Adithya Iyer

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EDUCATION

Courant Institute of Mathematical Sciences - New York University   New York, NY
Masters in Computational Science   *Aug 2022 - May 2024*
Courses Undertaken: *Machine Learning, Fundamental Algorithms, Numerical Methods*

Indian Institute of Technology Bombay   Mumbai, India
Dual Degree(Btech+Mtech) in Materials Science   *Jul 2016 - May 2021*

EXPERIENCE

McKinsey & Company, Risk Dynamics Group   Jul 2021 - Mar 2022
Associate Consultant   *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.
- Modified rating cutoffs based on risk appetite, and launched a **pan-India pilot** to kick-off adoption of model.

Round Finance   May 2022 - Aug 2022
Backend Development Intern   *Mumbai, India*
- Designed and implemented backend systems and APIs in **AWS Lambda/MongoDB** by leveraging ***Node.js*** to enable instantaneous verification of payments in **cryptocurrencies** for the RoundPe payment gateway.
- Ideated, structured and implemented the **crypto-donation link** back-end system to accept crypto donations.
- Setup email, authentication and selective data access to different users/admins by using JSON Web Tokens.
- Conducted load testing of concurrent payments; set up **API rate limits** to protect against malicious activity.

PROJECTS

Missing Data Importance Weighted Autoencoder (MIWAE)   Sep 2019 - Dec 2019
Guide: Prof. Jes Frellsen   *DTU Copenhagen*
- Reviewed literature on generative models, variational inference, sampling techniques and data imputation.
- Implemented Importance Weighted Auto-encoder (**IWAE**) by **Burda et al.** in PyTorch.
- Implemented a custom Importance Sampling based lower bound for Missing-at-Random (MAR) pixels in images.
- Built the **MIWAE** model by training on MAR data; produced complete images from incomplete test dataset.

Structure-Property Relations from Microstructural Images - Thesis   Jul 2020 - May 2021
Master's Project: Guide: Prof. M P Gururajan and Prof. Hina Gokhale (IIT Bombay)   *IIT Bombay*
- Awarded **Undergraduate Research Award (URA3)** for excellence in research by the Dean.
- *MIST (MIcrostrusture STatistics): A open source library in Python for the analysis of anisotropic microstructures*: **paper accepted for publication**, library can be found here.
- Designed a **Quick Union-Find** based **Hoshen-Kopelman** clustering algorithm for periodic binary images.

Budnip : Copernicus Accelerator, European Space Agency (ESA)   Jan 2020 - Jan 2021
Co-founder : Mentored by Dr Alireza Taravat, Deimos Space UK   *Remote/Copenhagen*
- **Won** the **Oi-X Hackathon** conducted by **Denmark Technical University** and **the Copernicus Program**.
- Built **80+ indices** based on ESA Sentinel-2 satellite spectral images; removed images with excessive cloud cover and performed data augmentation and image-stitching to deal with large raster image sizes.
- Built a **U-Net** based semantic segmentation Deep learning model to classify crops based on vegetative indices.
- Presented poster titled '***Comparative Study of Neural Networks and Machine Learning Models for Winter Wheat Crop Classification in Denmark***' at the ESA EO ϕ week 2020.

TECHNICAL SKILLS

Computation related courses: Process Control, Optimisation, Data Analysis, Algorithms, Numerical Methods, Machine Learning, Digital Image Processing, Deep Learning, Probability and Random Processes

Programming Skills/Software Packages: Python, PyTorch, Node.js, React, R, MATLAB, LaTeX, MongoDB, Git, TypeScript, Android Studio, Java