Aditya Kharbanda

Consulting

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○ https://github.com/K-Aditya-25 | in https://www.linkedin.com/in/aditya-kharbanda-657984a0/ |
https://kharbanda25.hashnode.dev | https://www.kaggle.com/adityakharbanda25

Education

Trinity College Dublin (TCD)   Sept 2023 - May 2026
M.A.I. **(Magister Arte Ingeniaria)** in Computer Engineering | <u>Link to all courses</u>   *Grade: 1 (First Class Honours)*

Thapar University   Sept 2021 - May 2023
B.Tech, Computer Engineering, 2+2 Credit Transfer Program with TCD   *CGPA: 7.7 / 10.0*

Experience

Research Intern   May 2024 - Aug 2024
Makers Lab, Tech Mahindra   *Noida, India*

- Built an **Image Classification** pipeline on **PatternNet Dataset** with **98%** accuracy.
- Developed an **Image Transformation** pipeline to convert daylight images into adverse weather conditions.
- Achieved image transformations through **Neural Style Transfer** using the **VGG-19** model.
- Conducted in-depth research on **Diffusion Models**; applied the **Instruct Pix2Pix** diffusion model to transform daylight images into adverse weather scenarios.

Projects

Formula-1 Car Classifier   Jun 2024
A machine learning model that identifies the team of a Formula 1 car from its image.   *Tensorflow, Keras, Numpy*

- Implemented **transfer learning** on the **Efficient Net B0** model.
- Achieved a **20% increase** in accuracy and a **52% decrease** in loss by **fine-tuning** the top 20 layers.
- Visualized results with a **Confusion Matrix** and conducted a comparative study with multiple models.

Morse Code Learning Game   Apr 2024
A microprocessor-based game to teach Morse code through progressive difficulty levels. *C, ARM Assembly, GitLab*

- Developed a multi-level game requiring users to input Morse code sequences, using **Raspberry-Pi** for user input.
- Created separate C files for handling UI, Morse code logic, and level progression, with **over 250 lines of code**.
- A button press of less than a second meant **dot**, and more than a second meant **dash**.
- Led a team of 5 as the **Project Workflow Owner**, tracking deadlines, and ensuring timely milestone achievement.

Dublin Bus Route Finder   Nov 2023
Djikstra Algorithm based bus route finder in C.   *C*

- Built a **graph-based model** of Dublin's bus system with pre-loaded data from <u>data.smartdublin.ie</u>.
- Implemented **Dijkstra's algorithm** for shortest bus routes.
- Loaded and parsed large CSV files to construct an undirected graph.
- Coded graph operations and route-finding in **C**.

Volunteering and Achievements

Book Prize Holder, Trinity College Dublin- Academic Year 2023-2024
Open Day Volunteer, School of Computer Science and Statistics, TCD: 2023-2024

Skills

Programming Languages: Swift, Python, C, C++
Libraries and Frameworks: TensorFlow, Keras, Pytorch, Scikit-Learn, Pandas, Seaborn, NumPy, Matplotlib, SwiftUI
Technologies & Tools: Git, GitHub, GitLab, VS Code, Microsoft Word, Microsoft Excel
Communication: Technical Blog Writing, Public Speaking, Debating, Pitching

Courses And Certifications

Deep Learning Specialisation: DeepLearning.ai, Stanford Online | Coursera

Machine Learning Specialisation: DeepLearning.ai, Stanford Online | Coursera