

# Nithil Eshwar Mani

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## EDUCATION

### University at Buffalo

Master of Science (Data Science)

2025

CGPA: 3.7/4.0

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

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

2023

Bachelor of Engineering (Computer Science and Engineering)

CGPA: 3.3/4.0

Courses - Machine Learning, NLP, Big Data Analytics, 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.
- Optimized a **Text-to-SQL agent** to provide SQL results to natural language queries. Used **Vanna AI** to train the model and wrote **70+ SQL query prompts**. Improved performance on complex queries by **60%**.
- Developed an **AI Call Agent** to automate patient intake (appointment scheduling, insurance information verification). Used **FastAPI** for building APIs and **ElevenLabs** for **conversation handling, storage and retrieval**.
- Built dashboards with **React, Node.js** and **Typescript** to monitor the apps and manage functionalities. Wrote **terraform** scripts to deploy applications in **AWS Amplify** and **AWS App Runner** and implemented CI/CD pipelines for automated deployment.
- Utilized **AWS CloudWatch** to monitor applications performance and **AWS Cognito** to manage user authentication.
- Optimized backend and improved performance by **20%**. Performed **unit and integration tests** using **pytest** to ensure reliability.

*Software Engineer Intern, Techavidity* - Frisco, TX

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.
- Incorporated **serverless applications** with simplified development and reduced costs by **50%**.

*Research Assistant, University at Buffalo* - Buffalo, NY

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** and **GPT-4o API**. Deployed the app using **Streamlit**. Wrote **prompts** in **cypher** to create knowledge graphs and wrote **data retrieval functions**. 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:** FastAPI, Flask, Django, Git, Docker, Kubernetes, Agile Methodologies
- **Databases and Analytics:** MySQL, PostgreSQL, Neo4j, DuckDB, MongoDB Tableau, PowerBI, Google Analytics, Metabase
- **AWS Suite:** Amplify, Apprunner, Amazon EKS, Amazon EC2, Glue, Athena, Redshift, Spark, SageMaker, Bedrock, Cognito
- **AI and Programming Frameworks:** Langchain, BigQueryML, Pytorch, Tensorflow, Scikit-learn, Matplotlib
- **Certifications:** AWS Certified Machine Learning Engineer Associate, AWS Certified Data Engineer Associate