

Shrutakeerti Datta

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 Github
 LinkedIn  Portfolio

EDUCATION

- Institute of Engineering and Management, Kolkata** 2022-26
B.Tech,CSE-IoT CGPA:8.74

EXPERIENCE

- Indian Statistical Institute, Kolkata** 20/12/2024-5/2/2025
Winter Intern- Machine Learning Kolkata, West Bengal
 - Currently leveraging advanced deep learning algorithms to develop a **Weighted Deformable U-Net (WDU-Net)** for **lung tumor segmentation** in CT scans. The model integrates **deformable convolutions (DC)** to dynamically adapt to irregular tumor shapes and **weight generation (WG)** modules to enhance **feature prioritization** during segmentation. Employing **Focal asymmetric similarity (FAS)** loss function validated against **state-of-the-art** methods on **LIDC-IDRI** Dataset
- Fellowship.ai** 10/07/2024-10/10/2024
ML Fellow San Francisco California , USA(Remote)
 - Enhanced a **Jupyter Notebook Extension** by developing an intelligent coding assistant for data scientists. Utilized **Recursive Feature Elimination (RFE)**, and **Principal Component Analysis (PCA)** for feature selection. Applied **KFold Cross-Validation** and **Stratified K-Fold** for **robust model evaluation** and to ensure balanced class distribution. Integrated **Random Forests**, **Gradient Boosting Machines (GBM)**, and **XGBoost** for effective ensemble methods to enhance predictive performance. Integrated **state-of-the-art (SOTA)** models from **Hugging Face**, **Google's Gemini API**. Processed **large language models (LLMs)** for precise **cell-by-cell analysis** and detection of issues such as high feature correlation, Streamlined **Early Stopping** and **L1/L2 Regularization** techniques to address model **overfitting**, and disproportionate feature importance.
- Indian Institute of Technology, Jodhpur** 15/05/2024-15/07/2024
Research Intern- Data Science Jodhpur, Rajasthan
 - Developed an advanced Eye Gaze Tracking and Pupil Size Detection System with **Hough Circle Transform** and **Dlib's Facial Landmark Detection** along with the **Starburst algorithm**. Utilized **Kalman Filters**. Explored CNN-based approaches such as **iTracker**, **GazeNet**, **EyeNet**, and **OpenFace**.
- LMNIIT, Jaipur** 22/05/24-22/07/24
Research Intern-NLP Intern Jaipur
 - Developed a comprehensive sentiment analysis system for Twitter post-reply pairs, used **VADER**, **LSTM** and **GRU** for analyzing conversational context. **Variational Autoencoders (VAEs)** and **Bidirectional Encoder Representations** from **Transformers (BERT)** combined with **sequence-to-sequence** autoencoders. Explored **tokenization**, **stemming**, and **lemmatization**. Applied clustering methods such as **K-means** and **DBSCAN**.
- IEM IEDC Research Lab** 03/10-Present
Junior Researcher Kolkata
 - Developed an advanced insect detection system for farmlands using **state-of-the-art** computer vision algorithms. Implemented **Convolutional Neural Networks (CNNs)** like **YOLO** and **Faster R-CNN** for real-time insect detection and localization, alongside feature extraction methods such as **Scale-Invariant Feature Transform (SIFT)** and **Local Binary Patterns (LBP)**
 - Integrated ensemble learning techniques including **Random Forest** and **Gradient Boosting** to enhance classification accuracy across diverse insect species and environmental conditions. This system enables early pest detection and proactive management strategies, contributing to improved crop protection and agricultural sustainability.

