

Nipun Saini

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EDUCATION

University of Washington

Sept. 2024 - June 2028

B.S. in Computer Engineering

TECHNICAL SKILLS

Languages: Java, Python, JavaScript, TypeScript, C++

Frontend/Mobile: React.js, React Native, SwiftUI, Tailwind CSS, HTML5, CSS3, Vite, Expo

Backend/DB: Node.js, Express, FastAPI, REST APIs, SQLite, Firebase, MongoDB, ChromaDB

ML/AI: scikit-learn, pandas, NumPy, Hugging Face, OpenAI API, Ollama, Sentence Transformers

Tools: Git, Docker, AWS (Lambda, DynamoDB, S3), LTspice, MATLAB

PROJECTS

ConnectAble (AAC System)

1st Place, HuskyHacks 2026

React 18, FastAPI, ChromaDB, Ollama

- Built an AI-powered AAC board for non-verbal users with a 3-layer prediction cascade (Bigram, Vector Search, and phi3 LLM) delivering sub-100ms phrase suggestions.
- Secured user logs with AES-256 SQLCipher and implemented nightly training using sentence transformers.

Linx (Alzheimer's Care AI)

4th Place, BeaverHacks 2026 — NVIDIA Track

Raspberry Pi, NVIDIA NemoTron 3, Ollama, Python

- Built a fully offline monitoring system on a low-cost Raspberry Pi stack, fusing camera, ultrasonic, and mic-array data into a rolling buffer reasoned over by NemoTron 3 — no data leaves the device.
- Designed a deterministic safety rule engine running parallel to the LLM that escalates (never lowers) risk, catching critical events instantly.

Healthcare ML Analysis

Honorable Mention, DubsTech Datathon 2026

Python, scikit-learn, pandas, NumPy

- Built 3 ML pipelines (predictive, time-series, clustering) over **75 demographic subgroups**; achieved **93.7% accuracy** predicting healthcare access barriers.
- Flagged 19 at-risk subgroups using K-Means, DBSCAN, and Isolation Forest with a 0.815 silhouette score.

Sea Score (Ocean Conservation)

Honorable Mention, Nov 2025

React Native, Firebase, Docker, Xenova OWLv2

- Developed a gamified conservation app using zero-shot object detection (OWLv2) to verify sustainability challenge photos — no retraining needed for new challenges.

EXPERIENCE

Trickfire Robotics — Bothell, WA

Jan. 2026 - Present

Autonomous Navigation Developer

- Developing **autonomous rover systems**, focusing on waypoint navigation and obstacle avoidance.
- Optimizing **sensor data processing** to improve real-time decision-making in complex environments.

King County Library System — Redmond, WA

Apr. 2022 - June 2024

Mathematics Tutor (Volunteer)

- Provided tutoring to **50+ students**, tracking progress to demonstrate gains across **90% of pupils**.

Evergreen Hospital — Kirkland, WA

Feb. 2023 - Feb. 2024

Hospital Associate (Volunteer)

- Managed front desk operations and emergency protocols while maintaining strict HIPAA compliance.