Behrad Rabiei

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EDUCATION

UC San Diego – E.E. (Machine Learning and Controls) **June 2020 – June 2023**
B.S. GPA: 3.7

UC San Diego – Machine Learning and Data Science **September 2023 – June 2025**
M.S GPA: 4.0

PROFESSIONAL EXPERIENCE

GPT-Synthesizer — May 2023 – Current
Prompt Engineer

- Designed and implemented an open source project that automatically generates code based on given a task
- Integrated LangChain and OpenAI API to prompt GPT-3.5 to implement the code generation of the project
- Developed custom prompts to maximize the quality of the output of the model
- Structured model's output by using regular expressions to extract code from plain text
- Created a logging pipeline for recording user-model interaction for performance evaluation
- Streamlined user experience by deploying a web based user interface utilizing Streamlit

Professor Pengtao Xie — June 2023 – Current
Research Assistant

- Curated a dataset consisting of 570,000 text files containing text information about known proteins
- Created a Python web scrapper to collect reviewed protein data on UniProt in a text file
- Performed preprocessing on raw text data to integrate seamlessly with question extraction process
- Explored alternatives to OpenAI's LLMs and analyze price versus performance tradeoffs

Amazon Global Robotics — July 2022 – September 2022
System Architecture Co-op

- Designed test plans to gradually increase complexity to match exit criteria for Proteus (autonomous robot)
- Created a logging document to log all configurations and events during testing of Proteus including SW, FW, HW, success rate, number of drive units, location of static obstacle, map layout, and operator
- Initiated a cross-functional collaboration between onboard SW team, data team, and myself for the goal of validating metrics measured and automating the logging procedure during testing

Existential Robotics Laboratory — December 2021 – June 2022
Undergraduate Researcher

- Write unit tests, ROS nodes and launch files, in C++ to validate sensors and algorithms
- Write ROS nodes that implement path finding algorithms such as Dijkstra's, A*, and RRT* search algorithm
- Performed reliability testing to maintain a fleet of drones (total of 7 drones) and root causing failure modes
- Helped my lab increase Thrust to Weight ratio of drones from 1.86:1 to 5.6:1

SpaceX — July 2020 – October 2020
Production Specialist

- Developed and optimized the manufacturing process of solenoid valves to accelerate production
- As a result, ramped up production by 114% (70 to 150 valves per day)
- Introduced two new steps in the assembly procedure to decrease assembly time (grease plating/poppet)
- Root caused two major waves of valve failures, approximately 60 per day (swage tool/retainer cap/poppet)
- Generated a step by step corrective action for technicians to rectify production loss due to failures
- Troubleshooted valves that failed testing by disassembling and replacing faulty components
- Assembled, calibrated, inspected and tested ventilator valves

PROJECTS

WorkOut Plus — Winter 2021

- Built a device to guide elderly to exercise effectively via low-intensity exercises while monitoring their health
- Developed a high accuracy pedometer and heart rate monitor using ESP-32 and ADXL 335 accelerometer
- Achieved an accuracy of 96.42% and 93.77% for pedometer and heart rate monitor, respectively
- Collected raw data from ESP-32 via Bluetooth Classic and used I2C protocol for communication
- Designed a recognition rep counter to count users reps while performing exercises using video camera
- Integrated Arduino C for communication between ESP-32 and the computer
- Integrated Python's SciPy library for signal processing and user interface (UI)

SOFTWARE / RELATED COURSEWORK

Software: Python, C++, JavaScript, PyTorch, Git/GitHub, OpenAI API, SQL, Streamlit, ROS, Ubuntu, RViz, Gazebo