

# Gayathiri Elambooranan

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## Skills

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**Programming Languages:** Python, C; **NLP:** Transformers, TensorFlow, Scikit-learn, NLTK, LLM, Hugging Face RAG, Lang chain, Generative AI, Prompt Engineering, OpenAI API ; **Data Science Tools:** Pandas, NumPy, Matplotlib, Seaborn, SciPy; **Databases & Cloud Services:** Neo4j, Pinecone, SQL, AWS; **Web Development:** Flask, React.js, Next.js, Tailwind.css, Framer Motion, Bootstrap; **Software & DevOps:** Git, GitHub, GitLab, CI/CD, Linux, MATLAB, Atlassian, Kubernetes, Docker ; **Methodologies:** Agile, Continuous Improvement, Project Management, AIOps, Data Pipelines

## Education

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**Master of Engineering – Electrical and Computer (with Distinction)** 2024  
*Concordia University, Montreal, Quebec, Canada*

**Bachelor of Engineering - Electronics and Communication (with Distinction)** 2021  
*SRM Institute of Science and Technology, Chennai, India*

## Professional Experience

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**AI Solutions Associate, Concordia University** *Montreal, CA 2024*

- o Led the implementation of advanced zero-shot learning techniques across large language models like LLAMA and Mistral, enhancing real-time anomaly detection capabilities in cloud incident management systems without prior model training.
- o Designed and validated retrieval-augmented generation (RAG) architectures, leading to marked improvements in accuracy and response times for cloud-based incident handling, using both real and synthetic datasets to ensure robust system performance under diverse conditions.
- o Pioneered sophisticated prompt engineering strategies to fine-tune AI interactions, optimizing response quality across diverse operational scenarios in cloud environments.
- o Developed a state-of-the-art data architecture combining Pinecone’s vector search capabilities and Neo4j’s graph-based data management to boost AI-driven data retrieval and analysis efficiency.
- o Engineered and maintained robust data processing workflows using Pandas and NumPy, significantly enhancing the analysis and management of complex datasets for improved anomaly detection.
- o Conducted thorough evaluations of AI-generated responses using precision, recall, and F1-score metrics to provide actionable insights for continuous system enhancements and strategic AI deployment decisions.

## Projects

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**AI-Driven Financial Analytics Platform** 2024

- o Built an end-to-end generative AI platform leveraging LLMs like LLAMA and GPT to extract and summarize key insights from financial reports and news articles.
- o Implemented Retrieval-Augmented Generation (RAG) pipelines with Pinecone for vector search and integrated spaCy for advanced NLP tasks such as sentiment analysis and entity recognition.
- o Deployed the platform on AWS Lambda with scalable S3 storage, ensuring fast and reliable insights generation for real-time financial decision-making.

**Generative AI for Supply Chain Optimization** 2024

- o Designed an AI-based supply chain solution using NLP to analyze unstructured supplier communications, providing predictive insights for inventory and demand management.
- o Built graph-based data models with Neo4j and integrated Pinecone for efficient retrieval of relevant logistics data.
- o Applied advanced NLP techniques and trained predictive models like XGBoost and Random Forest, improving supply chain efficiency by 20%.
- o Deployed the solution on Kubernetes to ensure scalability and consistent performance across high-volume operations.

## Workshop/ Publication

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**MATLAB Workshop: AI and Deep Learning** 2024  
**Fusion Routing Algorithm for Aerial Wireless Network**  2021