Mrinal Raj

Portfolio: Mrinal.web
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PROFESSIONAL EXPERIENCE

- **EmendoAi** — California, USA (Remote)
  Software Development Intern — *June 2024*
  - Enhanced the AI Testing Engine Framework with a focus on modular test plans, Postman tests.
  - Designed and executed test plans for modules like Estimate, Event Profile, and Business Profile, ensuring robust API and permission validation.
  - Collaborated on schema refinement and integrated AWS services like Lambda, CloudWatch, Aurora and RDS and GenAI tools for automated test data generation.

- **CSIR- National Aerospace Laboratories (NAL)** — Bengaluru, India
  Project Intern — *Sept 2024 - Oct 2024*
  - Thresholding and morphological operations to post-process and clean machine learning-generated images, removing noise and enhancing critical features. Touch inpainting techniques, I filled in missing regions, significantly refining meta atom structure masks. This improved both image quality and data interpretation accuracy.
  - I utilized a suite of image processing and computer vision tools, including OpenCV, NumPy, Matplotlib, PIL, Imageio, Scipy, and Scikit-image. These tools allowed for efficient filtering, morphological operations, and data visualization, enabling precise image manipulation and leading to more accurate and insightful data interpretation.

- **Kalinga Institute of Industrial Technology(KIIT)** — Bhubnashwar, India
  Project Member — *Jan 2024 — July 2024*
  - Developed a lightweight, customized CNN model for automated brain tumor classification using MRI scans, achieving 99.89% training accuracy and 96.74% validation accuracy.
  - Integrated MRI datasets from Figshare, SARTAJ, and Br35H to enhance generalization, employing advanced image preprocessing, ReLU activation, log-softmax, and machine learning classifiers to achieve a precision of 98.72% and F1 score of 99.34%.

PROJECTS

- **Mail Sage (Python, Data Collection, Data processing, MongoDB)**: Developed a Python-based script for continuous data collection and processing, designed to fetch emails, scrape their content, and store the data in MongoDB. The script intelligently categorizes emails based on user-defined preferences and connects the data to a web page for real-time display. MongoDB for data storage, and a web framework for frontend integration, ensuring efficient and scalable email management.

- **Telegram Bot (Python, API)**: Telegram bot with Llama 2 language model for intelligent document processing. Engineered asynchronous PDF extraction pipeline with PyPDF2, integrated REST API endpoints for AI inference, and implemented stateful conversation handling for sophisticated document Q&A functionality.

- **Face Detection and Recognition (Python, OpenCV, Tkinter)**: Developed a Python-based face recognition tool using OpenCV and the fave recognition library to match selected images against a local database. Integrated Tkinter for file input, stored recognition results in an Excel sheet, and provided visual output with labeled face detection.

TECHNICAL SKILLS

- **Languages**: Python, C++,C, SQL, JavaScript, Typescript
- **Libraries**: Pandas, NumPy, Matplotlib, Keras, Tensorflow, OpenCV, Scikit-Learn, Pytorch, Flask
- **Additional Skills**: GIT, Github, Linux/Unix, VsCode, Jupyter notebook, AWS, Postman
- **Coursework**: Data Structures and Algorithms, Database Management Systems, Machine Learning, Data Mining

EDUCATION

- **Kalinga Institute of Industrial Technology** — Bhubaneshwar, India
  B.Tech, Computer Science and Engineering (CGPA:7.91) — *2021-2025*
- **Ganga International School** — Delhi, India
  XII, CBSE (83.83%) — *2021*

CERTIFICATIONS

- **Cisco**: CCNA, PCPA, Cybersecurity Essentials
- **Hacker Rank**: Problem Solving Basic & Intermediate
- **Udemy**: Introduction to Cloud Computing on AWS for Beginners [2024]

ACHEIVEMENTS

- **Silver Zone Foundation(Computer Sc.):**
  Secured 168th Olympiad & 34th State rank.

- **Silver Zone Olympiad(International Olympiad of English Language)**
  Secured 302th State rank.