

# Nithil Eshwar Mani

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## EDUCATION

### University at Buffalo

Master of Science (Data Science)

2025

CGPA: 3.67

Courses - Statistical Learning, Data Mining, Data Models Query language, Predictive Analysis, Analysis of Algorithms.

### College of Engineering, Guindy (CEG), Anna University

2023

Bachelor of Engineering (Computer Science and Engineering)

CGPA: 3.23

Courses - Machine Learning, NLP, Big Data Analytics, Data Structures, Algorithms, Database Management Systems, Object-Oriented Analysis and Design.

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## EXPERIENCE

### Software Engineer Intern, GreenInfo Tech (S-corp) - Union City, CA

July 2025 - Present

- Worked on the **MedScribe AI** project as part of a **5-person team**, which focuses on automating paperwork by transcribing patient encounters, generating notes and filling medical forms. Used **GPT-4o** API. (Text-to-SQL, AI Voice Agent).
- Optimized a **Text-to-SQL agent** to provide SQL results to natural language queries. Used **Vanna AI** to train the model on **600+ patient records** and wrote **70+ SQL query prompts**. Improved performance on complex queries by **60%**.
- Developed an **AI Conversational Voice Agent** to automate patient intake (appointment scheduling, verifying insurance information) via phone calls. Used **FastAPI** for building **APIs** and **ElevenLabs** for **conversation handling, storage and retrieval**.
- Customized the frontend with **React, Node.js** and **Typescript**. Deployed the apps using **AWS Amplify** and **AWS App Runner**.

### Software Engineer Intern, Techavidity - Frisco, Texas

June - September 2025

- Managed graph databases using **Neo4j**, and vector databases like **Milvus** and **Weaviate** to support real-world apps.
- Used **Neo4j ETL** tools generate metadata mappings and export data from PostgreSQL databases.
- Implemented graph algorithms and used **Neo4j Aura Graph Analytics** to gain deeper insights.
- Integrated AI models for intelligent relationship discovery and data-driven automation using **Graph RAGs**.
- Incorporated **Serverless applications** with simplified development and **reduced costs by 50%**.

### Research Assistant, University at Buffalo - Buffalo, New York

February - May 2025

- Collaborated as part of a **4-member team** on the development and testing of **UnionLabs**, a cloud-based distributed platform to share data, code, software and hardware resources for research in next-generation networks and wireless Internet of Things.
  - Established **AWS EC2**-local server connectivity with API endpoints.
  - Conducted thorough testing of **back-end, database, and API endpoints** to ensure robustness and reliability of the platform.
  - Improved user **accessibility and responsiveness by 70%** through optimized **React.js** code.
  - The cloud-based remote-access solution enabled ease and efficiency while **reducing lab costs by 60%**.
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## PROJECTS

**Question-and-Answer Agent for Research Papers (Langchain, Cypher, Streamlit)** - Built a **Q+A agent** for Research papers using **Graph RAGs**, **GPT-4o** API and **Cypher**. Deployed the app using **Streamlit**. Engineered **prompts** to create knowledge graphs and wrote **data retrieval functions** using cypher. The Graph RAG improved the performance in **identifying links** between multiple papers compared to traditional RAGs by **70%**.

**HEP-TH (High Energy Physics Theory) Paper classification using Sci-BERT (Python, TensorFlow, SageMaker AI)** - Classified over 30000 HEP-TH papers dating from 1991-2004 as influential and non-influential. Used **AWS SageMaker Blazing Text** for classification and **Sci-BERT** word embedding for tokenising. Performed hyperparameter optimization and obtained **75%** accuracy.

**Elastic Net Attack and Inception-ResNet V1 for Retinal OCT images (Python, Pytorch, AWS SageMaker AI)** - Optimized the **Inception-Resnet V1** model to detect Choroidal Neovascularization in over **10000 Retinal OCT images**. Obtained better accuracy (97.10%) compared to the **Amazon SageMaker Image Classification Model** (95.43%). Trained the model to overcome Elastic-Net attack. Improved the accuracy on adversarial examples from 7.5% to 51.39%.

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## TECHNICAL SKILLS

- **Programming and Querying:** Python, C, C++, R, Java, Golang, JavaScript, React.js, Node.js, Typescript, SQL, NoSQL, Cypher
- **Software Development and Containerization:** Agile Development, Amazon EKS, Amazon EC2, Git, Docker, Kubernetes
- **Analytics and Visualization:** Tableau, PowerBI, Google Analytics, Metabase, AWS Redshift
- **Databases and ETL tools:** MySQL, PostgreSQL, Neo4j, DuckDB, Milvus, Weaviate, AWS Glue, AWS Athena, Apache Spark
- **AI tools:** AWS SageMaker, AWS Bedrock, Langchain, BigQuery ML, Pytorch, Tensorflow, Vanna AI, ElevenLabs
- **Programming Frameworks:** Pytorch, Tensorflow, Scikit-learn, Matplotlib, Streamlit
- **Certifications:** AWS Certified Machine Learning Engineer Associate, AWS Certified Data Engineer Associate