# Nischal Singh Bista

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## EDUCATION

**University of Wisconsin-Madison |** *Madison, WI* **Expected May 2027**

*Bachelor of Science in Computer Science, GPA: 3.6*

- **Honors:** King Morgridge Scholar (Full-Ride), Dean's List, L&S STEM Scholar, Undergraduate Research Scholar
- **Relevant Courses:** Data Structures & Algorithms, Distributed Systems (Docker, Spark), OOP, Deep Learning & Generative Models (PyTorch), Operating Systems, DBMS

## EXPERIENCE

**Software Developer, Capstone** **Sep 2026 - Present**

*Amazon Shopbop* *Madison, WI*

- Developing a daily Wordle-style fashion guessing game where players describe a hidden Shopbop product and are scored by semantic similarity using Shopbop's vector search API.
- Developing serverless backend on AWS (Lambda, API Gateway, DynamoDB) to persist puzzles, guesses, and user streaks, with a multi-user demo deployment in progress.

**Software Developer** **Aug 2025 - Present**

*Trail Lab, UW - Madison* *Madison, WI*

- Built an AI-powered PDF Q&A pipeline (Python, FastAPI, Next.js, Groq APIs, embeddings) enabling users to retrieve relevant document context in under 20 seconds.
- Engineered an AI audio pipeline (Python, FastAPI, OpenAI APIs) that records discussions, generates summaries, and translates transcripts into 10+ languages for multilingual accessibility.
- Automated CI/CD workflows using GitHub Actions and GCP Cloud Build, integrating test suites and reducing deployment time from 15 minutes to 2 minutes.

**AI/ML Researcher** **Sep 2024 - June 2025**

*Department of Atmospheric and Oceanic Sciences, UW- Madison* *Madison, WI*

- Improved predictive model accuracy by 15% through feature engineering and ensemble model optimization on a 500GB+ NASA MERRA-2 dataset.
- Developed a real-time data processing and visualization pipeline, reducing manual analysis time for the research team by 50%.
- Formalized reproducible data pipelines with systematic validation and cross-validation, standardizing experiment workflows across the lab.

## PROJECTS

**Badger Code |** Python, Docker, Harbor, Terminal-Bench, Qwen | Link

- Integrated a Qwen-powered coding agent with Harbor to execute and evaluate autonomous shell-based workflows in isolated Docker environments.
- Established a reproducible evaluation workflow across 89 benchmark tasks, validating infrastructure and achieving a passing result on 40+ tasks.

**BadgerRides – Carpool App** | *React, TypeScript, Express, PostgreSQL, Socket.IO* | Link

- Built and deployed a full-stack carpool web app for UW–Madison students with JWT auth, a ride matching service, and real-time chat via Socket.IO.

**Educate Nepal Initiative Website (Non-Profit)** | *React, TypeScript, Node.js, PostgreSQL, AWS* | Link

- Built and launched a full-stack website for an education nonprofit in Nepal; enabled online donations and reached 10,000+ monthly visitors.

## TECHNICAL SKILLS

**Languages:** Python, JavaScript, TypeScript, Java, C, SQL, Bash
**AI/ML & Data:** PyTorch, TensorFlow, scikit-learn, Pandas, NumPy, LangChain, Embeddings, LLMs, RAG
**Cloud & DevOps:** AWS (Lambda, API Gateway, DynamoDB), GCP (Cloud Run, Cloud Functions, Cloud Build), Docker, GitHub Actions, CI/CD
**Backend & APIs:** FastAPI, Node.js, Express, REST APIs, PostgreSQL
**Frontend:** React, React Native, HTML/CSS