David Rivera

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Experience

MTS 1 - Software June 2023 – Present

Hughes Network Systems *Gaithersburg, MD*

- **Improved antenna functionality** by implementing a de-icing feature, resulting in a **30% reduction in downtime** during adverse weather conditions
- **Eliminated 40% of installer deployment costs by minimizing file size by 50%** through utilizing various compression algorithms and eliminating configuration redundancies
- Implement real-time software utilizing C/C++ for protocols, algorithms, and products, emphasizing code optimization for embedded systems within Hughes LEO Terminals

Software Engineer March 2022 – Present

University of Maryland, Baltimore County *Catonsville, MD*

- **Cut back costs for client data transfer by 40%** by refining client-side executable through optimizing API calls and asynchronous task scheduling
- **Improve user accessibility for over 10,000 standardized files** by creating a download feature employed through Django REST Framework and Redis.
- **Enhance user support for over 200 researchers** by implementing an email notification feature built-in Celery and an SMTP protocol implemented in Django

Projects

SkyCast | *Java, AWS, Android SDK, Async, Google Maps SDK*

- Built an application that provides real-time updates on weather metrics and displays real-time location through Google Maps SDK and Lambdas/API Service
- Continuous tracking of real-time location by efficient utilization of GPS and IMU by using a dead reckoning and band-pass filter for sensor fusion
- Optimized retrieval of weather data by 88% through caching based on location with the use of DynamoDB, S3, and geospatial computations

Modified Bucket Sort | *C++, Python, NumPy, Pandas, sklearn*

- Conducted a comparative analysis of sorting algorithms including Quicksort, Insertion sort, and Bucket Sort, to determine their efficiency in terms of time and space complexity for 32-bit integer arrays
- Identified the average size threshold at which insertion sort outperforms quicksort via automated testing and regression analysis
- Improved bucket sort efficiency by 86% through modifications of enabling dynamic selection of the most suitable auxiliary sorting algorithm based on bucket size

Chess | *React.js, Django REST Framework, Fetch API, Material UI*

- Developed and implemented a single-page chess web application, featuring Stockfish with adjustable difficulty levels and a built-in timer
- Implemented Fetch API for client-server communication between the front end and the REST APIs programmed in Django REST Framework

Education

University of Maryland, Baltimore County Catonsville, MD

B.S. Computer Science (Data Science Track), Minor in Statistics *Aug. 2019 – May 2023*

- 3.8 / 4.0, Magna Cum Laude
- CSEE Departmental Honors

Technical Skills

Languages & Frameworks: C, C++, Python, Java, HTML/CSS, Javascript, Typescript, React.js, Angular, SQL, Django, Flask, ExpressCPP, CMake, Bash

Competencies: AWS, Docker, GDB, Linux, Celery, Redis, RESTful APIs, NoSQL, Object-Oriented Design, Microservices Architecture, Full Stack Development, Data Structures, Algorithms, Scalable Applications, Agile Methodologies, CI/CD