

ZAIN JERATH

(202) 480-6263 ♦ zainjerath2024@u.northwestern.edu ♦ [Linkedin](#) ♦ [Github](#) ♦ [Portfolio](#)

EDUCATION

Northwestern University

Evanston, IL

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

June 2024

- GPA: 3.7
- Relevant Coursework: Data Structures and Algorithms, Operating Systems, Computer Networking, Full Stack Software Engineering, Rapid Prototyping for Software Innovation, Introduction to AI, Machine Learning

PROFESSIONAL EXPERIENCE

NASA

Greenbelt, MD

Software Engineer Intern

July-Sep 2022

- Supported the Global Modeling and Assimilation Office in the maintenance of GEOS software infrastructure.
- Built images using Docker and Singularity to package and test a model used by over **200** GMAO employees.
- Developed containerized models to run on both M1 MacBooks and the NCCS Discover Cluster.
- Optimized speed of isolated build and run in user spaces by **53%** by utilizing Kubernetes and AWS.

NASA

Greenbelt, MD

OMPS Intern

June-Sep 2021

- Devised Python scripts that modeled LiDar data alongside satellite data in order to detect UV-absorbing aerosols.
- Automated the retrieval of **4000+** aerosol profiles in order to estimate vertical distribution of Saharan dust.
- Improved data collection from 2-D to 3-D by combining tropospheric aerosol profiles with spacial satellite data.

NASA

Greenbelt, MD

OMPS Intern

July - Sep 2019

- Enhanced the visualization of Ozone Mapping and Profiler Suite measurements through NumPy and Matplotlib.
- Created a Python model to filter radiance data that improved cloud detection techniques with **98.2%** accuracy.

RESEARCH

AI at Northwestern

Evanston, IL

Research Assistant

January 2023 - Present

- Conducting research on the advancement of Artificial Intelligence in both theory and practice.
- Investigating a **new strategy** of bias estimation in neural network development for causal inference modeling.
- Leveraging computational learning theory with probabilistic graph models to conduct correlation analyses.

PROJECTS

[NBA Newsletter](#)

May 2023 - Present

- Led a **team of 7** in developing a language model platform that revolutionizes basketball insights.
- Integrated Django, Next.js, and the NBA and OpenAI APIs to feed the model real-time data and sportsbook lines.
- Boosted scalability and performance by incorporating Selenium, Firebase, Google Cloud, and RESTful principles.

[SignSense](#)

March 2023

- Generated a real-time sign language detector by leveraging Tensorflow's Object Detection module with Python.
- Collected over **150** images of ASL hand poses and employed LabelImg to annotate for training and testing.
- Incorporated transfer learning to train a **deep learning** model and detect in real time using PyTorch and OpenCV.

[MusicPlayer](#)

October 2022

- Programmed an Apple Music/Spotify clone that reached **30+ daily users** using Next.js, React, and Tailwind CSS.
- Implemented authentication with Middleware and NextAuth, enabling playback through Spotify API integration.
- Introduced Recoil Atoms to optimize state management when switching between playlists and songs.

TECHNICAL SKILLS

Programming Languages: Python, C, C++, C#, Java, SQL(My, Postgres), JavaScript, Ruby, Typescript, HTML, CSS
Technologies/Frameworks: Git, AWS (EC2, Lambda, S3), Linux, Docker, Bash, React, Django, Node.js, Npm, CLion
General: AI, Web Development, Robotics, REST APIs, Embedded Systems, Cloud Infrastructure, Machine Learning