Aayush Koirala

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🌐 https://aayushkoirala.vercel.app

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
- Worked on 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%.
- Reduced post-release defects by 25% via regression and smoke testing, ensuring seamless updates for thousands users.
- Streamlined college applications with agile-driven iterations, achieving 25% efficiency gains for students.

Head starter AI   **Jun 2024 - Aug 2024**
Software Engineer Fellow
- 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
- 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

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 a dark mode toggle for enhanced user experience.

Inventory Management Web App   **Jun 2024 - 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.

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++, Test Automation, Software Testing
- **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