Pranav Varshney

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Education

University of Michigan May. 2027
B.S; Computer Science, Data Science Ann Arbor, MI

- **Courses**: Data Structures, Algorithms, Web Systems, Databases, Distributed Systems, Networking, Data Science

Technical Experience

Software Developer Intern May. 2025 - Jul. 2025
Amazon Web Services Bellevue, WA

- Interning summer 2025 on the Amazon SageMaker AI and Bedrock AI, Infrastructure team

Machine Learning Researcher Jan. 2025 - Current
University of Michigan Ann Arbor, MI

- Building twin platform using BatFish & Veriflow to analyze 500+ network snapshots monthly as DSLs for learning
- Developing a framework that automates network snapshots, increasing dataset size by 250%, enhancing scalability

Python Teaching Assistant Aug. 2024 - Dec. 2024
University of Michigan Ann Arbor, MI

Software Engineering Intern May. 2024 - Aug. 2024
United Wholesale Mortgage Pontiac, MI

- Piloted change insights pipeline in C# & SQL to populate central data lake & identify trends to boost code quality
- Normalized database structure (3NF), reducing data duplicates by 45% & expediting GCP migration by 3 weeks
- Initialized a random forest model in Python to classify written loans as success or failures, saving $20,000 Q3 costs

Software Engineering Intern May. 2023 - Aug. 2023
Ratna Global Technologies Newark, CA

- Spearheaded development of a car rental website, using React & Node to build a user-friendly & scalable platform
- Built an AI powered customer support bot, automating trivial support tasks & saving 5-10 hours of work weekly
- Designed a PostgreSQL database schema to store data, reducing duplication & raising retrieval efficiency by 20%

Project Experience

SD–WAN Analytics (2024 Cisco HackAIthon) Presentation

- Enhanced tunnel KPI anomaly detection & network issue resolution, providing insights for network optimizations
- Applied AI to analyze app usage, device health, & NWPI for root cause analysis & network anomaly remediation
- Designed forecast models for network issues & scheduled NWPI trace with ThousandEyes tests for proactive repair

Distributed MapReduce Framework

- Programmed a Python MapReduce framework with fault tolerance, concurrency, & distributed processing features
- Employed TCP for data transfer & UDP heartbeats for fault-tolerant communication between workers & managers

Chess Evaluation Engine

- Innovating a chess evaluation engine with 88% accuracy, ranking material imbalance, piece activity & king safety
- Developed a heatmap using a bitboard to visually represent piece activity & king safety, computing square dangers

Custom Smart Glasses

- Built smart glasses with image, video & audio capturing features, developing an AI system to relay data to the user
- Used RPi, OpenCV, & PyAudio for multi-modal capture, deploying GroqAI to provide real-time feedback to users

Programming Skills

Languages: C++, C, Python, Go, C#, R, HTML/CSS, Javascript, SQL, LaTeX

Technologies: Git, JIRA, Docker, MySQL, PostgreSQL, Flask, React.js, Astro.js, QisKit, Pandas, Numpy, TensorFlow

Concepts: Full-Stack Development, Mobile Development, Cloud Computing, Parallel Programming, Machine Learning, NLP, Computer Vision, Data Analytics, Big Data, Embedded Systems, Quantum Computing, Computer Security, Linux