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