Justin Ernest Mateo

https://jmateo27.github.io

WORK EXPERIENCE

Arlo Technologies Canada **Sep. 2023 – Dec. 2023**
Project Management Co-op *Richmond, BC*
- Communicated with multiple internal local/international teams and external contractors to ensure project status is updated.
- Presented multiple data analyses and revision recommendations for hardware/software to the Project Management team and SW/HW teams.
- Created test plans to then gather useful data to verify new revisions of Arlo's ongoing R&D projects.

Adara Systems Ltd. | Conetec Investigations Inc. **Jan. 2021 – Dec. 2021**
Electrical/Mechanical Engineering Co-op (8 months) and Contractor (4 months) *Burnaby, BC*
- Mainly worked on Instrumented Becker Penetration Test (iBPT) Project, which included development of the DAQ system, and finalization. Documentation and training were created accordingly to pass down responsibility to future contributors.
- Improving products such as eCones, eResistivity and Vane/eVane Modules by optimizing the system for better accuracy of various sensor readings using Python and MATLAB.

PROJECTS

FrisMe – Ultimate Frisbee Launcher **Jan. 2024 – Jul. 2024**
- Capstone project for SFU Engineering Science Program (ENSC 405W & ENSC 440). COO of AeroToss company and working with the Firmware team and Electrical design for proof-of-concept stage and prototype completion.
- A "shelf-ready" product that can throw accurate curved throws to stationary/running players who can further control the device through a portable controller interfaced with a mobile app.
- Overall system is compiled of the following systems: *frisbee propulsion, launcher-angle adjustment, aim adjustment*, machine vision and mobile application, which are all integrated together in an embedded system on the BeagleBone Green.
- Created some device drivers and tests for the above systems in C which interfaces with low and high-voltage systems which were specified with regards to device datasheets and power constraints.

Piano Tiles on ZedBoard **Jan. 2024 – May 2024**
- Video game created for SFU's Advanced Digital System Design course duo project (ENSC 452), executed using a ZedBoard; hardware designed/loaded using AMD's Vivado Design Suite and software developed and ran with AMD's Vitis application.
- Fully designed and implemented hardware which includes implementation of Fast Fourier Transform, direct memory access block and real-time tile generator using audio data stored in .bin files; to then be synchronized with a properly set up Zynq-7000 All Programmable SoC
- Developed software in **C** including interfacing with all hardware, sprite-drawing through VGA, interrupt handling and full integration.

Binary Neural Network on FPGA **Feb. 2023 – Apr. 2023**
- Contributor and team coordinator of the final group project of the SFU Digital Systems Design course (ENSC 350), finishing with a *120%* grade.
- Designed a Python script that trains a binary neural network to characterize an image to be a digit from 0-9, using the MNIST data set, induced learning about the layers of the model, including the dense, batch normalization, reLU and soft max activation layers.
- Created the system by storing the trained model's weights into ROM, translating the fitting process into processes in VHDL, which will then display the characterized output. Each component of the system was vigorously tested.

Spot-A-Bone **Oct. 2022 – Dec. 2022**
- Team leader of the final group project of the Embedded Systems and Real Time Systems Software course (ENSC 351), with a *100.6%* grade.
- Implemented an enclosed embedded system with the Beagle Bone Green as the MCU, using cross-compilation with a Debian operating system
- NFC communication to choose songs/playlists, face recognition for account log-in, motion sensing for playback control, and Spotify API usage implemented in C and Python

EDUCATION

Simon Fraser University **Sep. 2019 – Aug. 2024**
B.A.Sc. in Engineering Science, ***Computer Engineering*** *Burnaby, BC*
- Deans Honour Roll 2nd, 3rd & 4th year; 3.59/4.33 CGPA
- Embedded and Real-time Systems, Data Structures and Algorithms, Artificial Intelligence, Database Systems, Operating Systems

SKILLS & INTERESTS

- **Skills:**
  - **Software – Strong**: C, C++, Java, Python, MATLAB, VHDL, Windows, Linux. **Adequate**: SQL, JavaScript
  - **Soft** – Adaptable, Bilingual (English and Tagalog), Cooperator, Coordinated, Independent, Inquisitive, Leadership
- **Interests:** Cycling, hiking, snowboarding, basketball, gym, One Piece, games