

# Rachel Roig

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## Education

### B.S. Computer Science | Florida International University | 05/2020-05/2022

· GPA: 3.8, CUM LAUDE

## Projects

**Robotic arm** – To read data from (SPI), I created a driver that runs FreeRTOS. Wrote a Linux user space driver for STM32 data processing, leveraging knowledge in Git and the ARM Cortex-M4 architecture, programming in C using the Keil IDE, and debugging with an Oscilloscope

**Deepfake Audio detection** – Using Fourier analysis in training set to detect overlapping sounds and remove it to create a smoother audio sample for better classification results. Used librosa library to collect and calculate MFCCs, bandwidth, chromogram, and STFT features from the audio files, and trained those features after normalization into Convolutional neural network model, Accuracy result turned to be 80%.

· **Linux embedded distribution** – Contributed to the creation of a custom embedded Linux distribution for the ARM architecture, which can run on two different types of controllers, using the Yocto Project. A multi-standard charger stack (AC, CHAdeMO, CSS) and a communication layer to handle protocol interactions like CoAP, CAN bus, Modbus, HTTP, and AWS MQTT were designed as well as C++ for embedded programming.

## Experience

### Software Engineer | J.P. Morgan | 07/2022-Present

· Worked on developing applications front end components with React JS, and testing UI scripts with Jest Unit Test and JMeter. Code Lambda functions that aggregate the data from incoming events and stores the received data in AWS DynamoDB, cloudwatch, and S3. Used Terraform templates to build staging, production environments, and automation for Jenkins. Conduct Regression. and Integration testing such as mock data objects, API endpoints and encrypted KMS keys as well as unit tests for lambda functions and sqs queue systems resulting in 90% code error less scripts. Built email notification system using SQS queues to trigger step functions for ETL and winback notification. Worked with automation testing using UDF, selenium and cucumber framework setups to create scenarios that would execute each step of the scripts.

### Machine Learning Engineer Intern | WELLS FARGO | 06/2021-08/2021

· Created a self-healing environment app using machine learning and full stack development tools. Exported data from Splunk log and AppDynamics health metrics into a database using ELK pipeline and REST API. Constructed an AI model using supervised methods and NLP to train dependencies between stack traces in Splunk to their corresponding error outputs to predict and classify undefined errors with minimum downtime and an accuracy score of 92%. Other algorithms used throughout the process was bayes naive approach, clustering log parsing, PCA and text sentimental analysis. Implemented mock objects using Mockito to isolate and test individual components of machine learning models.

### Data Science Analyst Intern | NOKIA | 09/2020-12/2020

· Conduct metadata testing on datasets prior to distributing to the NSW team. Conduct gateway testing and unit test cases for the python program as well before distributing to the company's use and deploying it to the Azure cloud. Code up Python scripts with Azure API for an automation process that would extract the latest files within the site directory to a designated PowerBI dataset on a biweekly basis. Analyze performance metrics in Nokia global training site and make monthly predictions on employee's performances for stakeholders through the use a classification using stacked ensemble model and optimizer.

### Software Engineer Intern | NASA | 05/2020-08/2020

· Created a computer vision application to analyze electrostatic surface properties and minerals components from NASA's database of lunar regolith to decipher which type of soil components would be required for the metal conversion process that would be used for filament production.  
· Work on native backend components and frameworks (Primarily C++ and COM) for the spectrograph ultraviolet camera, including embedded controller. and test firmware functionality. Worked closely with the hardware team to integrate advanced UV sensors into the spectrograph camera system. Implemented software drivers to control sensor parameters, manage exposure times, and optimize signal-to-noise ratios.  
· Developed and maintained spectrograph camera device drivers for various peripherals, ensuring seamless integration with the embedded system. Used JTAG, oscilloscopes, and logic analyzers to conduct low-level testing of embedded programming on spectrograph UV cameras.

### Back End Engineer | ENTERTAINMENT BENEFITS GROUP | 11/2018-06/2020

· Follow-up with JIRA backlog system, document user's interaction and track files of client's orders in the database to verify any issues, check for timestamps of when the tickets/products were effectively sent from sellers to clients with no issues.  
· Develop REST APIs and work with MongoDB for hotel listings and with MySQL for the customers' orders. Developed messaging queue system with Apache Kafka and RabbitMQ. Created automated test suites using JUnit and TestNG to check on the correctness of RabbitMQ messaging queue system functionalities.  
· Use J2EE/Java with Spring and Hibernate to debug error messages, and bugs and used them to executes established test plans and protocols for assigned portions of code.  
· Integrated unit tests into the continuous integration pipeline (Jenkins) to enable automated and timely feedback on code changes.

## Skills

**Applications/Programming** – Full Stack, Machine Learning, Keras, Tensorflow, multi-threading, synchronization, IPC/RPC, Java Spring, Flow, C, C++, MongoDB, MySQL Python, and Java. AWS cloud infrastructure and services: EC2, S3, Lambda, CloudFormation, CloudWatch, SQS, SNS, DynamoDB.