Aditya Kumar

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EDUCATION

INDIAN INSTITUTE OF TECHNOLOGY DELHI

B.Tech in Electrical Engg
2015 - 2019 | New Delhi, India

COURSEWORK

Mathematics
Calculus, Algebra, Statistics
Probability & Stochastic Processes

Machine Learning
Intro to Machine Learning
Advanced Machine Learning
Digital Image Processing
Intro to Deep Learning
Computer Vision
Natural Language Processing*

Programming
Data Structures
Control Engineering
Programming for Data Science
Analysis and Design of Algorithms

SKILLS

PROGRAMMING

Very Familiar:
Python • PyTorch • PyTorch Lightning
Keras • Pandas • Sk-Learn • Xgboost

Familiar:
Tensorflow • MATLAB • OpenCV
JAVA • LaTeX

SOFT SKILLS

Bias for Action • Curiosity • Ownership
Open minded • Empathy • Collaborative

COURSE PROJECTS

• Implemented **YOLOv3** from scratch to do real-time detection on custom data
• Trained and implemented **Pix2pix** to generate a photo-realistic composite

INTERESTS

• Developing impactful code solutions
• Reading and Writing technical Blogs
• **Sports:** Cricket, Table-Tennis, Golf

EXPERIENCE

NYMBLE | Lead AI Engineer
Oct 2023 - Present

Led the development of an efficient search system for recipe and ingredient retrieval, alongside a comprehensive suite of foundational cooking technologies including food segmentation, ingredient localization, frying models, and pre-check auditors for quality control, addressing issues such as camera blur, splatter, and food lump detection.

FLIPKART | Applied Scientist
Jan 2020 - Sep 2023

FashionAI: Fine-tuned a **Stable Diffusion** model using Masked **Textual Inversion** and **LoRA**, tailored specifically for the fashion industry and were showcased to potential sellers, opening up exciting new revenue streams. The model's attribute adherence accuracy was close to **75%**, compared to baseline of around **50%**.

Competitive Intelligence Platform: Developed CIP, an advanced Analytics tool that extracts customer experience data from four major social media platforms across eight Business Units (BUs). Overcame challenges related to data tagging by iteratively designing and improving rules. CIP also provides the ability to track competitors' performance for informed business decision-making.

Fine-tuned a pre-trained **T5** model using multi-task learning to extract **ABSA** (Aspect-Based Sentiment Analysis) tags, **BU** (Business Unit) tags using **NER** (Named Entity Recognition), and locate pain points of customers through a **QA** (Question-Answering) task, achieving F1-scores of **84.3%**, **88.5%**, and **84.7%**, respectively.

Used an Ensemble of regression models to predict the Net Promoter Score (NPS) for the following week with a **MAPE** of **2%** and the Market Share for each of the eight BUs with an **MAE** of **1.5%**. Provided CXOs with a deeper understanding of the company's performance through data-driven decisions that helped stay ahead of the competition

SAMSUNG RESEARCH INSTITUTE | Engineer I
Jun 2019 – Dec 2019

The project aimed to recognize characters, emojis, hand gestures, etc., one could create by moving fingers in the air without wearing any sensors. Trained a MobileNet version of DenseASPP from scratch to do the hand segmentation with an **accuracy** of **98%**

BIOMEDICAL IMAGING LAB | Undergraduate Researcher
Aug 2018 – May 2019 | IIT Delhi

Collaborated with Medanta Hospital to automate the segmentation of liver and lesion from the abdominal volume and improve the performance of final downstream classification pipeline - Healthy v/s Cancerous. Trained an SVM on handcrafted features designed under the supervision of a radiologist and boosted the classification **accuracy** by **20%** at the patient-level. Finally, achieved a **dice coefficient** of **96%** (liver) and **80.4%** (lesion) on the LiTS dataset using the H-DenseUNet architecture.

PUBLICATIONS

[1] R. Gupta, A. Kumar, S. Chaudhury, B. Lall, and V. Kaushik. Data adaptive compressed sensing using deep neural network for image recognition. *IEEE: 2020 National Conference on Communications*, 2020.

[2] A. Kumar, S. Gupta, A. Sahu, and M. Kant. Deriving customer experience implicitly from social media data. *ACM Web Conference*, 2022.