KSHITIJ SEKHAR DUTTA

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EDUCATION

MSc. Computer Science, University College Dublin
Sep 2024 – Sep 2025 | Dublin, Ireland
GPA: 3.7 (Through First Semester)
Relevant Coursework: Deep Learning, Generative AI: Language Models, Human-Centred AI, Text Analytics, Information Visualization, SQL Programming and Relational Databases.

BTech. Computer Science, Manipal University Jaipur
Aug 2020 – Jul 2024 | Jaipur, India
Graduated with First Class Honours (8.5 CGPA)

SKILLS

Languages: Python, R, SQL, Java, C++

Libraries & Frameworks: Pandas, Numpy, Seaborn, Scikit, Matplotlib, NLTK, SpaCy, TensorFlow, OpenCV, Pytorch, Keras, Streamlit

Platforms: *Cloud:* AWS (Lambda, EC2, S3), Google Cloud; *Development:* Salesforce, Azure ML Studio, IBM Watson, Visual Studio Code, Jupyter Notebook; *Utility:* Microsoft Office, MLFlow

Databases: MongoDB, MySQL, Oracle

Tools: *Version Control:* Git, Github; *Visualization:* Tableau, Vega-Lite; *Agile Tools:* Jira, Kanban

Soft Skills: Communication, Collaboration, Creativity, Adaptability

PROJECTS

Compressed Video Enhancement
Used a GAN with Deformable Convolution and QP Adjustment (to address different compression levels) to enhance the visual quality of compressed videos by ~20%. The model is implemented using PyTorch, CUDA, and Python, with video data managed through H.265 compression and optimized for training using LMDB databases.

Sales Forecasting Using Time Series Data
Developed a CNN-LSTM model for sequential and spatial feature extraction in sales forecasting. Optimized LightGBM with hyperparameter tuning for efficient gradient boosting. Engineered calendar-based features, lag variables, and categorical encodings to enhance predictions. Implemented memory-efficient pipelines for large-scale data processing. Utilized NumPy, Pandas, TensorFlow, and LightGBM for model development and evaluation.

Sentiment Analysis for Advertisements
Targeted advertisement oriented project wherein we check the best subreddits to target and advertise products. Uses bot detection to differentiate between bots and real people with an accuracy of 85%, uses VaderSentiment to detect the emotions of posts in a subreddit and uses various factors such as karma and Gunning-Fog index to find a subreddit score to best display a product.

The sentiment analysis part of the project was later integrated with a web crawler working with Reddit APIs to scrape over 220,000 points of data. I analyzed key trends and discussions across subreddits, revealing insights into user behaviour and sentiment polarity. This study was published in the International Journal of Computer Applications (0975 – 8887) Volume 186 – No.24, June 2024.

Please visit my GitHub for more projects

CERTIFICATIONS

- Python For Data Science and AI by IBM
- Database Foundations by Oracle
- Salesforce Developer Virtual Internship
- Microsoft Azure Machine Learning Credentials
- Cybersecurity Essentials by Cisco Networking Academy

For more certifications, please visit my LinkedIn

WORK EXPERIENCE

Intern, Adani Airport Holdings Ltd
Feb 2024 – Apr 2024
- Collaborated with a team for the integration of legacy systems with emerging technologies, resulting in improvements in operational efficiency as part of digital transformation initiatives.
- Designed and fine-tuned a domain-specific Large Language Model (LLM) using proprietary data from Adani Airports to support internal reporting and analytics tasks.
- Adapted pre-trained transformer models for tasks such as document classification and information extraction in the context of airport operations, improving the reliability of NLP outputs in internal systems.
- Optimized model performance through hyperparameter tuning, distributed training, and low-latency inference techniques.
- Ensured timely reports and updates via Kanban boards within an Agile ecosystem.

AI/ML Intern, Wictronix
Jun 2023 – Aug 2023
- Worked with a government organisation to deploy a traffic analysis system at over 25 critical traffic junctures.
- Developed a proprietary computer vision model utilizing RoboFlow and YOLOv8, achieving a 98% accuracy in real-time identification and labelling of speeding vehicles at high-traffic intersections.
- Improved model training and performance, reducing false positives and improving response time for traffic violations (from about 2s to <200 ms).

Intern, DeFactoED
May 2023 – Jul 2023
- Created content related to recent educational trends such as the adoption of generative AI models in the classroom.
- Conducted surveys for 100+ top educational institutes across South-East Asia.
- Visualized key findings through infographics, enabling clear communication of trends and patterns to stakeholders.
- Collaborated with experts in the digital space, including members of the Turing Institute, to discuss developments in AI and its implications for education.

LEADERSHIP & VOLUNTEERING EXPERIENCE

Technical Lead, ACM - MUJ Student Chapter
Sep 2020 – Dec 2022
- Delivered talks on topics like Explainable AI (XAI) and ChatGPT to over 200 Freshmen as a part of our AI Literacy Month event (one of my undertakings).
- Conducted and finished as a Top 3 team in hackathons like Defi-Hacks, Ctrl-Alt-MUJ (won), CryptX and Code Relay.

Caveat Lector Publishing Team, Literature Society UCD
Oct 2024 – present
- Established a clear support system for aspiring authors to get their work published in the Caveat Lector Magazine.
- Reviewed and selected articles and photos for the magazine.

Curation Co-Lead, Litmus MUJ
Feb 2022 – Dec 2022
- Worked as part of the Content and Promotions working teams.
- Curated books and articles for Dead Reader's Society, our monthly bookclub.
- Organized events on an inter-collegiate scale (1000+ attendees).

Teaching Volunteer, BGS National Public School India
Apr 2023 – Jan 2024
- Taught 30+ Right To Education students from impoverished backgrounds; various subjects such as English, Mathematics and Computer Science at a middle school level.
- Developed teaching materials such as PowerPoint Presentations, worksheets and charts.