Michael Allen Cavins Jr.

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Education:

- **California State Polytechnic University- Pomona, CA** - 2016- 2021
- Bachelors of Science, Computer Engineering
- Awards: Dean's List: Fall 2020; President's Honor List 2020-2021;
- Certificates: Obtain Confidential Security Clearance as of January 2023; The Complete 2021 Flutter Development Bootcamp with Dart (App Development); Deep Learning by DeepLearning.AI on Coursera Certificate

Work Experience:

Technician - SOV Security Agoura Hills, CA - November 2021 - Present
- Installed, troubleshoot, and IP cameras, card readers, door/ceiling sensors, and CISCO servers. Demonstrated leadership by taking charge of 2 projects and collaborating on 7 others, consistently delivering ahead of schedule with one project yielding a net gain of over $3 million
- Lead testing for over 200 card readers, 100 cameras, and 30 12V-24V batteries finishing 1 week before the deadline with paperwork and complete work orders as soon as possible which consist of troubleshooting hardware/software issues keeping 100% of equipment working
- Originated documentation for troubleshooting in Google Docs and schematic wiring in EasyEDA for employees to understand the system
- Promoted twice within 11 months due to my strong performance, reliability, and independence

Freelance Web Developer - Mama Loli's Mexican Food, Hesperia, CA - June 2021 - August 2021
- Created website in HTML, CSS, JavaScript, Node.js, and squareup so people can order online for the restaurant
- Maintained website with its layout (header, body, footer), added and fixed items, item descriptions, categories for items, and photos using HTML, and CSS to make the website more user friendly having a 12% increase in site traffic and +40% in sales

Projects:

Individual Project - Reinforcement Learning AI for Street Fighter - July 2023 - October 2023
- Developed a Python-based reinforcement learning program using PyTorch, OpenCV, MAMEToolkit, gym, tensorboard, cv2, numpy, and Baseline to create an Artificial intelligence (AI). Implemented algorithms such as PPO and A2C with architectures NoisyNet, GRU, and RNN with the objective of training the AI achieve victory in the highest difficulty level of the game
- Conducted comprehensive evaluations of the AI's performance by implementing a testing model. This model quantified the AI's learning progress by adjusting rewards and penalties, allowing for a thorough assessment of 3,000 training attempts, running the program for 48 hours

Individual Project - Lane and Object Detection for Self Driving Car Program - June 2023 - September 2023
- Developed python code for real-time vehicle camera utilization with OpenCV to ensure precise vehicle positioning within the lane's center.
- Employed YOLO for object detection with an 80% confidence level, referencing the COCO dataset, and integrated the Deep Sort algorithm powered by PyTorch for tracking and identification of other vehicles, pedestrians, and relevant objects
- Implemented a steering wheel interface to visually represent the car's turning movements, enhancing the visualization of the vehicles navigation

Individual Project - Cancer Prediction using Neural Network and Random Forest - March 2023 - April 2023
- Created two machine learning programs using Jupyter Notebook employing libraries such as sklearn, Tensorflow, NumPy, and Pandas. These programs effectively processed and classified RNA sequence gene expression data, distinguishing between 5 distinct types of cancers and facilitating comparisons within the dataset
- Conducted a comprehensive analysis between the Random Forest and Neural Network approaches, determining that Random Forest exhibited superior speed, achieving an accuracy of 94%, while Neural Network outperformed in terms of accuracy, reaching 96%. This analysis was complimented by the visualization of the results through the creation of a graph in MATLAB

Individual Project - Hands Free Real Time Translator - January 2023 - February 2023
- Developed a python-based Natural Language Processing (NLP) code capable of processing spoken English language input. The code interacts with the user by prompting for the desired target language for translation. Subsequently, it efficiently translated the spoken input i into the chosen language and articulates audibly, ensuring successful and effective communication
- Enhanced the applications functionality by incorporating multiple versions, including GUI's that have start/end buttons with English-to-single-language translation displaying words that were spoken and translated to give a better user experience

Individual Project - 2-Axis Solar panel Phone Charger - May2023 - August 2023
- Developed C++ code to command 2 servo motors for precise orientation adjustments of a solar panel comparing values from four photoresistors, resu;ting in a 98% success rate
- Achieved successful creation of a PCB design for a charging port, incorporating capacitors, resistors, and voltage regulator

Engine Electronics/DAQ team member - Liquid Rocket Lab, Cal Poly Pomona, CA - August 2018 - August 2020
- Developed the control box wiring layout using PSPICE, soldering components to rocket/test stands and using LabView code to communicate with the sensors (e.i. Thermocouples, Pressure Transducers, Solenoids) to be able to collect crucial data for the rocket troubleshooting until we received high accuracy from the sensors
- Oversaw thermocouple portion of project; tested temperatures from below freezing to extreme hot temperatures calibrating until we received accuracies of ± 1°C and had to be finished a month before launch day

Skills/Interests:

Skills Proficient in: Python / Arduino / C++ / Java / C / LabView / Verilog / MATLAB / HTML / CSS / Javascript / PIC Assembly / Dart / AutoCAD / SQL scripting / PSPICE / EasyEDA / FPGAs / microcontrollers / Electrical Schematic Design / Electronic Circuit Designs / Solder / VLSI / Linux / Windows / PCB (Printed Circuit Board) Design / PLC (Programmable Logic Controllers) Design / RSLogix 500 / Artificial Intelligence / NLP / Machine Learning / CNN / C# / VHDL / EAGLE / LTspice / VMware

Interests: Vinyl collecting, drama/action/comedy/horror movies and shows, video games, projects