

Spoorthi Koppula

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EDUCATION

Purdue University

West Lafayette, Indiana

B.S Computer Engineering | Minor in Business Economics and Mathematics

December 2026

- **Relevant Coursework:** Advanced C Programing, Data Structures and Algorithms, Discreet Math, Python in Data Science
- **Campus Involvement:** **Head of Events** part of Exec Board for Wicys, **Mentor** in Women in Engineering Mentor-Mentee Program

EXPERIENCE

Railinc Corporation

Cary, North Carolina

Cybersecurity Intern

June 2025 - present

- Designed and maintained reusable **Python** and **Java** modules for automated vulnerability scans, integrating **Rapid7 InsightVM** and container security tools (Docker/Kubernetes), cutting manual scan cycles by **23%**.
- Automated cloud security posture management by authoring **Terraform** modules and **AWS Config** rules, integrating scans with **AWS Security Hub** and custom **Python** scripts, reducing misconfiguration incidents by **37%** and audit preparation time by **43%**.
- Conducted comprehensive **SBOM testing** across 50+ applications and implemented real-time security monitoring using **Datadog**, improving supply chain transparency and reducing false positives by **29%**, while authoring detailed threat models and **workflow diagrams** for multiple Railinc products.

Discover Financial Services – Sophomore Spark Program

Riverwoods, Illinois

Program Participant

May 2025

- Selected as **1 of 50** nationwide for a competitive early talent program emphasizing applied data science, systems thinking, and **enterprise-scale architecture**.
- Engineered solutions for fraud detection pipelines using **SQL-based analysis**, **Power BI dashboards**, and **workflow optimization strategies**, delivering insights to senior technologists.
- Gained **20+ hours** of exposure to fintech infrastructure through technical mentorship, collaborative **sprint-style case work**, and **cross-functional problem solving**.

The Data Mine: Raytheon (RTX) - Smart RF Signal Classification

West Lafayette, Indiana

Raytheon Machine Learning Research Intern

August 2024

- Designed and fine-tuned a YOLOv5 deep learning model to classify 5G and radar signals across 8 frequency bands, achieving over **90% confidence** and **85% precision** on a labeled dataset of **10,000+ signal samples**.
- Developed a full-stack web app for real-time signal analysis using **Flask**, **React.js**, **MongoDB**, and **PyTorch**, integrating live ML inference with interactive visualizations and reducing signal review time by **40%**.

PROJECT WORK

Credit Card Fraud Detection ML Model

July 2025

- Developed a Python 3.10-based fraud detection pipeline using **Pandas**, **Numpy**, **Matplotlib**, **Seaborn**, **Scikit-learn**, **CatBoost**, **XGBoost**, and **LightGBM** to process 284,807 transactions (**0.17% fraud**), achieving **up to 0.9907 ROC-AUC** on validation.
- Displayed actionable insights via advanced **ROC/Precision-Recall visualizations** and feature-importance analysis, enabling real-time fraud detection and reducing false negatives by over **95%**.

Assignment Tracker

May 2025

- Built full-stack task management application using **React**, **Next.js**, **TypeScript**, **FastAPI**, **SQLAlchemy**, and **Docker**, featuring Pomodoro timer, calendar integration, and file attachment system
- Implemented **RESTful APIs** with **CRUD** operations, automated email notifications, hierarchical task organization, and real-time data synchronization using **SWR** and responsive UI with **Tailwind CSS**

SKILLS

- Programming Languages: Python, Java, C, C++, C#, SQL, R, Assembly (x86-64)
- Back End Development: Node.js, Java, API Integration, Google Firebase , AWS (S3, MWAA, IAM), Microsoft SQL Server, Stripe API, Docker, Clerk API, Pinecone API, Groq AI API, App Development, Vercel, Llama 3.1, Open AI
- Data Science & Machine Learning: Pytorch, TensorFlow, Scikit-learn, Pandas, SQLAlchemy, PyODBC, Matplotlib, Seaborn, Apache Airflow, Microsoft Azure, Amazon Redshift, Data Analysis, Machine Learning, Reinforcement Learning, Artificial Intelligence, NLP, R, RAG , MongoDB, Apache Spark