

Prastut Dahal

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EDUCATION

Bowling Green State University

Aug. 2023 – Aug. 2025

Master of Science in Computer Science (4.0/4.0 GPA)

Ohio, USA

- **Thesis Title:** Coronal Loop Visualization Using Volume Ray Casting
- **Relevant Coursework:** Artificial Intelligence & Machine Learning, Data Visualization, Computer Graphics, Data Structures & Algorithms, Object Oriented Programming, Software Engineering, Web Development

TECHNICAL SKILLS

Languages/Web: JavaScript, TypeScript, Python, C#, C++, C, Node.js, HTML, SCSS, Next.js

Frameworks/Libraries: React.js, React Native, Vue.js, Three.js, ASP.NET Core, Redux, Express, NumPy

Cloud/DevOps: AWS (EC2, S3), Azure (Blob Storage, Entra ID), Docker, Kubernetes, Ansible, GitHub Actions

Databases/Storage: PostgreSQL, MongoDB, MySQL, Cosmos DB, Firebase, Vector Databases

AI & Development tools: Google Antigravity, MCP (Model Context Protocol), Claude Code, Cursor, Github Copilot, Agentic AI

PROFESSIONAL EXPERIENCE

Software Engineer

Sept. 2025 – Current

Actual Reality Technologies

Ohio, USA

- Developed a full-stack web application for **SSOE** using **Next.js**, **TypeScript**, **tRPC**, and **Zustand**, streamlining their cost estimation process and reducing processing time by **80%**
- Built and deployed the application to **Microsoft Azure** via a **GitHub Actions CI/CD pipeline**, ensuring automated testing and continuous delivery
- Implemented enterprise authentication and identity management by integrating **Microsoft Entra ID SSO with OIDC protocol** and **SCIM 2.0 provisioning**, enabling automated user lifecycle management and role-based access control for secure multi-tenant operations

Research Assistant

Aug. 2023 – Jul. 2025

Bowling Green State University

Ohio, USA

- Engineered a **3D solar coronal loop visualization** system using **volume ray casting** and **CUDA** on C
- Optimized legacy IDL-based magnetic field modeling by converting it to **Python**, reducing execution time by **50%**
- Developed a **Node.js pipeline** with **TypeScript** to generate **Uint8Array volumetric datasets**, improving data ingestion for CUDA-based **3D visualization** & reducing memory overhead

Software Engineer

Feb. 2022 – Apr. 2023

Seva Development

Remote, Nepal

- Led a team of 5 engineers to architect and deploy a high-performance React application using **Redux-Saga** and **GraphQL**, successfully scaling to support **1,000+ daily active users**.
- Optimized infrastructure by migrating features to **AWS (EC2, S3, Lambda)**, implementing **CloudFront** caching to reduce latency and decrease monthly operational costs.
- Containerized microservices using **Docker**, establishing a CI/CD pipeline across multiple virtual machines that accelerated the development lifecycle and deployment frequency.
- Engineered a comprehensive **UI/UX redesign** for a US-based automotive retail platform, directly resulting in a measurable increase in customer retention and engagement.

PROJECTS

Visualization of Wetland Pool | *D3, React, Chart.js*

- Implemented an interactive **data visualization dashboard** using **D3.js** and **React hooks**, featuring time-series graphs, heatmaps, and geospatial renderings of wetland soil composition data.
- Engineered a **responsive frontend** with **dynamic filtering capabilities** and **SVG-based visualizations**

Yetiyap - Viral News Platform | *HTML, CSS, Vanilla JS, Express.js*

- Developed a viral news platform that gained 4,000+ weekly views and widespread social media shares using **React** & **JavaScript** in the frontend and **Node JS** in the backend

HONORS AND AWARDS

Techtrix Hackathon Winner ([Demo Video](#))

- Architected a **monorepo** to streamline development of a real-time queue management mobile application using **React Native** and **Firebase**.
- Leveraged **Firestore** and **Firebase Cloud Functions** to engineer a real-time data synchronization engine, providing instant queue updates for users in banks and large organizations.
- Integrated **Firebase Authentication** and secure backend triggers to manage sensitive user flow.