

# Vishanth Hari Raj Balasubramanian

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## EDUCATION

### UNIVERSITY OF CALIFORNIA, LOS ANGELES (UCLA)

Master of Science, Business Analytics- Data Science/Machine Learning

Los Angeles, CA

Exp. Dec 2024

Courses: LLM, Adv Machine Learning, Time Series Analysis, Statistics, Optimization, SQL, Data Management, A/B Testing.

### NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPALLI (NIT-T)

Bachelor of Technology, Computer Science/Industrial Engineering (Institute Rank Holder)

Trichy, India

June 2021

Courses: Data Structures & Algorithms, Big Data Analytics, Database Management, Operating System, Computer Networks

## TECHNICAL SKILLS

**Programming:** R, Python (TensorFlow, OpenCV, Pytorch, Sklearn), C/C++, JavaScript, NodeJS, SQL, NoSQL.

**Tools:** Git, GitHub, Tableau, Apache Spark, Kafka, Hadoop, Jira, Jenkins, Docker, Snowflake, AWS (EC2), Sage maker, GCP.

**Certification:** Six Sigma Green Belt, Machine Learning using AWS, Apache Spark, DevOps Leadership.

**ML Model:** Regression, PCA, SVM, Clustering, CNN, RNN, Random Forest, RAG, NLP, LLM, A/B Testing, Computer Vision.

## PROFESSIONAL EXPERIENCE

### WALT DISNEY

Los Angeles, CA

#### Machine Learning Coop – AI/ML

Sep 2024- Present

- Engineered and deployed ML models to *analyze customer churn, identify patterns in interchange fees, payment failures, and chargebacks*. Developed **causal inference model** to assess revenue impact, reducing costs by 10%.

### TRAVERSAAL AI

Los Angeles, CA

#### Machine Learning Engineer Intern - Multimodal

June 2024 – Aug 2024

- Developed advanced AI Chatbot end-to-end application featuring a **Retrieval-Augmented Generation (RAG)** model with support images, ppt format files using **OCR (multimodal)**, embedding using **nomic-ai-v1.5 model** for Clients
- Developed & Deployed **FAST APIs (in AWS)** for clients, to access the E2E product, providing **SaaS, API as Service**
- Trained/fine-tuned foundation LLMs (Llama) to enhance the ranking, data retrieval, context rich text generations
- Designed *knowledge graph/semantic chunking*, accelerated vector search by **5 sec**, retrieval process **20% better accuracy**.
- Stack: Llama, BERT, Azure OpenAI GPT 4, AWS Sage Maker EC2, Node.js, PostgreSQL, APIs (Fast/REST), Lang chain/HF.

### CITIGROUP

Chennai, India

#### Software Engineer 2 – AI/ML

July 2022 - Sep 2023

- Innovation Lead for AI/ML projects:** Designed ML Models to *forecast incidents (RF)*, automation of *incident assignment - alert/classification (NLP)*, *Impact Analysis prediction (Regression)*, *Integration of NLP/LLM in chatbots*, **saving \$250K** yearly.
- Integrated **LLMs /NLP model into customer chatbots** (Text classification) to enhance response relevance, automatic incident creation/assignment sentiment analysis (NEP), boosting customer engagement; **improved resolution time by 30%**
- Developed **ML-driven dashboards/Visualization** from real-time data streaming to monitor logs data to determine login fail downtime & impact analysis, prevented **50+ major incidents**, reduced downtime by **10%**; used Spark, Splunk APIs
- Awards:** Citi – Gratitude Golden Award, Citi Copper Award, Bronze Award, Bravo Award and Citi-Client Obsession Award.
- Stack: ML/NLP models (TensorFlow, Ski learn), ReactJS, APIs (flask, JWT), SQL, Microservices, ServiceNow, Spark.

#### Software Engineer 1

July 2021 - July 2022

- Designed new pipeline/infra for MLOPS:** Established infrastructure & managed production servers for MLOps operations.
- Built an ETL framework** to extract data from **IBM Cognos, Splunk, & ServiceNow** via REST APIs into central data pipeline for MLOps achieving **\$100K** in cost savings reduces over **300+ hours**. (handled more than 1000+GB data efficiently)
- Led** release management activities: Executed new SDLC process (Scrum & Agile) CI/CD pipeline for internal applications.
- Designed and **Deployed APIs** to seamlessly *integrate ML model endpoints* with front-end dashboards, **reducing latency by 5 mins**, optimizing data flow, and ensuring efficient handling of heavy data streaming from SNOW, Splunk

### VEVOLVE Research & Development Lab

Bengaluru, India

#### Machine Learning Engineer Intern

May 2020 - Aug 2020

- Developed **ML model** to *detect vulnerabilities* by Vulnerability Analysis & Penetration Testing, generating **~\$30K** in revenue

## RESEARCH/PROJECTS

**Detect fake images generated by AI ([Link](#)):** Built multi-modal GAN combines image/text features, (ResNet, BERT) **accuracy: 97.6**

**Detection of Cars/Traffic Signal ([Link](#)):** Developed/finetuned **Ensemble** model (*ResNet, ConvNext*), resulting **MSE of 0.02**

**Licensed Statistical Library for Clinical Trials-UCLA ([Link](#)):** Built Comprehensive Statistical Library for Life Sciences Clinical Trials

**Weather Prediction LSTM/GRU ([Link](#)):** Developed **bidirectional LSTM** model to forecast weather trends across cities, **accuracy 92%**

**Autoencoder (Denoising Noisy Datasets) ([Link](#)):** : Built model to remove noise, achieving a reconstruction **MSE 0.015**.

**LLM Recommender search engine ([Link](#)):** Developed search-engine (Nomic) for semantic-search (deployed in AWS EC2 via Docker)