

Kanak Raj

LinkedIn: kanak-raj-a8278i

Github: github.com/kanak8278

Email: kanak8278@gmail.com

Mobile: +918529145565

EDUCATION

- **Birla Insitute of Technology Mesra** Ranchi, Jharkhand
• *Integrated Master's of Science - Mathematics & Computing; GPA: 8.87* 2019 - 2024 (Ongoing)
- **Lal Bahadur Shastri Senior Secondary School** Kota, Rajasthan
• *AISSCE 12th Board; 92.60%* 2017 - 2019
- **Jawahar Navodaya Vidyalaya** Bokaro, Jharkhand
• *AISSE 10th Board; GPA: 10* 2017

SKILLS

- **General:** Python, C/C++, SQL, Docker, Kafka, Git/GitHub, AWS, Selenium, BeautifulSoup
- **Web Tech:** HTML/CSS, Flask, JavaScript, Beego/Gin(Golang)
- **ML:** Tensorflow/Keras, PyTorch, Scikit-Learn, OpenCV, OpenVino, TensorRT, SpaCy

EXPERIENCE

- **Saarland University** Germany
• *Visiting Researcher* May 2023 - Aug 2023
 - Conducted research in **Satellite Image Superresolution**, enhancing **disaster analysis** through high temporal frequency & low-resolution images using **GAN & Diffusion** models under Dr. Ingmar Weber and Ferda Ofli.
- **University of Maryland, Baltimore** Remote
• *Research Intern* Oct. 2022 - April 2023
 - Worked on developing **Personalized Response Generation** models using **reward scaling** and **information retrieval**, leading to submission for EACL'24 and improved **NUBIA** score by **10%** under Manas Gaur.
- **EdgeNeural.ai** Remote
• *AI Engineer Intern* June 2022 - Aug 2022
 - Engineered **Training** and **Inference** pipeline, Optimized and benchmarked DL models(YOLO, ResNet, BERT, UNet) with **Quantization** and **TensorRT**, achieving **10-15x** speedup in latency.
- **AI Institute, University of South Carolina** Remote
• *Research Intern* Dec. 2022 - April 2023
 - Formulated cross-modal Recipe Retrieval and developed cooking action recognition for recipe analysis, achieving **95% Recall** score leading to paper **Cook-Gen** at **IEEE SMC'23** under Dr. Amit Seth.
- **Visual Learning and Intelligence Lab** IIT Hyderabad
• *Research Intern* Nov 2021 - April 2022
 - Devised **SFFNet**, lightweight **0.2M params** U-Net variant, elevating **Semantic Segmentation** performance on Dental X-Ray, improving **DICE** and **F1** by **13%** and **7%**, resulting in acceptance at **IEEE APSCON'23**
- **Rhizicube Technologies** Remote
• *Software Engineer Intern* June 2021 - Sept. 2021
 - Designed **Server & REST APIs** in Golang(Gin) and built a **Kafka** based real-time data streaming pipeline for a **Consumer Data Platform**. Independently developed **LinkedIn** and **Organization scrapers** using **Selenium** for financial data and reports.

PROJECTS

- **Machine Learning Algorithm Selector (Linux Foundation Networking):** Contributed to Anuket Project, developed command-line tool for ML algorithm selection based on the use case and data. Utilized NLP for enhanced user response extraction. (October '21)
- **Cyclone Intensity Detection (Smart India Hackathon, MHRD, India):** Build Cyclone Intensity Detection Application using Deep Learning (Image Processing) under ISRO, utilizing INSAT-3DR satellite data. **Tech:** Remote Sensing, Contrastive Learning, Object Detection, Classification, PyTorch
- **Heart Rate Estimator (IEEE Mega Project):** Remotely detect an individual's heart rate per minute from a still video of his/her face. Implemented Eulerian Video Magnification Algorithm initially developed by MIT-CSAIL Lab. **Tech:** Python, OpenCV, Tensorflow/Keras, SciPy, Numpy
- **House Price Prediction:** Worked on monthly House Price Index, US prediction. Collected data from various websites including US-FRED. **Tech:** Pandas, Matplotlib/Seaborn, Sklearn, Regression, XgBoost

PUBLICATIONS

- **Cook-Gen:Robust Generative Modeling of Cooking Actions from Recipes at IEEE SMC 2023.:**
- **Spatial Field Fusion Network (SFFNet) for Panoramic Dental X-ray Segmentation at IEEE APSCON 2023.:**

LEADERSHIP & VOLUNTEER EXPERIENCE

- **Joint President**
- Society for Data Science, BIT Mesra
 - **Leadership:** Led a community of 75+ data-focused individuals to organize eastern India's largest Data Science Summit in 2021 and 2022.
 - **Mentorship:** Conducted multiple workshops on Python, Data Science, Machine Learning, Deep Learning, and using Git/GitHub in Open Source for 500+ engineering graduates.