Dhruv Tripathi

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Technical Skills

Languages: Java, Python, C/C++, SQL (Postgres), JavaScript, HTML/CSS
Frameworks: React.js, Node.js, WordPress, Next.js
Developer Tools: Git, Docker, VS Code, Visual Studio, PyCharm, IntelliJ, Eclipse, VMWare, Kali, Wireshark
Libraries: PyTorch, Tensorflow

Education

University of Texas at Dallas Richardson, TX
Bachelor of Science in Computer Science *Expected Graduation: May 2027*

Experience

Machine Learning Engineer | Texas Woman's University Aug. 2024 – Present
University of Texas at Dallas *Richardson, TX*

- Reduced hardware costs by 50% by developing an AI-driven application that tracks arm swing in pediatric cerebral palsy patients, eliminating the need for external motion sensors
- Researched machine learning models and image processing algorithms with PyTorch and MediaPipe to ensure accuracy in tracking movement without wearable technology.
- Improved patient engagement by 30% through a scalable and cost-efficient software architecture using PostgreSQL, Docker, and AWS

Software Developer | NASA Micro-g NeXT Aug. 2024 – Present
University of Texas at Dallas *Richardson, TX*

- Engineered an autonomous system using Python, C++, and Software Defined Radios (SDR) to detect and decode SAR (Search and Rescue) beacon transmissions, including 121.65 MHz swept-tone signals and 406.025 MHz SARSAT signals, during the post-landing recovery phase of NASA's Orion spacecraft.
- Developed real-time signal processing software on single-board computers (e.g., Raspberry Pi, Arduino) to analyze radio frequencies and deliver crucial data bursts, such as country codes and beacon Hex IDs, to ground recovery teams via a graphical user interface (GUI).
- Decreased production costs by 20% and increased portability by 15% for SAR team recovery equipment through efficient integration of SDR technologies

Projects

2024 Toyota HackFesta CTF Oct. 2024 – Nov 2024

- Qualified for 1st place with 2 teammates, demonstrating teamwork and advanced problem-solving skills in a competitive cybersecurity environment.
- Gained hands-on experience with tools such as RAMN, PASTA, and CanPico, while analyzing network traffic using Wireshark for effective packet analysis related to CAN bus and automotive security.
- Developed a comprehensive understanding of the OSI model and utilized logic analyzers for data transmission monitoring, enhancing skills in sending and receiving data packets.

ExpertEvents | *Flutter, Firebase, OpenAI, Google Cloud Vision, FIGMA* Jan. 2024 – May 2024

- Developed a full-stack, student-focused event promotion app with real-time notifications and calendar integration, increasing campus event attendance by 35% for over 500 students

UTD Soccer Robot | *Node.js, Vue, Docker, PRISMA, HTML, FIGMA, SQLite* Jan. 2024 – May 2024

- Spearheaded a collaborative effort with five team members to develop a cutting-edge web application enabling live streaming of human-controlled robots playing soccer, attracting 1,000+ viewers and boosting campus engagement in the "EPICS" program's activities by 20%

Activities

Clubs: Computer Security Group, Cybersecurity Defense Response Unit, Cybersecurity Club, 2024 Toyota HackFesta CTF, Codepath: CYB101 Intro to Cybersecurity (In Progress)