Sai Pavan Tadem

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Portfolio
Github
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Education

- **Indian Institute Of Technology-IIT Kharagpur** — Kharagpur, India
  *Master of Technology -**Medical Imaging and Informatics** ; GPA: 8.00* — *July 2021 - June 2023*
  ***Courses:** Biostatistics,Neural Networks and applications,Digital Image Processing,Computer Vision,Pattern recognition and Machine Intelligence,Design and Analysis of Algorithms*

- **Malla Reddy Engineering College-Jawaharlal Nehru Technological University** — Hyderabad, India
  *Bachelor of Technology - **Electronics and communications Engineering**; GPA: 8.23* — *July 2015 - June 2019*
  ***Courses:** Probability and Statistics,Data Structures, Digital signal processing,Communication Systems*

Skills Summary

- **Languages**: : Python , MATLAB , R
- **Frameworks**: : PyTorch, OpenCV, scikit-learn, MONAI , Flask ,Gradio
- **Tools**: : GIT, Docker, Flask, Postman
- **Platforms**: : Windows, Ubuntu, AWS Cloud, Heroku

Experience

- **Teaching Assistant** — IIT Kharagpur
  MM61511-Biostatistics | Proof document | GitHub — *(Autumn 22-23)*
  - Responsible for taking tutorials and assignments in Python programming for a Lab of 45 students
- **Teaching Assistant** — IIT Kharagpur
  CS60013-Programming and Datastructures | Proof document | GitHub — *(Autumn 22-23)*
  - Responsible for taking class tutorials and creating assignments in Python programming

Publications

- **[Sai Pavan Tadem] Traditional methods in Edge, Corner and Boundary detection** | **Paper** **arXiv Aug'2022**: This review paper explains the edge, corner, and boundary detection algorithms, applications, and their limitations. It was submitted under the course subject of **Computer Vision** taught by **Prof.Debashis Sen** at IIT Kharagpur.

- **[Sai Pavan Tadem] Analysis of CycleGAN with three different datasets** | **Paper** **arXiv Aug'2022**: The original publication, "Unpaired Image-to-Image Translation using Cycle-Consistent Adversarial Networks," served as the inspiration for this paper. Developed, trained, performance evaluated with three datasets and submitted this term project paper under the course subject **Neural Networks and Applications** taught by **Prof.Debashis Sen** at IIT Kharagpur.

Research Projects

- **Accelerating MR Imaging with AI based Reconstruction** |**May'22-Ongoing** :
  The aim of this project is to make MRI scans faster with AI-based reconstruction from undersampled data.Currently working with **Transformers** on the Facebook fastMRI dataset with the **Vision, Image, and Perception Group** at IIT Kharagpur under the joint supervision of Prof. Debashis Sen **dept.EECE** and Prof.Subhamoy Mandal **dept.SMST**.

Acadamic Projects

- **White Blood Cell Classification using Image Processing** | ***To Know More***:
  - Using image processing with MATLAB, developed an algorithm to classify the four classes of white blood cells.
  - The WBC dataset is collected from kaggle. class: monocytes, lymphocytes, neutrophils, and eosinophils.
  - Extracted features using local binary patterns and a cosine similarity rule are used to classify these features.
  - The algorithm classified lymphocytes with 88.5 percent accuracy and monocytes with 81 percent accuracy.

  Tech Stack: Local Binary Patterns,MATLAB

- **AI based pneumonia detection using adaptive contrast enhancement and data augmentation** |***To Know More***:
  - Invastigated the effect of data preprocessing(augumentation & adaptive contrast enhancement) for pnemonia detection.
  - The VGG16 deep learning model is trained with and without data preprocessing using the Chest X-ray Kaggle dataset.
  - Proved that AI models can do better feature learning even with small-sized datasets with preprocessing.

  Tech Stack : Python, PyTorch ,OpenCV

- **AI based Tele-Pathology** |**YouTube**:
  - Designed, developed, and deployed a fully functional web application for AI based pathology classification and segmentation.
  - Features: Registration, login, pathology sample submission, Emergency alert section from pathologist, Report generation.

Tech Stack :Python, PyTorch, Git, Heroku Cloud , Azure, Flask , Gradio

COURSEWORK INFORMATION

- Computer Vision Pattern Recognition and Machine Intelligence in Medicine Neural Networks and Applications
- Bio Statistics Digital Image Processing and Applications Design and Analysis of Algorithms Data Analytics

EXTRA CURRICULAR ACTIVITIES

- **Indian Symposium on Machine Learning-IndoML-2022** IIT Gandhinagar
  My research work is appreciated and provided an opportunity to do the poster presentation. *December-2022*
- **Cambridge Center for AI in Medicine-CCAIM | Summer School** Online
  The panel discussed a wide range of healthcare issues and how AI is assisting in achieving state-of-the-art. *Sep'23*