# Raghav Khandelwal

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## Education

**Washington State University** — Pullman, WA
*Master of Science in Computer Science* — *August 2024 – Present*
**Coursework**: Machine Learning, Neural Network, Data Science, Artificial Intelligence, Advanced Algorithms

**Sikkim Manipal Institute of Technology** — Sikkim, India
*Bachelor of Technology in Information Technology* — *August 2018 – Oct 2022*

## Technical Skills

**Languages**: Python, C++, C, Java, JavaScript, TypeScript, SQL, HTML/CSS, PowerShell, C# (basic), Go
**Frameworks & Libraries**: React, Node.js, Next.js, Tailwind, PyTorch, TensorFlow
**Databases:** MySQL, MongoDB, DynamoDB, SQL Server
**Cloud & DevOps:** AWS, GCP, Docker, Kubernetes, GitHub Actions, CI/CD, Vercel
**Tools:** VS Code, Git, Slack, Jira, Confluence

## Projects

**AI Agent** | *TypeScript, Node.js , OpenAI API, Imgflip API*
- Developed a multi-tool AI agent in **TypeScript/Node.js** using **OpenAI API**, Imgflip, and Reddit, automating content workflows and cutting manual effort by **70%**.
- Integrated **RAG pipeline** for context-aware responses, boosting accuracy and relevance by **30%**.
- Applied **evals** to benchmark outputs, improving response consistency and reducing errors.
- Automated meme creation with API-driven templates to enhance user engagement.

**AgAid Digital Hackathon – Snowpack Prediction Challenge** | *Python, PyTorch, React Native, Flask*
- Built a **Transformer Neural Network** to predict Snow Water Equivalent (SWE) with **87.8% accuracy**, enabling data-driven water resource planning.
- Processed and integrated **9M+ spatio-temporal rows** from 8 meteorological datasets using **chunked loading, KNN imputation, and spatial joins**, improving data quality and model reliability.
- Engineered and deployed a full-stack web application with React & Flask, allowing users to upload CSV files and generate real-time SWE predictions with interactive data visualizations.
- Optimized training pipeline with **GPU acceleration in PyTorch**, cutting model training time by **40%**.

**Movie GPT** | *JavaScript, React, NodeJS, Redux, Firebase, Tailwind CSS*
- Developed Movie GPT using React, TMDB API, and OpenAI API for AI-powered movie recommendations with personalized suggestions, styled with Tailwind CSS.
- Integrated Firebase authentication (Sign Up, Sign In, protected routes) and utilized Redux for state management along with React Router for seamless navigation.
- Optimized performance using custom hooks and memoization, reducing load times by 20%.

**AI Chatbot** | *Next.js, React, Material-UI, JavaScript*
- Built an AI-powered chatbot using OpenAI API, implementing NLP techniques for real-time language processing and model fine-tuning.
- Developed a Next.js application using React and Material-UI (MUI) for responsive UI components and theming.
- Utilized npm for package management and localStorage for theme persistence.

## Experience

**Headstarter AI** — June 2024 – July 2024
*Software Engineering Fellow*
- Built **AI-powered customer support models** using OpenAI API, applying NLP for accurate response generation.Developed AI-powered customer support models using OpenAI API, incorporating machine learning techniques to optimize response accuracy and model efficiency.
- Fine-tuned language models to optimize training workflows and improve inference efficiency.
- Integrated **scalable backend services** with CI/CD deployment for real-time chatbot interactions.Optimized AI-driven platform for scalability, streamlining user experience.

**DXC Technology** — June 2022 – Nov 2022
*Associate Professional Software Engineer*
- Automated large-scale **ETL pipelines** using **Python and SQL**, streamlining data ingestion and reducing processing time by 25%.
- Collaborated in migrating transactional workloads to **cloud environments (AWS, GCP)**, ensuring scalability and high availability.
- Built and optimized **backend services** with a focus on modular design, CI/CD deployment pipelines (**Git, Docker, Jenkins, GitHub Actions**) to reduce release times.
- Improved **DB2 and SQL Server** performance through query optimization and indexing.

## Certifications

- Google IT Support Professional Certificate (Google)
- Python for Everybody (University of Michigan)
- Data Science Specialization (Johns Hopkins University)
- Introduction to Enterprise Computing (IBM)