

Aayush Koirala

Maynard, Massachusetts • +1-781-392-7903 • aayush.k204@gmail.com • [LinkedIn](#) • [Github](#) • [Portfolio](#) • US Citizen

Education

University of Massachusetts Amherst Sep 2022 - May 2026

Bachelor of Science, Computer Science

- **Coursework:** Data Structures, Algorithms, Machine Learning, Artificial Intelligence, Databases, Computer Networks, Operating Systems, Web Development

Experience

Walmart Global Tech May 2025 - Aug 2025

Software Engineer Intern Bentonville, Arkansas

- Led end-to-end development of a real-time digital signage preview feature using Next.js, TypeScript, and Java Spring Boot, eliminating 8+ hours of weekly stakeholder demo time.
- Scaled backend APIs to handle over 40 million daily requests by separating development and production environments on Azure Kubernetes, reducing deployment incidents by 30%.
- Implemented comprehensive testing with 50+ Jest tests achieving 95% coverage for all features.

Arctex Sep 2024 - Dec 2024

Software Engineer Intern

- Built CollegeAppAssist, an AI-powered Chrome extension using React.js, Express.js, and ChatGPT API, improving user response accuracy by 30% and reducing response time by 20%.
- Conducted regression and smoke testing, reducing post-release defects by 25%, ensuring seamless updates for thousands of users.
- Improved application efficiency by 25% by leading Agile sprints in JIRA and refactoring code with Python, enhancing students' college application experience.

University of Massachusetts Amherst Jun 2024 - Aug 2024

Undergraduate Research Assistant

- Conducted research on Machine Learning (ML) security under the guidance of a PhD student, analyzing 5 large-scale datasets and developing 12 ML models, contributing to a deeper understanding of security vulnerabilities in ML systems.
- Utilized Jupyter Notebook to implement and optimize 6+ neural network architectures (LeNet, AlexNet, VGG, ResNet, DenseNet, MobileNet), achieving 15% improvement in model performance and 12% accuracy boost through hyperparameter tuning.
- Explored theoretical trade-offs between robustness and accuracy in ML models, informing design of more balanced models and reducing training time by 30% through efficient algorithms and parallel processing.

Projects

Tong Feb 2025 - Jun 2025

- Engineered an ACTFL-aligned Swift/SwiftUI iOS app featuring 5 core pedagogical loops (micro-lessons, AI review, social competition) to drive user engagement.
- Built 3 AI audio pipelines using Whisper V3 & DeepSeek via Deno Edge, delivering automated transcription and fluency analysis with near real-time latency.
- Architected a scalable Supabase backend managing 20+ tables via WebSockets and WebRTC to support real-time 1-on-1 video sessions and Elo-rated duels.

Chef Krish Jun 2024 - Jun 2024

- Developed a web app integrating Firebase Authentication, Firestore for user management, and OpenRouter API with LLAMA 3.1 model to provide personalized dietary advice.
- Implemented chat history storage, allowing users to view past interactions and refine dietary preferences over time.

Ohara Library Mar 2023

- Engineered a comprehensive manga database with 2,000+ titles, leveraging Django for the backend, PostgreSQL for efficient data management, and a Kaggle dataset for extensive manga metadata.
- Developed an intuitive React-based UI with advanced search and filtering capabilities, ensuring seamless navigation and an optimized user experience.

Skills

- **Programming Languages:** Python, JavaScript, TypeScript, Java, C++, Swift, SQL
- **Frameworks & Libraries:** React, Next.js, Node.js, Express, Django, Tailwind CSS, TensorFlow.js, Framer Motion, Angular, Redux
- **Machine Learning:** TensorFlow.js, LLAMA, OpenAI Whisper, DeepSeek, Jupyter Notebook, Gemini
- **Databases:** MySQL, PostgreSQL, MongoDB, Firebase Firestore
- **Tools & Testing:** Git, GitHub, Docker, Kubernetes, AWS, Vercel, Azure, JIRA, Jest, Test Automation, Regression Testing