KSHITIJ SEKHAR DUTTA

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EDUCATION

MSc. Computer Science, University College Dublin
Sep 2024 – Sep 2025 | Dublin, Ireland
GPA: 3.47 [2:1 Achieved]
Relevant Coursework: Machine Learning, 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
CGPA: 8.5 [First-Class Distinction Achieved]

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.
- Contributed in the design and fine-tuning of a domain-specific 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.

IoT Intern, Yhills 🔗
Jul 2022 – Sep 2022
- Gained proficiency in Arduino microcontroller programming, integrating sensors, actuators, and communication modules, deploying IoT-based solutions for smart home automation.
- Implemented cloud-based remote monitoring by integrating MQTT protocols with ThingSpeak, enabling seamless data visualization and control.

CERTIFICATIONS

- Python For Data Science and AI by IBM 🔗
- Database Foundations by Oracle 🔗
- Salesforce Developer Virtual Internship 🔗
- Microsoft Azure Machine Learning Credentials 🔗
- Generative AI Learning Paths by Google 🔗
- Cybersecurity Essentials by Cisco Networking Academy 🔗
More on my **LinkedIn** 🔗

SKILLS

Languages: Python, R, SQL, C/C++, HTML/CSS

Libraries & Frameworks: Pandas, Numpy, Scikit, Matplotlib, NLTK, SpaCy, TensorFlow, OpenCV, Pytorch, LangChain, Keras, XGBoost, Streamlit, Seaborn, Plotly, Hugging Face Transformers

Platforms: *Cloud:* AWS (Lambda, EC2, S3), Google Cloud, Azure ML Studio; *Development:* Salesforce, IBM Watson, Visual Studio Code, Jupyter Notebook; *Utilities:* Docker, FastAPI, MLflow, Chainforge, GitHub Actions, Microsoft Office

Databases: MongoDB, MySQL, Supabase, Oracle

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

Soft Skills: Communication, Collaboration, Creativity, Adaptability

PROJECTS

CLI-Agent 🔗
UCD capstone project in which we developed an **AI-powered assistant with MCP integration** that lets you manage dev tools, environments, ports and processes, SSH/Git, VS Code extensions, and generate code using natural language; all from the convenience of your command line. Fully supports **Windows, macOS, and Linux** (Debian/Ubuntu based) with platform-aware install logic.

MeetPlot 🔗
Developed an NLP pipeline to analyze meeting transcripts by parsing .vtt captions into structured segments with timing, speaker attribution, and questions. Used **NLTK** for sentiment analysis, collocations, and frequency insights; **spaCy** for named entity recognition; and **NetworkX** to model speaker interactions and topic relationships. Generated an automated **PDF report** (via ReportLab) integrating charts, word clouds, sentiment timelines, and key communication metrics.

Counterfactual Visualization 🔗
xAI project in which I built a **TensorFlow CNN** on the Kaggle Cats vs Dogs dataset and engineered a **gradient-based optimization** engine that reliably flips model predictions while minimizing perturbations. Has end-to-end real-image loading and preprocessing, tuned loss functions for stability, automated evaluation metrics, and added **visualization tooling** that exports heatmap comparisons.

LEADERSHIP & VOLUNTEERING EXPERIENCE

Caveat Lector Publishing Team, Literature Society UCD
Oct 2024 – May 2025
- 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.

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.

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.

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).