

ZAIN SAMIR JERATH

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EDUCATION

NORTHWESTERN UNIVERSITY

Evanston, IL

B.S. in Computer Science, Minor in Data Science

June 2024

- GPA: 3.63, Dean's List Spring 2022, Fall 2022, Winter 2023
- Relevant Coursework: Data Structures and Algorithms, Operating Systems, Scalable Software Architectures, Modeling Relationships with Causal Inference, Introduction to AI, Machine Learning

WORK EXPERIENCE

NASA

Lanham, MD

Software Engineer Intern

July-Sep 2022

- Supported the Global Modeling and Assimilation Office in the optimization and maintenance of Goddard Earth Observing System (GEOS) software infrastructure
- Built images using Docker and Singularity to package and containerize the build and run use cases of the NASA GEOS model
- Developed containerized models to run on both M1 MacBooks and the NCCS Discover Cluster
- Successfully optimized speed of isolated build and run in user spaces by 20%

NASA

Lanham, MD

Summer Intern

June-Sep 2021

- Worked with NASA OMPS team to improve satellite data collection and interpretation
- Wrote Python scripts that modeled NASA OMPS Limb Profiler data alongside Nadir Mapper data in order to detect UV-absorbing aerosols
- Estimated vertical distribution of Saharan dust by retrieving aerosol profiles of events with elevated UV Color Index measurements
- Improved Limb Profiler data collection from 2-dimensional to 3-dimensional by combining tropospheric aerosol profiles with latitudinal and longitudinal aerosol detection

NASA

Lanham, MD

Summer Intern

July - Sep 2019

- Visualized Ozone Mapping and Profiler Suite (OMPS) measurements over Sahara Desert using NumPy and Matplotlib in order to detect tropospheric aerosol
- Improved cloud detection and determination techniques by modeling OMPS radiance data at wavelengths less than 1 micron

PROJECTS

[SignSense](#)

March 2023 - Present

- Engineering a real time sign language detector with Tensorflow Object Detection and Python
- Incorporating transfer learning to train a deep learning model and detecting in real time using OpenCV

[Portfolio Website](#)

December 2022

- Created fully responsive portfolio website using HTML, CSS, and JavaScript
- Centralized UI/UX design principles to optimize and simplify user experience

[MusicPlayer](#)

October 2022

- Developed an Apple Music/Spotify clone using Next.js, React, and Tailwind CSS
- Built authentication functionality using Middleware and NextAuth to retrieve user data
- Integrated Spotify API to fetch user playlists and control music playback

[Galaga](#)

December 2021

- Utilized object-oriented programming to create new version of Galaga with C++
- Implemented classes for unique sprites, created new layout and enhanced score incrementation

SKILLS AND INTERESTS

Technical: C/C++, Python, Java, JavaScript, HTML/CSS, SQL, Git, AWS, Linux, Docker, Bash, VSCode, PyTorch

Interests: AI, Art, Big Data, Effective Altruism, Environmental Research, Graphic Design, Machine Learning