 - 10/2022
Technical Director of programming hackathon - Nott-A-Thon: Lovelace
· IET UNM Student Chapter
Event coordination, such as rules & regulations, web design, questions setting, etc.

04/2021 - 04/2022
Technical Director
· IET UNM Student Chapter
Event technical support, such as meeting scheduling, attendance record, etc.

04/2020-04/2021
Assistant Event Manager
· Robotics Society, UNM
Assisted in event proposals management and event monitoring.

02/2021
PCB Design Workshop Deputy Organising Chairperson
· Robotics Society, UNM
Assisted in workshop preparation, rehearsal, and task distribution for junior committees.

01/2021
Intermediate Level MIT App Inventor Workshop Organising Chairperson
· Robotics Society, UNM
Committed a two-hours virtual workshop to introduce data storage components in MIT App Inventor platform to around 100 participating members, with 1 activity on implementation of cloud database to create an online chat app for Android phone.

11/2020
MIT App Inventor Workshop Organising Chairperson
· Robotics Society, UNM
Planned a two-and-a-half-hours virtual workshop involving 6 simple activities to introduce MIT App Inventor platform to around 100 participating members, which can be used in creating simple Android phone applications.

References

Prof. T. Nandha Kumar
Professor, Head of Department (HoD), EEE Department, UNM.
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