

# Aayush Koirala

Maynard, Massachusetts

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## Education

### University of Massachusetts Amherst

May 2026

*Bachelor of Science, Computer Science*

- **Achievements:** Graduating: Spring 2026
- **Coursework:** Data Structures, Algorithms, Machine Learning, Artificial Intelligence, Databases, Computer Networks, Operating Systems, Web Development

## Experience

### Arctex

Sep 2024 - Dec 2024

*Software Engineer Intern*

*Remote*

- Developed CollegeAppAssist, an AI Chatbot Chrome extension, using React.js, Tailwind CSS, JavaScript, Express.js, and ChatGPT API, enhancing students' college application process efficiency while applying agile methodologies.
- Streamlined the college application process for numerous students with an AI-driven Chrome extension integrated with React.js and ChatGPT API, leading to substantial efficiency gains.

### Headstarter AI

Jun 2024 - Aug 2024

*Software Engineer Fellow*

*Remote*

- Completed a 7-week software engineering fellowship, building 5 AI-powered projects and participating in 5 weekend hackathons, emphasizing Agile methodologies and team collaboration to deliver solutions under tight deadlines.
- Developed a final project aimed at scaling to 1,000+ users and raising \$1,000+ in funding, demonstrating the ability to create impactful, scalable solutions.
- Enhanced professional skills through direct feedback from 5+ experienced software engineers, improving technical communication and readiness for real-world engineering roles.

### University of Massachusetts Amherst, (CICS)

Jun 2024 - Aug 2024

*Undergraduate Research Assistant*

*Amherst, MA*

- Conducted research on Machine Learning (ML) security under PhD guidance, 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

### Technologies

*Chef Krish*

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 a dark mode toggle for enhanced user experience.

### Technologies

*Inventory Management Web App*

Jun 2024

- Developed a web application for managing inventory with real-time data management, user authentication, and CRUD operations.
- Features include CSV import for bulk adding inventory items, and image classification using MobileNet.

### Technologies

*Ohara Library*

Mar 2023

- Developed a database of popular manga with a user-friendly interface, featuring extensive search functionality and a database of over 2000 titles.

## Skills

- **Programming Languages:** Python, JavaScript, TypeScript, Java, C++
- **Frameworks & Libraries:** React, Next.js, Node.js, Express, Django, Tailwind CSS, TensorFlow.js, Framer Motion, Angular, Redux
- **Databases:** MySQL, PostgreSQL, MongoDB, Firebase Firestore
- **Tools:** Git & GitHub, Jupyter Notebook, Vercel, AWS
- **Web Technologies:** HTML, CSS, SASS
- **Methodologies:** Agile Methodologies