

# NAGHARJUN MATHI MARIAPPAN

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## TECHNICAL SKILLS

**Languages:** Python (Pandas, Numpy, Scikit-learn), C++, SQL  
**Tech Stack:** PyTorch, TensorFlow, MLflow, Apache Toolkit (Airflow, Spark), Docker, Kubernetes, Git, Tableau, Linux  
**Cloud Platforms:** AWS - EC2, S3, Lambda, Bedrock, Redshift, ECS; Azure - VMs, Functions, Cognitive Services  
**Machine Learning:** Classification, Regression, Clustering, Hypothesis Testing, LLMs, CNN, LSTM, Attention, PCA

## PROFESSIONAL EXPERIENCE

**Data Scientist** July 2024 - Present  
*Mount Sinai Health System, New York, NY*

- **Reconstructed** missing respiratory signals in polysomnography studies at **84% recall** and **75% precision** by building a Dilated Residual CNN with Attention, leveraging plethysmography data for sleep apnea patients.
- **Restored** MLflow platform within 24 hours with **100% data integrity** by creating custom **backup/restore** pods and automating nightly MinIO backups via Kubernetes CronJobs after a service failure.
- **Improved** team model tracking, logging, experimentation, and versioning by **30%** by deploying **MLflow** on Ubuntu Server, accelerating workflow efficiency and reproducibility.
- **Reduced** clinical data extraction **costs 40%** by optimizing token sizes. Employed Retrieval Augmented Generation(RAG) and Cosine Similarity based nearest neighbor grouping to minimize redundant text chunks.
- **Prevented 98%** of patient data leaks via a zero-shot GLiNER Named Entity Recognition(NER) model, censoring personal details before forwarding clinical notes to LLMs on AWS Bedrock.

**Data Science Intern** January 2024 - May 2024  
*LOCOMeX, New York, NY*

- **Boosted** contract **engagement 40%** with a two-tower deep learning **recommender system**, incorporating BERT text embeddings and company metadata for relevance scoring.
- **Reduced** processing **time 90%** while extracting structured data from PDFs, DOCXs, and PPTs. Built an **AWS Lambda** API leveraging GPT-3.5.
- **Saved 8 weekly hours** by automating data pipelines with **Apache Airflow** and Python, storing processed documents on AWS Redshift and S3.

## ACADEMIC PROJECTS

**AdEvade: Outsmarting ML Ad Blockers - [Link](#)** December 2023 - March 2024

- Trained a **YOLOv5**-based ad blocker at **90% mean IoU** for detecting ads. Demonstrated a **15% drop in detection** by performing adversarial image manipulations and successfully retrained the model to restore performance.

**CitiBikeFlow: NYC's Cycling Visuals - [Link](#)** December 2023 - February 2024

- Built a real-time **data pipeline** for Citi Bike feeds using **AWS S3 + Snowpipe** into Snowflake. Orchestrated ingestion and transformations with Apache Airflow on **AWS EC2**, powering Tableau dashboards.

**NYC StationSense: Predicting Crowds - [Link](#)** February 2023 - May 2023

- **Parallelized** transformations on 11M+ subway crowd records with Apache **Spark**. Developed forecasting ML models in **SparkML (R2 = 0.62)**, enabling accurate crowd-level predictions.

## EDUCATION

**New York University, New York, NY** September 2022 - May 2024  
Master of Science in Computer Engineering GPA: 3.96/4  
Relevant coursework: Big Data, Machine Learning, Deep Learning, DS and Algorithms, Image Processing, Databases