KEERTHANA JAYAMOORTHY

508-847-6494 | keerthana.sa.jayamoorthy@gmail.com | LinkedIn | GitHub

EDUCATION

Worcester Polytechnic Institute (WPI) | Worcester, MA

B.S. & M.S. in Computer Science and Artificial Intelligence | B.S. May 2026, M.S. May 2027 | GPA: 3.5/4.0

TECHNICAL SKILLS

AI/ML: PyTorch, TensorFlow, Keras, Scikit-learn, Hugging Face, LangChain, OpenAI API, Deep Learning, NLP

Languages: Python, Java, C++, JavaScript/TypeScript, SQL, C, HTML5, CSS3

Cloud & Databases: AWS (Certified Solutions Architect, Cloud Practitioner, AI Practitioner), PostgreSQL, MongoDB

Frameworks & Tools: React, React Native, Node.js, Express.js, Docker, Git, Agile/Scrum

PROJECTS

MED-BR: Multi-modal Equity-Driven Business Recommender | Oct 2025 – Present

• Architected Graph Neural Network processing 3M+ multi-modal data points (census, zoning, geospatial, transportation) achieving 95.26% F1 score for urban planning and risk assessment

• Engineered custom dual-objective loss function with time and equity regularizers balancing predictive accuracy with fairness constraints (Kolm-Pollak EDE: 0.9192)

• Implemented end-to-end ML pipeline using Python, PyTorch, and PostgreSQL with comprehensive data preprocessing, feature engineering, and cross-validation

SAFELAW: RAG-Based Legal Analysis Framework | Aug 2025 – Present

• Designed Retrieval-Augmented Generation system utilizing vectorized embeddings and semantic search to minimize AI hallucination in case law analysis

• Built NLP pipeline integrating CorpusStudios and GP-TSM methodologies for legal text analysis and entity extraction

• Evaluated AI ethics and bias mitigation strategies implementing fairness constraints for responsible deployment

Adversarial Security Audit of Biometric Systems | Aug 2025 – Dec 2025

• Conducted security audit of FaceNet CNN architecture quantifying demographic disparities using FGSM, PGD, and C&W attacks

• Discovered "Vulnerability Inversion" phenomenon with 80.56% attack success rate revealing security-fairness tradeoffs

• Performed 3-way ANOVA statistical analysis ($p < 10^{-11}$) identifying age as primary predictor of security failure

EXPERIENCE

Freelance Software Developer | Worcester, MA | Oct 2024 – Present

• Developing cross-platform mobile application using React Native, TypeScript, and Expo for iOS and Android

• Integrated Google Maps API for location services and Supabase for authentication/database with real-time synchronization

• Managing full SDLC: requirements gathering, technical documentation, UI/UX wireframing (Figma), agile sprint planning

Assistant Lead Engineer – Hospital Service System | WPI | Mar 2025 – May 2025

• Led team of 9 developers in agile environment building cloud-based web application using PERN stack (PostgreSQL, Express, React, Node.js)

• Architected RESTful API with Prisma ORM implementing secure authentication and role-based access control

• Conducted code reviews and coordinated Git workflows ensuring quality standards across team deliverables

Custom Shell Implementation | WPI | Aug 2024 – Oct 2024

• Developed Unix shell in C featuring process management, signal handling, I/O redirection, and piping

• Optimized command execution through intrinsic command handling and efficient memory management