



KIRAN K KETHINENI

Ph.D. Candidate | AI & Automation Researcher

CONTACT

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EDUCATION

Doctor of Philosophy

University of North Texas, USA
May 2026

Master of Science

University of North Texas, USA
Dec 2018

SKILLS

- Machine Learning, AI, Python
- Scikit-learn, NumPy, NetworkX
- Regression, SVM, Decision Trees
- ANN, CNN, GNN, LLM, RNN
- TensorFlow, TensorFlow.js
- C++, Java, JavaScript, SQL
- Spring Boot, Angular, REST APIs

AREAS OF INTEREST

- Intelligent, adaptive systems for industrial manufacturing and process automation.
- Sustainable automation through energy and data computing.
- Integration of sensing, inference, and control for human-machine collaboration.

ENGINEERING SUMMARY

Machine Learning Engineer and Automation-focused AI developer specializing in real-time perception and resource-efficient computer vision systems. Experienced in designing and deploying lightweight ML pipelines for edge and mobile platforms, optimizing models for memory, latency, and reliability in field conditions. Strong software engineering foundation with experience building production APIs, automation workflows, and cloud infrastructure (Azure, Terraform).

ENGINEERING EXPERIENCE

Doctoral Research

University of North Texas, Denton - TX Jan 2022- Present

Design and implementation of intelligent automation frameworks integrating AI, IoT, and control systems for real-world deployment.

- Proposed Semantic-Search, a knowledge-driven classification pipeline that extracts semantic features (shapes, colors) of diseased instances using CNNs and queries a feature database to classify leaf diseases, eliminating retraining, reducing data needs, and enabling adaptation to new disease types.
- Architected Chroma-Sense, a lightweight CNN for classification that processes color channels sequentially to reduce computation and memory requirements and recombines the resulting feature maps through pointwise convolutions to restore spatial context for plant-disease classification on edge devices.
- Engineered XpressWeed, a few-shot segmentation framework that leverages texture priors and pretrained feature representations for meta-inspired, efficient adaptation to new weed species, reducing data requirements and manual labeling effort, and enabling faster integration for real-time deployment.
- Implemented SprayCraft, a spraying-control software for precision agriculture that identifies plant-disease hotspots using graph neural network analysis and determines optimal spray routes and dosage levels based on infection severity, improving chemical efficiency and field coverage.
- Designed OmniSciNet, a compact CNN segmentation model combining local spatial context with global spatial context using pooling layers to replace heavy transformer architectures for weakly structured plant disease imagery.

Software Developer

Harvard Pilgrim Health Care, Boston - MA Mar 2019- Dec 2021

Developed enterprise web applications for insurance claim processing with UI components and backend modules that automate claim data validation.

- Designed responsive, dynamic user interfaces using Angular, Ext JS, and JavaScript, enhancing usability and ensuring cross-browser compatibility.
- Implemented RESTful APIs for data validation, business logic, and backend persistence, enabling reliable and automated workflow execution.
- Performed cloud infrastructure deployment on Azure using Terraform, ensuring consistent and scalable environment provisioning.