David Rivera

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EXPERIENCE

Software Engineer — June 2023 – Present
Hughes Network Systems — *Gaithersburg, MD*

- Reduced downtime by 30% during adverse weather by developing a de-icing feature for Hughes LEO user terminals antennas, accessible to operators via a dynamic Angular webpage and REST APIs implemented in C++
- Decreased software bundle size by 50% by optimizing packaging through eliminating redundant antenna configurations and integrating the LZMA compression algorithm in BusyBox for Linux systems
- Streamlined the testing process and reduced software testing time by 45% by developing testing scripts in Python and Shell
- Ensured continuous and stable service by implementing an automated modem recovery action for consecutive resets using an internal ZeroMQ framework for IPCs between different C++ processes
- Enhanced debugging and monitoring by creating a logger framework for antennas and GNSS systems, with logs accessible and downloadable through Angular and REST APIs implemented in C++
- Facilitated Wifi SSID, password, and broadcasting configuration through user terminals by developing a dynamic Angular webpage with API chaining

Software Engineer — March 2022 – June 2023
Atmospheric Lidar Group — *Hampton, VA*

- Automated the build and compilation of client-side executables for over 50 clients using Django REST, AdvancedInstaller, and Python
- Improved client data transfer by 40% by refining executables and REST APIs with hash checks and data comparisons
- Maintained backend servers to standardize over 400 raw files daily, ensuring continuous service by monitoring Celery and Celery Beat with Redis
- Dockerized the entire backend infrastructure, streamlining deployment and scaling through Docker Compose
- Migrated backend servers from Ubuntu to CentOS by deploying API endpoints via Django REST and Apache

PROJECTS

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

- Built an Android 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 dead reckoning and a band-pass filter for sensor fusion
- Optimized retrieval of weather data 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 implemented in C++ including Quicksort, Insertion sort, and Bucket Sort, to determine their efficiency in terms of time and space complexity for 32-bit integer arrays
- Enhanced bucket sort efficiency by 86% by adapting the auxiliary sorting algorithm based on bucket size via automated testing and regression analysis

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, Shell
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