

Adithya Jairam Iyer

🔗 [adithyaiyer1999.github.io](https://github.com/adithyaiyer1999)

✉ adithyaiyer1999@gmail.com

📄 [adithyaiyer1999](#)

Research Interests

• Deep Learning • Computer Vision • Remote Sensing • Computational Materials Science

Education

Indian Institute of Technology Bombay	GPA: 8.88/10	2016-2021
Dual Degree(Btech+Mtech) in Metallurgical Engineering and Materials Science		
Technical University of Denmark (DTU)	GPA: 9.33/10	Fall 2019
Student Exchange Program		
Rajiv Gandhi Academy of E-Learning, Pune	12 th Std. Percentage 87.6%	2014-2016
DAV Public School Nerul, Mumbai	10 th Std. Percentage 95.6%	2008-2014

Scholastic Achievements

- Selected as an Exchange Student (4/800+) at Technical University of Denmark (DTU), Copenhagen [2019]
- Achieved a percentile of 99.57 in JEE Mains 2016 and 98.8 in JEE Advanced 2016
- Ranked 8th in the state of Maharashtra in the Regional Mathematics Olympiad (RMO) [2015]
- Ranked in the top 1% of students in the National Standard Examination in Physics (NSEP) [2015]

Professional Experience

McKinsey & Company | Risk Dynamics Group Jul'2021-Feb'2022
Analyst/Associate Consultant Delhi

- Responsible for the complete credit underwriting automation for the Self-Employed customer segment for a major banking client; model to automate underwriting of portfolio worth 500+ Cr annually.
- Built 5+ qualitative and quantitative models from bureau, financial and other quantitative data.
- Conducted back-testing, ensured population stability of variables and planned and executed complete on-ground implementation of models; model to be used by 100+ employees.

EXL Analytics May-Jul'2019
Machine Learning and Data Science Intern Gurugram

- Automated credit risk estimation and segmentation of merchant and consumer accounts based on their transaction history by implementing NLP and Machine Learning models
- Built 50+ financial variables that captured credit risk by pre-processing over 3 million data entries
- Predicted probability of default and improved Gini by 500 basis points over existing credit risk models
- Received a Pre-Placement Offer for exemplary performance during the course of the internship

Research Experience and Projects

Structure-Property Relations from Microstructural Images 🐍 Apr'2020-Present
Master's Project: Guide: Prof. M P Gururajan and Prof. Hina Gokhale IIT Bombay

- Awarded Undergraduate Research Award (URA3) for excellence in research by the Dean
 - Reviewed literature about the state of the art statistical descriptors of Microstructural images
 - Derived Spatial Probability Distributions of local states in Cahn-Hilliard generated binary microstructures after pre-processing and benchmarked results with state of the art python libraries
 - Implemented a custom Quick Union-Find based Hoshen-Kopelman clustering algorithm for binary images with periodic boundary conditions
 - Calculated parameters such as precipitate size distribution, sphericity and inclination for generated microstructures
 - Introduced a precipitate tracking algorithm on binary microstructures to track local states during evolution
 - Incorporated Level-set methods to calculate interfacial velocity and compared results with analytical solutions
 - Formulated and implemented a Monte Carlo method to quantify convexity of precipitate shape
 - Compared evolution of isotropic, and anisotropic microstructures on the derived statistical and spatial parameters
- Future research focused on using the derived features to formulate Structure-Property Relationships in Anisotropic simulated and experimental microstructures

Missing Data Importance Weighted Autoencoder (MIWAE) ☞

Sep-Dec'2019

Guide: Prof. Jes Frellsen

DTU Copenhagen

- Reviewed literature about generative models, with emphasis on variational autoencoders
- Implemented Importance Weighted Autoencoder (IWAE) by Burda et al. on MNIST dataset using Pytorch
- Removed pixels to create incomplete MNIST dataset; used custom imputation functions pre-training
- Built a MIWAE by training on imputed data; produced complete images from incomplete test dataset

Planner App : Android application to manage tasks ☞

May-Jul'2018

Seasons of Code: Web and Coding Club IITB

IIT Bombay

- Built an Android application where users can store, delete and edit their daily from any android device
- Designed the network architecture on the Django Web framework; based interaction through REST APIs
- Enabled sharing of tasks between users by implementing models like many-to-many fields and foreign keys
- Implemented the Retrofit HTTP client in Android Studio to manage requests with the server

The Saviour: Game Development

Mar'2018

Ubisoft Game Jam

Ubisoft - IIT Bombay

- Was one among only 3 teams selected to represent IIT Bombay in the Ubisoft Game Jam 2018
- Built a multi-level 3D arcade game using the Unity Game Engine while working in a team of 5

Entrepreneurial Venture

Budnip : Copernicus Accelerator, European Space Agency (ESA)

Dec'2019-Present

Mentor: Dr Alireza Taravat, Deimos Space UK

Using Deep Learning to detect crop features and diseases by analysing satellite imagery from Sentinel 2

- Winner of the Oi-X Hackathon jointly conducted by DTU Skylab and Copernicus Programme in Denmark
 - Attended the start-up bootcamp in Helsinki, Finland as part of the European Space week and selected to be a part of the Copernicus Accelerator, a platform by the ESA for a period of 1 year
 - Built the pre-processing pipeline to extract raster data from Sentinel Level-2A; Built 15+ vegetative indices
 - Generated training data from raster and shape-files, built data augmentation tools to expand the dataset
 - Built a U-Net based semantic segmentation Deep learning model to classify crops based on indices created
 - 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 ☞
- Received business and market related training with the Copernicus Accelerator Training Lab
- Oct'2020
- Conducted 40+ interviews with potential business partners to identify target market and build business model
 - Finalist and 2nd runner up in the Copernicus Masters - University Challenge 2020 ☞

Teaching Experience

MM217-Data Analysis and Interpretation

2020

Teaching Assistant

IIT Bombay

- Conducted fortnightly tutorials on statistics for 2nd year undergraduates on the R Programming language
- Involved in correction of exams and addressing conceptual doubts for a class of 130+ students

Relevant Coursework & Programming Skills

- Computation & Modelling: Process Control, Simulation and Optimisation, Data Analysis and Interpretation, Numerical Analysis, Introduction to Machine Learning and Data Mining
- Image Processing & Deep Learning: Digital Image Processing of Remotely Sensed Data, Deep Learning
- Miscellaneous: Probability and Random Processes, Linear Algebra, Differential Equations, Calculus
- Online Courses: Data Structures and Algorithms(Princeton), Computer Vision(Microsoft)
- Programming Skills/Software Packages: Python, R, C++. JAVA, MATLAB, L^AT_EX, SNAP

National and International Debate

Prague Open, Czech Republic	<ul style="list-style-type: none">● Semi-Finalist and 5th best team● 7th best speaker, beat 50+ participants● Defeated top European teams
COEP Debate'19, Pune	<ul style="list-style-type: none">● Finalist● 4th best team
SMC Debate, Chennai	<ul style="list-style-type: none">● Semi-Finalist● 8th best team
The IIT Bombay Inter-Varsity Debate	<ul style="list-style-type: none">● Organizing Committee: Registrations Head● Managed 250+ Participants