

CHRISTOPHER AVINA

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OBJECTIVE

As a results driven and adaptable engineer with a strong background in software and data, I am seeking to leverage my diverse technical skillset and problem-solving abilities to contribute to innovative projects and drive success in a dynamic and forward-thinking environment.

EXPERIENCE

EMBEDDED ENGINEER, REKOVAR

April 2023 - June 2023

Left due to cancer treatments. Now cancer free!

- Led a comprehensive overhaul of project structure and build systems, fostering a test-centric codebase and freeing engineers of IDE and compiler restrictions.
- Managed bug-tracking for firmware and collaborated with the out-sourced firmware team to solve them.
- Developed comprehensive unit tests using Ceedling and Unity, utilizing CMock to mock drivers and ensure full test code coverage.
- Adapted quickly to project requirements, acquiring as-needed proficiency in languages such as Rust and bare-metal C.
- Created documentation and SOPs for the QMS system, Greenlight Guru, which actively contributed to the adherence of FDA approval guidelines.

PROJECTS

NASA Mars Rover ETL Pipeline (Python/Databricks/Pyspark/AWS)

- Extracted and stored data from NASA API in a Datalake with medallion architecture.
- Used AWS S3 buckets to store the data in appropriate formats with respect to the pipeline stage.
- Loaded, transformed and normalized data tables with Pyspark.
- Loaded normalized data from silver and created interactive dashboards using Databricks, Numpy, Pyplotlib, and OpenCV.
- Automated the ETL process with Workflows, reducing manual intervention and improving data handling efficiency.

Encrypted Baby Monitor (Python/Jetson Nano/Flask/SkLearn)

- Developed an edge-computing media server using a Jetson Nano, which captures live video footage and analyzes it using various machine learning models to determine if a child is in a dangerous position.
- Trained multiple models using SKLearn on a custom data set built using dolls.
- Deployed best rated model to the media-server, successfully detecting unwanted positions with a 70% success rate.
- Implemented AES-128 encryption on the device to protect the video footage from unauthorized access or tampering.
- Created a Flask application that connected to the media-server and displayed the video stream and data in real time.

Yelp Clone (MongoDB/Express/React/Node)

- Deployed a Yelp-like web application with features such as user authentication, reviews, ratings, and a cluster-map.
- Utilized cloud database for image upload and storage with a RESTful API to handle requests.
- Implemented security features for Mongo/SQL injection, XSS, and sanitizing HTML with JOI.

EDUCATION

UNIVERSITY OF CALIFORNIA, IRVINE

Winter 2023

B.S. Computer Science & Engineering

SKILLS

LANGUAGES

Python, C/C#/C++, Java, Javascript, SQL

FRAMEWORKS/LIBRARIES

Databricks, Spark, Pyspark, SKLearn, Tensorflow, OpenCV, Flask, MERN Stack, AWS

DATABASES

PostgreSQL, MySQL, MongoDB