

Adithya Iyer

551-344-6506 | adithya.iyer@nyu.edu | [LinkedIn](#) | <https://adithyaiyer1999.github.io/>

EDUCATION

Courant Institute of Mathematical Sciences - New York University

Masters in Computational Science

Courses Undertaken: Large Language Models, Machine Learning, Numerical Methods

New York, NY

Aug 2022 - May 2024

Indian Institute of Technology Bombay

Dual Degree(Btech+Mtech) in Materials Science

Mumbai, India

Jul 2016 - May 2021

EXPERIENCE

eBay Inc.

Applied Research Intern, Machine Learning

May 2023 - Aug 2023

Seattle, WA

- Designed a combination methodology for **unsupervised behavioral embeddings** as features into a pre-existing XgBoost model to predict fraud; achieved a **5 % points** AUC boost by including unsupervised embeddings.
- Finetuned a pretrained **contrastive loss based transformer** model on Account Take-Over(ATO) fraud labels; improved embedding only classifier AUC by **6 % points** across Browser/Mobile Web channels.
- Built **30+ models** across **3 device channels**; identified best model based on precision-recall metrics.
- Performed **swap-sets** analysis for different time periods to quantify benefits of updated model in fraud detection.

NYU-x, Computer Vision Lab - Link

Graduate Researcher, guide: Prof Saining Xie

Jan 2023 - Present

NYC, NY

- Setup **TPU** infrastructure, parallelized training and replicated Diffusion Transformer(**DiT**) based Denoising Diffusion Probabilistic Model (**DDPM**) on **v4** TPU pods using Jax/Flax framework on **Imagenet** Dataset.
- Envisioned and implemented **TreeDiT**: a **700M Parameter** diffusion timestep based **Mixture of Experts** (MoE) Diffusion Transformer model to speedup training by **20%** and inference by **35%** with minimal impact on FID.
- Replicated Image Generation and Classification via Single Energy-Based (**EGC**) **Model (Link)** in Jax.
- Current research focus involves using diffusion models for **self-supervised** representation learning.

McKinsey & Company, Risk Dynamics Group

Associate Consultant

Jul 2021 - Mar 2022

Delhi, India

- Automated the **credit underwriting process** for the Self-Employed customer segment for a major Indian banking client; created systems to underwrite portfolio worth **60+ mil USD** annually.
- Built **5+** qualitative and quantitative models in **R** from bureau, deposits, bank statements and financial sources.
- Conducted workshops for historical data collection, ensured population stability of variables and executed complete **on-ground implementation** of models; model to be used by **100+** credit underwriters.

PROJECTS

Text2KnowledgeGraph - (Website), Github

Course: Large Language and Vision Models

Sep 2023 - Dec 2023

NYU Courant

- Built a website which uses **GPT4** API to summarize any input into an interpretable knowledge graph.
- Added capability to summarize inputs such as **Youtube Videos, PDFs, web-pages** and txt files to trees.
- Built a LLM enabled**DFS** algorithm - allowing GPT-4 to traverse graphs and answer questions.

Interactive Patient Simulator using Llama-2

Course: Cloud & Machine learning

Oct 2023 - Dec 2023

NYU Courant

- Created a **virtual patient** based diagnostic game, by replacing the ailing patient with **Llama-2**.
- Designed **prompt engineering** framework, identified data sources and introduced **10+** target diseases.
- Deployed the game frontend using **Gradio**; deployed Llama-2 on GKE **Kubernetes** Engine V100 GPUs.

TECHNICAL SKILLS

Computation related courses: Optimisation, Data Analysis, Algorithms, Numerical Methods, Machine Learning, Deep Learning, Stochastic Processes, Computer Vision, Large Language Models, Cloud and ML

Programming Skills/Software Packages: Python, PyTorch, Jax/Flax, Node.js, React, R, MATLAB, L^AT_EX, MongoDB, Git, TypeScript, Django, SQL, TensorFlow, Docker, Kubernetes, GCP