Rajit Sareen

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Education

University of Washington Seattle, WA
Bachelor of Science in Computer Science *Graduating June 2027*

Experience

Information Technology Intern Mar 2023 – Aug 2024
Richland School District *Richland, WA*

- Provided Tier 1 and Tier 2 IT support across a multi-site environment, resolving hardware, network, and software issues for over 1,000 end users.
- Automated mass device provisioning using imaging scripts and deployment tools, reducing setup time by 60% across 500+ Chromebooks and desktops.
- Developed internal documentation and scripts for device diagnostics and reimaging, enabling non-technical staff to perform first-line support.
- Diagnosed and repaired AV systems (projectors, HDMI hubs, audio), ensuring 100% uptime in classrooms and minimizing instructional downtime.

Undergraduate Research Developer, DAIS Lab Jun 2024 – Present
University of Washington *Seattle, WA*

- Contributing to **DeepTracer**, a protein structure predictor using stacked U-Nets on cryo-EM maps, built with Angular, Flask, and PyTorch.
- Operated on high-performance remote GPU machines for training and inference, optimizing compute resource usage for large cryo-EM datasets.
- Assisted in transitioning from a U-Net-based pipeline to a **diffusion-based generative AI model**, enabling improved resolution in molecular reconstructions.
- Enhanced Flask API and job queue system for scalable inference and improved Angular frontend usability.

Projects

SmartFridge | *React Native, FastAPI, PostgreSQL, AWS EC2, Docker, YOLOv8* Jun 2025 – Present

- Leading development of a **mobile app** that tracks fridge inventory and suggests recipes using **image recognition** and barcode scanning.
- Built a FastAPI backend with PostgreSQL and JWT authentication, deployed on AWS EC2 via Docker. Integrated GitHub Actions for CI/CD.
- Utilizing custom trained YOLOv8 model with 3000+ data points for real-time object detection of fridge contents.

Cube Companion | *MongoDB, React, TypeScript, Node.js, Kubernetes, WebSocket* Jan 2025 – Present

- Developed a full-stack Rubik's Cube timing app featuring user authentication, solve logging, and real-time performance analytics.
- Implemented real-time multiplayer races and chat using WebSockets.
- Deployed with a Kubernetes cluster for scalable, fault-tolerant multiplayer support.
- Integrated an AI-powered assistant leveraging TensorFlow.js to analyze solve patterns and provide personalized training recommendations.

First Robotics Competition - Software Lead | *Java, OpenCV, PID Control, Git* May 2021 – May 2024

- Architected and implemented autonomous robot software using OpenCV for real-time computer vision-based object detection and multi-target tracking.
- Developed sensor fusion algorithms integrating gyro and encoder feedback with PID control loops.
- Led version control and CI workflows using Git.
- Achieved Top-5 state ranking with the lowest funding in the state (4th place in WA)

Technical Skills

Languages: Java, TypeScript, JavaScript, Python, SQL, HTML/CSS
Frameworks & Libraries: React, Node.js, Express, FastAPI, Flask, JUnit, Pytest
Tools & Platforms: MongoDB, PostgreSQL, Docker, Kubernetes, AWS EC2, Git, GitHub Actions, OpenCV, TensorFlow.js, Pandas, NumPy, PyTorch
Testing & CI/CD: JUnit, Pytest, GitHub Actions, Automated Testing, Continuous Integration/Deployment