Ajay Vincent Miranda

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Education:

University of Technology, Sydney   **Feb 2022- Present**

Major: Master's of Cybersecurity Extension

University of California, Davis   **Sep 2016 - June 2020**

Major: Bachelor of Science, Computer Engineering

GPA: 3.006

Relevant coursework: Cybersecurity, Unix Programming, LANs and Routing, Risk Management in Engineering, Embedded systems, Operating Systems, Computer Architecture, Algorithm Design and Analysis, Gameplay programming, Data Structures and Algorithms, Human-computer interaction, Technical Writing

Experience:

Outsystems - Mannai corporation   **Sep 2021-Jan 2022**

- Underwent training in the "Outsystems" Low-Code development environment

PHP web full-stack developer intern - iVision Technologies   **May 2021-Aug 2021**

- Developing a full-stack website application, primarily to query indexed records with search functionality
- Utilized PHP, HTML, CSS, JS for the frontend, Apache for running the web server, with MySQL database
- Migrated the pre-existing database to MySQL format leveraging Microsoft server SQL management studio
- Implemented login auth with security against prevalent SQL injections, preventing malicious code execution
- Helped set up an SMTP mail server to send emails in bulk to 100+ users registered on the website.

Projects:

AWS application notification system   **Apr 2020-May 2020**

- Developed an application on a TI CC3200 microcontroller to notify a user via SMS for a game application
- Utilized the I2C communication protocol to read rapidly varying accelerometer values
- Extrapolated the accelerometer values to display a moving pixelated ball on an OLED with the SPI protocol
- Triggers a RESTful API call to the AWS online panel upon detection of the game's ending
- Integrated the SNS and MQTT protocols to send the parsed JSON message to the user's mobile phone

User Level Thread library: **Feb 2020-Mar 2020**

- Developed a user level thread library utilizing a queue container API in the C programming language
- Enables a user level application to create and run new threads in the same process, including termination
- Performs context switching to resolve imminent concurrently running thread executions
- Implemented an established generalized lock primitive(semaphore) to handle multiple threads including providing safe, mutually exclusive access to the critical section for existing threads
- Designed a memory efficient mechanism to provide private storage for each thread

Senior design autonomous vehicle: Oct 2019-Mar 2020

- Designed and built an autonomous vehicle in a team of four that uses a camera sensor to follow a lined track for the best time, automatically stopping at the marked finish point.
- Programmed the control algorithm on the OpenMV microcontroller using Python with image processing detection capabilities to identify the regions of interest, discerning the path from the surroundings.
- Incorporated the proportional and derivative terms for the PID model controller to prevent oversteering, understeering on turns and oscillation on linear paths.

Visual novel video game: Oct 2019-Dec 2019

- Developed an interactive storyline based visual novel game in a team of four with the Unity game engine.
- Leveraged core methodologies of game development including handling input, branching dialogue trees, poly-dimensional scaling, animation, testing and game feel
- Designed the game-logic necessary for spatial 2D coordinate movement, adapted for the narrative
- Utilized C# to script with the object-oriented programming paradigm, serialized to link with game objects

Seat reservation system - SacHacks Intercollegiate Hackathon: Nov 2018

- Designed a seat reservation system to solve the inconveniences of occupied public spaces
- Utilized HTML, CSS,Javascript to develop the front-end of the web application
- Integrated the Linux based Qualcomm DragonBoard 410C SoC computer for pressure detection through a back end python script with proximity sensors
- Incorporated the ultrasonic sensors using the Arduino UNO microcontroller
- Awarded the "Best IOT hack" award by Major League Hacking, SacHacks' sponsor

Technical skills:

- Software: Cisco Packet tracer, Linux, Python, Git, C, C++, Code composer, React, HTML, CSS
- Hardware: TI CC3200 microcontroller, Qualcomm DragonBoard, Arduino UNO