# Aniket Dash

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## TECHNICAL SKILLS

- **Languages & Technologies**: Python, PyTorch, Pandas, NumPy, SQL, MySQL, PySpark, Git, LangChain, Ollama, LangGraph
  **Visualization Tools**: Matplotlib, Seaborn, Power BI
  **ML/Engineering Tools**: Google Earth Engine, Docker, FastAPI, scikit-learn, OpenCV, Streamlit

## EXPERIENCE

- **Cropin** — Remote
  *Data Science Intern* — *Nov 2024 – Apr 2025*
  - **SimCLR for Satellite Scene Understanding (source)**:
    * Built a self-supervised SimCLR framework using ResNet-18 and ResNet-50 backbones to pretrain a large-scale encoder on unlabelled satellite imagery, addressing annotation scarcity.
    * Evaluated learned representations using t-SNE visualizations and fine-tuned the encoder for downstream scene classification, achieving 79% accuracy.
  - **Cloud-Free Reconstruction of Landsat Imagery (CMSN) (source)**:
    * Implemented a coarse-to-refined multitemporal synchronous network (CMSN) to reconstruct cloud-free Landsat imagery from cloud-contaminated inputs.
    * Built a scalable Google Earth Engine (GEE) pipeline for cloud-masked patch generation with controlled coverage, and evaluated reconstructions using NDVI, PSNR (33 dB), and SSIM (0.98).

- **Dopamine Dose** — Odisha, India
  *Business Analysis Intern* — *Aug 2023 – Feb 2024*
  - **Operational Optimization (source)**: Performed data-driven business and customer analysis, improving profit margins from 39.25% to 50.27%. Proposed actionable strategies for menu optimization and delivery partnerships.

## PROJECTS

- **ChangeSense (source)**: Built a YOLOv8-seg + LLM-based structural change detector with mAP 0.74, fully Dockerized and integrated with CI/CD via GitHub Actions.

- **ResearchGraph (source)**: Developed a LangGraph-powered research assistant using Ollama (LLaMA 3.2 1B) with vector search, classification, and iterative summarization for context-aware paper summarization.

- **SentimentAnalyser13 (source)**: Optimized LoRA fine-tuning of LLaMA 3.1 8B Instruct for 13-language sentiment classification, achieving 0.81 macro-F1.

- **DeepFake Detector (source)**: Built an AI-generated speech deepfake detector using the IndicTTS dataset; trained a custom CNN on mel spectrograms and fine-tuned Wav2Vec2, achieving ROC-AUC 0.98.

## EXTRAS

- **Newsletter - Geophonic**: Exploring how music, earth observation, and data science connect.

- **5th Place, Pan-BS ML Challenge**: Fake News Detection in Dravidian Languages, IIT Madras (2024)

- **Course Topper**: Business Analytics, IIT Madras (2023)

- **1st Position**: Mathematics Expo for Rapid Multiplication Methods, Bhubaneswar (2016)

## EDUCATION

- **Indian Institute of Technology, Madras** — Chennai, India
  *Bachelor of Science in Data Science; GPA: 7.0* — *Jan 2021 – Apr 2025*