PROJECTS

- Celebrity Look Alike** 10/01/2024-11/03/2024
Repository
 - Developed a machine learning model that identifies users' celebrity doppelgängers using **Kaggle's CelebA** dataset and **VGG Face**. The model leverages advanced facial recognition technology **CNNs** for image processing and feature extraction
 - PCA** for dimensionality reduction, **SVMs** for classification, and **FaceNet** for face embeddings. Additional techniques such as **k-NN** and **HOG** were also utilized to enhance accuracy and performance.
- Netra Shakti : The Next Gen EYE HUB** 18/12/2024-16/1/2025
Repository

- Developed **Eye Hub**, a **low-cost** eye care platform for the **common people of India**. It features **WebRTC** and **Socket.io** for **real-time doctor consultations**, an **AI chatbot** using **DeepSeek** and **Ollama**, and a disease predictor for **inner** and **outer eye** conditions. The system leverages **EfficientNet-B0** and **ResNet-50** (PyTorch) for image-based diagnosis and an **ensemble model** for symptom-based predictions. A **SQLite** database stores patient history, enabling personalized care. Built with **Flask** for a seamless experience
- **CrimeFileX** 10/01/2024-11/03/2024
Repository
 - Developed an advanced **Developed an AI-Powered Crime Management System, enhancing law enforcement with** Face Detection, Biometric Recognition, **and** API-based Crime Analysis. **Integrated an AI chatbot for** automated assistance **and a robust, flexible database for secure crime record management. The system utilizes** ResNet-50 **and** FaceNet **for facial recognition, Fingerprint Matching using** SIFT **and** Gabor Filters, **and crime pattern analysis. Built with** Flask **and** SQLite **ensuring high performance and scalability.**

TECHNICAL SKILLS

Programming Skills:Python, JavaScript, Figma, React JS,Flask, C, C++,Java, HTML, CSS,Matlab

Technology:Data Science, Machine Learning, Deep Learning Natural Language Processing, Computer Vision,Large Language Models, Image Processing

Miscellaneous:Git/GitHub, Linux, Bash, MLOps, CI/CD Pipelines

POSITIONS OF RESPONSIBILITY

- **ML Co-Lead**, GDSC-IEM *Nov'24-Ongoing*
Organizing and contributing in the technical arenas of GDG IEM Kolkata.
- **Campus Ambassador**, Unstop *Sep'24-Ongoing*
Orchestrating a new generation of events in and outside of College.
- **Campus Mantri**, Geeks for Geeks *April'24-April'25*
Building a coding community organized workshops and competitions in the college.
- **Web Developer Volunteer**, Girl Script Summer of Code'24 *April'24-September'24*
Implemented features and fixed issues,reviewed pull requests and helped to document projects
- **Social Volunteer**, Pawzz Foundation *April'23-July'23*
Raised Funds and got awarded for the most eligible fundraiser and social worker

ACHIEVEMENTS

- **SIH'24 Finalist**Went to the Final round with our cloud based Interpolation Project
- **1st rank in IEEE Women in Engineering Hackathon** based on sustainable energy resources
- **2nd rank in Poster Competition** Unsupervised learning Radio Astronomical Images
- **Awarded with the GHC Scholarship from Anita B.org's Women Advancing Inclusion Scholarship** *GHC Scholarship'24*
- **MLH Track Winner at Hackbyte 2.0**for the Track of Godspeed held at IIIT Jabalpur
- **< Womanium|Quantum> Scholarship**awarded with the Scholarship for the Summer'24 Cohort
- **AWS AI and ML Scholarship Program**selected for Summer'24
- **SheFi Web 3 Diversion Inclusion Scholarship'24**awarded for the Summer'24 Cohort
- **ACONF Delegate HPAIR'24**Selected for Harvard College Project for Asian and International Project

CERTIFICATIONS

Machine Learning Specialization – Coursera, Deep Learning with PyTorch – Udacity, Python Fundamentals-Apni Kaksha, Complete Flask with Modules- Linkedin Learning, Data Engineering Fundamentals - Coursera, Computer Vision Fundamentals – OpenCV University, NLP with Transformers – Hugging Face, Google Data Analytics Professional Certificate – Google, MLOps with ETL Pipelines- Udacity(Ongoing).