Shaistha Aara

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Professional Summary

Results-driven **AI and Software Engineer** specializing in **Generative AI, LLM integration, and Transformer-based systems**. Experience in designing **scalable deep learning pipelines, fine tuning LLMs and computer vision architectures**. Adaptive to the use **of PyThon, PyTorch, TensorFlow, and cloud-based AI platforms** to develop intelligent solutions. Recognized for innovation, analytical problem-solving, and collaboration.

Experience

- **Techolution** Hyderabad, IN
  AI Intern *July 2025 – November 2025*
  - Engineered **backend modules that integrate LLMs and vision models** for real-time reasoning and natural language interaction on a robotic AI platform.
  - Enhanced a 6-layer **deep learning pipeline** for liquid-level estimation and trajectory prediction, improving system accuracy by 27%.
  - Integrated multi-camera computer vision systems, improving perception accuracy and motion planning.
  - Developed and deployed **FastAPI-based microservices** to serve LLM and computer vision inference with low-latency REST endpoints.
- **Digital Clinics Research and Services Pvt. Ltd.** Hyderabad, IN
  AI/ML Developer (Internship) *Dec 2023 – Oct 2024*
  - Developed **breast cancer biomarker detection** pipeline using YOLOv5 and Detection Transformer, achieving **0.96 mAP** on WSI datasets (ICPR-12, MIDOG-22).
  - Built an AI-powered **WSI analysis platform** for biomarker localization and classification, enabling scalable pathology workflows.
  - Automated model training, validation, and deployment pipelines for reproducible GenAI-based diagnostic systems.

Projects

- **Multiclass Organ Segmentation Transformer (UNETR)**: TensorFlow, Keras, PyTorch
  CT Image Segmentation: Designed a Transformer-based segmentation model (**UNETR: ViT encoder + UNet decoder**), achieving 0.67 Dice score on Synapse dataset. Built a Flutter visualization app for real-time medical image segmentation.
- **Healthy Breath Detection**: TensorFlow, Librosa, Vision Transformer (ViT)
  Audio–Image Analysis: Built a ViT-based model for lung sound classification by converting respiratory audio to spectrograms using Librosa, achieving 83% accuracy on ICBHI dataset.

Publications

- Subramanian, R., Rubi, R., Tapadia, R., Yerramallu, K., Farooq, M., **Aara, S.** (2025). *DCS_PathIMS: AI-powered Digital Pathology Diagnostics Platform for Breast Cancer Biomarker Discovery.* Medical Research Archives, 13(4). doi:10.18103/mra.v13i4.6481
- Dasari, K., **Aara, S.**, Budhi, H., Chigullapally, S., Sai Akhil, Y.T. (2025). *Web-Based Interface for Lip-Reading and Lip-Synchronization Using Deep Learning.* MSJ, Vol. 14(4).

Technical Skills

- **Programming Languages**: Python, C++, Java, SQL
- **AI/ML Frameworks**: TensorFlow, PyTorch, Keras, scikit-learn, NumPy, Pandas, OpenCV
- **Generative AI & LLMs**: OpenAI GPT, Google Gemini, LLaMA, RAG, LangChain, LangGraph
- **Computer Vision Models**: YOLOv5, DETR, UNETR, TransUNet, EfficientNet, Mask R-CNN
- **Tools & Cloud Platforms**: Google Vertex AI, Streamlit, Git, Google Colab, Jupyter, VS Code, FastAPI
- **Soft Skills**: Leadership, Teamwork, Communication, Project Management, Adaptability

Education

- **Keshav Memorial Institute of Technology (KMIT)** Hyderabad, IN
  Bachelor of Technology – Computer Science and Engineering (AI & ML) *2021 – 2025*
  - **CGPA:** 7.86 / 10
  - **Relevant Coursework:** Deep Learning, NLP, Cloud Computing, Data Structures, Databases

Leadership & Activities

- Class Representative (2021–2025): Led academic initiatives and student resource projects.
- Core Member, **Art Club (Aakarshan)** – Event poster design and creative direction.
- Volunteer, **Happy Minds** Mental Health Organization (2022–Present)