Vedant Rautela

Boston, MA | v.rautela01@gmail.com | github.com/vrautela

Education

Northeastern University, Boston, MA — Sept. 2019 – Aug. 2023
Bachelor of Science in Computer Science and Physics with minor in Mathematics

Relevant Courses: Algorithms and Data | Computer Systems | Diff. Eq. & Linear Algebra | Electronics
Honors: GPA: 3.94/4.0 | Dean's List | National Merit Scholarship

Technical Knowledge

Languages: ***Proficient***: Python | Java | JavaScript | SQL ***Familiar with:*** C++ | HTML/CSS | TypeScript
Technologies: git | NumPy | pandas | matplotlib | scikit-learn | Linux | Docker | React | ROS | Django | AWS | Node.js

Experience

Software Engineer II, Form Energy *(Python, SQL, React, AWS)* — Jan. 2025 – Present

- Built a web application to validate batteries against a specification and store metadata from the build process

Software Engineer, KoBold Metals *(Python, Django, AWS, QGIS, pandas)* — Aug. 2023 – Jan. 2025

- Created and documented an inversion tool to determine the density of Earth's subsurface based on gravity data
- Implemented 3d plotting of Earth subsurface models using PyVista
- Developed system to ingest EM survey data into S3 and relevant metadata into an internal database
- Tested SWIR spectrometer on 500 rock samples; ensured data quality by plotting reflectance using matplotlib

Undergraduate Researcher, RiVER Lab at Northeastern University *(ROS, Python, C++)* — Jan. 2023 – Sept. 2023

- Co-author of IROS paper describing design of end effector to scan and perform spectroscopy on arbitrary 3D surfaces
- Built pipeline in Python using CVAT to let users manually segment and label training images
- Modified existing C++ ROS driver to interface with Allied Vision short-wave infrared radiation camera
- Implemented ROS node (using Python) to move servomotors to achieve desired pose of a Stewart Platform

Student Researcher, CERN *(Python, NumPy, scipy)* — June 2022 – Aug. 2022

- Solved an optimization problem to find the optimal pose of motion capture cameras in the presence of obstacles
- Built software tool to visualize optimal camera position and orientation and plot metrics
- Created report and presented solutions to Experimental Physics department at CERN for feedback

Systems Engineering Co-op**,** The Broad Institute *(Python, Microsoft Azure, Docker)* — Jan. 2022 – June 2022

- Created prototype of container checkpoint/restore functionality using Python to reduce computation of lost work and additional costs due to VM pre-emption
- Implemented filesystem API in Python using the Azure Blob Storage Client to allow use of Azure Blob Storage data
- Implemented an in-memory cache to reduce database round trips to check status of VM instances

Software Development Engineering Intern I, Amazon.com *(Python, Flask, JS, React)* — June 2021 – Aug. 2021

- Designed and built a data visualization web application using Flask, React, and Apache Spark allowing users to view and aggregate metrics using SQL queries as well as create/save graphs of metrics

Software Development Co-op, PowerAdvocate *(Java, Spring, React, SQL, AWS)* — Jan. 2021 – June 2021

- Implemented and tested code as a full-stack developer to improve user experience on the Energy Intelligence Platform (EIP) using various technologies including Java, Spring, React, and OracleSQL

Projects

Real-time Laugh Track *(scikit-learn, Tensorflow, Raspberry Pi)*

- Trained neural network using features extracted from Google Audioset public dataset to perform laughter detection

Raspberry Pi Digital Picture Frame *(Raspberry Pi, Python, Flask, HTTP, Bash)*

- Built a digital picture frame on Raspberry Pi to which users on a specific WiFi network can upload images

Moon to Mars Ice & Prospecting Challenge Digital Core *(Python, NumPy, pandas, scikit-learn)*

- 2nd place team overall; 1st place technical paper
- Trained ML models to classify materials being drilled through based on sensor data (i.e. weight on drill bit)