Kaarthik Senthil Kumar

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EDUCATION:

Stevens Institute of Technology | Hoboken, NJ
Master of Science in Computer Science | GPA: 3.94/4 *May 2024*
Relevant courses: Math Foundation of Machine Learning, Knowledge Discovery and Data Mining, Data Structures and Algorithms

Rajalakshmi Engineering College | Chennai, Tamil Nadu
BE in Computer Science and Engineering | CGPA: 3.47/4 *June 2022*
Relevant courses: Artificial Intelligence, Data Analytics, Cloud Computing, Data Structures, DBMS, Data Warehousing and Data Mining

SKILLS AND CERTIFICATIONS:

Frameworks, Tools & Technologies: **Langchain, LLM**, AWS, Firebase, Git, Docker, React, Django, Microsoft Suite (Word, Excel, PowerPoint)
Programming: Python, SQL, Java, JavaScript, CypherText
DBMS*:* Neo4j, Chroma-DB, PgVector, Postgres, MySQL, Mongo DB, SQLite
Certifications: Microsoft Certified: Azure AI-900, Google Cloud :'Gen AI fundamentals', 'Machine Learning A-Z™:Python' in Udemy

EXPERIENCE:

Synechron Inc | New York, USA
AI/ML Engineer *Jun 2024 - Present*
- Built a data quality framework to monitor data at rest and in motion, ensuring traceability and reliability across pipelines
- Implemented Isolation Forest and LLM models to optimize validations and automate anomaly detection for enhanced data quality
- Developed an LLM prompt library framework to streamline generative AI use cases, improving operational efficiency, scalability and reusability

Gen AI Internship *Oct 2023 - Dec 2023*
- Engineered a Retrieval Augmented Generation (RAG) Langchain chatbot for RiskTech analysis of SEC 10K and 10Q filings, powered by Chroma-DB and WizardLM
- Leveraged PgVector and harnessed the power of Pandas-AI to drive the Zero Knowledge Proof obfuscating the PII-data with 80% accuracy

Data Science / Gen AI Internship *Jun 2023 - Sep 2023*
- Developed GAN functions focused on Real-ESR GAN and EDSR GAN models, resulting in heightened OCR accuracy
- Investigating the capabilities of Large Language Models (LLM) like GPT, Llama, and Falcon, proposed a multi-modal approach increasing the efficiency in handling the data by 33%
- Enhanced RAG accuracy by 45% leveraging chunking strategies in various embedding models like bge-large and all-mini-LM

Eamvey Technologies | Tamil Nadu, India *Jan 2021 - Mar 2021*
Machine Learning Internship
- Created sales prediction models using Linear regression and Perceptron techniques resulting in a significant 30% increase in accuracy, deploying them on AWS SageMaker for practical application

PROJECTS:

Real-time Automatic Speech Recognition (ASR) Conversational-AI RAG System *Jan 2024 - March 2024*
- Engineered end-to-end solution incorporating WhisperX OpenAI model for real-time voice-to-text conversion and diarization for speaker segmentation
- Integrated ChromaDB backend for efficient data storage and retrieval, and OpenAI GPT for RAG chatbot functionality
- Developed intuitive chatbot interface using Gradio frontend, enabling seamless access to conversation transcripts

Credit Card Transactions Fraud Detection System *Jan 2023 - May 2023*
- Devised a machine learning-based system to detect fraudulent credit card transactions, addressing the challenge of data skewness and imbalance by implementing the SMOTE method for data balancing
- Achieved an accuracy of 99% using K-Nearest Neighbors (KNN) through rigorous experimentation & parameter fine-tuning

National Identity Card (SSN) Security System with Real-time Facial Recognition *Feb 2022 - May 2022*
- Engineered robust multi-layered real time Facial Recognition security system for user identity authentication using Tkinter
- Attained an exceptional 92.3% accuracy with a Convolutional Neural Network (CNN) and Haar-Cascade model
- Transformed the project into a Firebase-hosted Software as a Service (SaaS), effectively tackling offline verification challenges

ACTIVITIES:

- Co-authored a pivotal computer vision paper, critically examining and contrasting the latest state-of-the-art SR GAN models, featured in Cornell University's arXiv, showcasing a resolute commitment to advancing technological frontiers
- Participated in a Global Generative AI Hackathon 2023