

Kirthivasan Pandurangan Neelavathi

☎ 812-764-0888 | ✉ kirpandu@iu.edu | 💻 [kirthivasan-pn](https://github.com/kirthivasan-pn) | 🌐 KirthivasanPN-hash.github.io

EDUCATION

Indiana University

Master of Science in Data Science – GPA: 3.5

Bloomington, Indiana

August 2023 – May 2025

St. Joseph's College of Engineering

Bachelor of Engineering in Computer Science and Engineering – GPA: 3.8

Chennai, India

August 2019 – April 2023

WORK EXPERIENCE

Graduate Research Assistantship

August 2024 - present

Indiana University

Indianapolis, Indiana

- Programmed a data collection pipeline using BeautifulSoup and Selenium to automate the extraction of 1,000+ data points from online sources, improving data acquisition efficiency and reducing manual data collection effort.
- Built a text processing pipeline using PyMuPDF and spaCy Sentencizer to extract and analyze sentence-level representations, reducing time complexity for extraction process and enabling faster analysis for datasets.
- Streamlined data transformation processes using tqdm, generating embeddings for over 500 sentences and implementing retrieval techniques to optimize data processing pipelines for faster insights.
- Integrated Large Language Models for PDF summarization and key insight extraction, content analysis, keyword identification, and contextual understanding, reducing manual effort and enhancing data processing efficiency.

Software Engineer Internship

June 2024 - August 2024

Food Fight

Chicago, Illinois

- Created RESTful APIs using FastAPI, enabling seamless application-database communication and achieving an increase in API responsiveness. Adhered Pydantic models for data validation, database operations, and reducing error rates.
- Enabled SQLAlchemy for Pythonic database interactions, enabling seamless execution of queries using an ORM. Optimized query performance, reducing execution time and improving database efficiency, leading to a 10% decrease in error rates.
- Solved an user matching recommendation system by leveraging cosine and Jaccard similarity metrics. Analyzed multidimensional user data including preferences, behavioral patterns, and historical interactions for personalized recommendations.
- Leveraged AWS Lambda to support serverless tasks, optimizing resource usage and reducing server costs. Integrated AWS CloudWatch for real-time log monitoring and alerting, assisting in issue detection and resolution.

Data Science Internship

September 2022 - November 2022

MATIC - A Startup at IIITDM

Chennai, India

- Devised a novel model to predict insurance claim probabilities with 85% accuracy, potentially streamlining claims processing and reducing manual inspection costs.
- Reinforced transfer learning with YOLOv5 to detect and classify vehicle damage with 95% mean average precision (mAP), significantly outperforming traditional object detection methods.

React Developer Internship

August 2021 - November 2021

Indiespirit Technology

Chennai, India

- Coded a dynamic, interactive web application with real-time chat functionality by utilizing React.js, HTML5, and CSS, ensuring a seamless user experience with efficient state management and responsive design.
- Involved in creating reusable and modular website components using React props, event handlers, and Hooks to enhance maintainability, improve performance, and optimize UI responsiveness across different screen sizes.

PROJECTS

LLM based Web Crawler | Python, Pydantic models, Crawl4ai, ChatGPT

January 2025 - February 2025

- Strategically wrote a web scraping program using Crawl4AI and Python, leveraging advanced browser control and LLM-based extraction to parse and extract structured data, enabling efficient and reusable data ingestion.
- Processed data processing workflows using Pydantic for schema validation and CSV serialization, automating data storage for structured analysis, and improving data accessibility for Research Assistantship projects.

Deliverwise - delivery service application | JavaScript, React, RESTful API

January 2024 - May 2024

- Developed a sophisticated React.js recommendation system in an advanced web development course, boosting user engagement. Implemented robust authentication protocols for enhanced security, data-driven design, and application security.
- Engineered RESTful APIs for backend operations like management, tracking, chatting, and reviews; implemented strong error handling measures and client-centric error messages, ensuring operational continuity and client engagement.

TECHNICAL SKILLS

Academic Courseworks: Statistics, Applied Algorithms, Database Concepts, Machine Learning in Econ, Data Mining, Big Data

Programming Languages: Python, SQL, JavaScript, HTML5, CSS

Framework: React, Express JS, FASTAPI, PySpark

Python Libraries: Pandas, NumPy, Matplotlib, Seaborn, Surprise, XGBoost, OpenCV, TensorFlow

Database & Big Data: MySQL, PostgreSQL, MongoDB, Apache Spark, Kafka, Neo4j, AWS (EC2, Lambda, S3, Athena)

Data Analysis Tool: Tableau, Power BI, Plotly, Jupyter, Google BigQuery, Excel