

Akshath Rao

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[Github](#)

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PROFILE

University of Washington Computer Engineering Student with fluency in programming, business management skills and seeking opportunities in algorithm development, mathematical modelling and data analytics

EMPLOYMENT HISTORY

June 2024 - Present

Magna Software Design Engineering Intern

- Developed a live visualization port for fused sensor data using **OpenGL engines** (Rviz & Unity), supporting **C++ development**. Delivered a real-time visualizer for future simulations.
- Industry experience in graphics user and kernel driver development, including real-time hardware integration with **CANoe and Open Simulation Interfaces**.
- Utilized Open Simulation Interfaces with Radar and Lidar systems **via CAN-Bus for ECU**-computer sensor data visualization. Leveraged **Vulkan** for cross-compatibility across **QNX, Linux, and Unix**.

Mar 2023 - November 2023

Research Assistant, University of Washington Ocean Data Lab

- Worked with Professor Shima Abadi in the Electrical and Computer Engineering Department with a specialization in Ocean Acoustics
- Used Data Processing frameworks to **process over 2500 hours of audio data** and translated into **spectral density flows** that pinpointed different shipping sounds in the Puget Sound Area.
- Developed signal processing algorithms in Python to analyze acoustic data using **TensorFlow, SciPy** and **Matplotlib**, **reducing Manual-data entry by over 25%**

Jun 2023 - August 2023

Undergraduate Research Student, NASA

- Collaborated with Professor Kristi Morgansen in the Aeronautics department on the Lunar Rover team, designing and fabricating a sample collection subsystem.
- Developed a **load-based electromagnetic actuation script in C++ for Arduino**, optimizing power usage and increasing efficiency.
- Ensured seamless integration with other components and configured a stable base

Feb 2020 - November 2022

Co-Founder, Codeahead

- Form non-profit organization Codeahead to teach **Java and Python** to students ages (8-12)
- Raised **\$2000** dollars for charity organization (Charity Organization Assistance League of the Eastside)
 - Helped children affected by homelessness and domestic abuse
- Led as a cohort manager, delegating tasks to different colleagues and helping to handle logistics
- Website link: <https://www.codeaheadseattle.com/>

PROJECTS

June 2024 - Present

Collective Perception: Visualizing Surroundings via Cloud-Based Sensor Data

- Developed visualization port for fused sensor data using **OpenGL engines Rviz, Unity & Vulkan API**.
- Simulated systems with **Docker and Node.js** from CAN-Bus Data from ECU, creating a precise digital replication of surroundings from sensor data streams

Feb 2024 - Mar 2024

Analysis of the Demographics of International Students

- Used **VegaLite API and JavaScript** to research and visualize data on International Students in the US

Nov 2023 - Mar 2024

Programming DE1-SoC Altera CPU with real world applications

- Real applications with Verilog to create traffic signals and airport runway lights with **Finite State Machines**

Mar 2023 - Nov 2023

Spectral Density Analysis of Hydrophone Data

- Application of Fourier Transforms and **Euclidean Spaces** on hydrophone data in Python using **Matplotlib, pandas, & NumPy** (allows to characterize the ocean ambient noise captured in data)

EDUCATION

Expected Graduation

March 2026

BS Computer Engineering, University of Washington

Seattle

- Relevant Coursework: **CSE 442** Data Visualization, **CSE 344** Databases, **EE 241-2** Signal Processing, **CSE 369** Digital Design, **EE 280** Exploring Devices in Real World Applications
- Clubs: **Applied Analytics Member** (September 2023 - Present)

Sep 2018 – Jun 2022

High School Diploma (IB Diploma), Skyline High School

Sammamish

- National Honors Society and 3 year Member at First Robotics team 2976/ Spartabots
- International Baccalaureate Student courses: Computer Science SL/HL, Math SL, Chemistry

SKILLS

Programming Languages: Python, Java, C#, C++, JavaScript, Bash, Verilog, SQL, TypeScript, HTML

Software Tools: Jupyter, RStudio, Git, XCode, Azure, SoC Quartus, Pytorch, Node.js

Other Relevant Skills: Containerization and Application testing on Docker, Open GL and Vulkan API, G-code for CNC application

EXTRA-CURRICULAR ACTIVITIES

Aug 2019 – June 2022

Robotics Team 2976 FRC Build Lead

- Participated in Houston world championship in 2018-2019, **placing 3rd in the Hopper Division**
- Prototyped and designed complex robot function subsystems (drive-train with **low-latency MIPI_CSI imaging camera**) connected to autonomous and remote control features

Nov 2019 – Jul 2021

Distributive Education Clubs of America (DECA)Issaquah