Alan Subedi

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Education

The University of Alabama in Huntsville Jan 2020 - May 2024
*Bachelor of Science in Computer Science — **GPA: 4.0*** *Huntsville, AL*

Skills

Programming Languages: JavaScript, Python, TypeScript, Java, C++, C, Lua
Database Technologies: MySQL, SQLite, MongoDB, PostgreSQL
Web Technologies: React, Redux, Mapbox, HTML, Styled Components, CSS, RESTful APIs
Cloud Tools: AWS (S3, Lambda, EC2, API Gateway, CloudFront)
Others: Docker, Linux, Git, Postman, JIRA, Terracotta, PyPI, Xarray, NumPy

Experience

NASA-GHRC Jan 2022 - Current
Full Stack Developer *Huntsville, AL*

Lightning Dashboard

- Spearheaded the creation of the Lightning Dashboard, a full-stack web app for visualizing satellite lightning data in 2D space. Resulted in a 50% reduction in daily work time for research scientists, boosting research productivity by enabling focused efforts on insights and conclusions.
- **Data Processing:** Processed satellite data in **netCDF4** format using tools like **NumPy, pandas,** and **Xarray**. This processing significantly accelerated the creation of **GeoTIFF** images, achieving a speed improvement of over 30%.
- **Frontend Development:** Constructed the frontend using **React**, ensuring a smooth and user-friendly interface for data visualization. Implemented lazy loading for specific features, achieving a 20% speed improvement.
- **Backend Development:** Designed and deployed API for Lightning Dashboard's metadata filter using AWS Lambda and API Gateway. Optimized data processing within the **AWS Lambda** function, resulting in a 25% reduction in overall response time. Additionally, authored Python scripts to convert **netCDF4** files to Cloud Optimized Geotiff (COG) images.
- **Deployment:** Configured a tiling server called **Terracotta**. Implemented **Bash** scripts and achieved a **20%** reduction in server setup time. Deployed the system within a **Docker** containerized environment on AWS using **Zappa**, resulting in a 25% improvement in deployment speed.
- **Open-Source Contribution:** Crafted a Python package for easy Jupyter Notebook data visualization, now on PyPI. NASA scientists **praised** its impact at the annual meeting, emphasizing its role in advancing scientific data exploration.

FCX (Field Campaign Explorer)

- FCX is a web application that visualizes satellite weather datasets in 3D using **React and CesiumJS**. In this project, I developed the Image Viewer feature, allowing scientists to view real-world weather images at specific time, latitude, and longitude coordinates.
- Implementation of this feature played a pivotal role in securing substantial funding of **$70,000** from NASA, ensuring the ongoing success of the project.

Department of Mathematical Science at UAH Aug 2021 - Dec 2021
Undergraduate Teaching Assistant *Huntsville, AL*

- Served as a Teaching Assistant at the Mathematics Department, managing grading for **Calculus A, B, C**, and **Linear Algebra**, including quizzes, tests, and homework. Conducted impactful recitation classes for Calculus A with **over 15 students**, fostering an engaging learning environment.

Publications

Supporting User Services with Cloud-based Technologies at the GHRC DAAC Dec 2022

Awards

UAH Presidential Scholarship: Attained a full-ride UAH Presidential Scholarship at the University of Alabama in Huntsville, a prestigious achievement valued at approximately **$95,000** over four years.