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भारतीय प्रौद्योगिकी संस्थान हैदराबाद
Indian Institute of Technology Hyderabad

# Job Title: AI Medical Imaging Engineer

**Laboratory:** Medical Ultrasound Research Laboratory (MURL)
**Department:** Department of Biomedical Engineering
**Institution:** Indian Institute of Technology Hyderabad (IIT Hyderabad)
**Principal Investigator:** Prof. Avinash Eranki, Ph.D.

## Position Overview

The **Medical Ultrasound Research Laboratory (MURL)** in the Department of Biomedical Engineering at IIT Hyderabad, led by **Prof. Avinash Eranki, Ph.D.**, is seeking a dedicated **AI Medical Imaging Engineer**. In this role, you will work on cutting-edge research and development at the intersection of artificial intelligence, advanced digital image processing, and ultrasound imaging technology. You will design, train, and deploy high-performance deep learning models for clinical and translational medical applications. This position will give you one of the most unique experiences in the world, working on ultrasound data from patients, cutting-edge algorithms, presenting your work at meetings and conferences, publishing your work, and meeting collaborators across the world. We will pay market salaries (no HRA/DA/TA, etc.) and commensurate with your experience.

## Key Responsibilities

### AI Knowledge & Development Expertise

- Design, train, fine-tune, and evaluate deep learning architectures (CNNs, Vision Transformers, Segmentation networks) for medical data analysis.
- Develop robust ML pipelines for model training, hyperparameter optimization, and validation against clinical benchmarks.
- Translate complex biomedical and computer vision research into high-accuracy, production-ready AI models.

### Image Processing & Analysis

- Implement advanced image processing algorithms for noise reduction, speckle filtering, contrast enhancement, and feature extraction.
- Preprocess, annotate, and manage large-scale 2D/3D ultrasound image datasets, building automated pipelines for data augmentation and cleaning.
- Develop real-time image segmentation, tracking, and object detection workflows optimized for dynamic visual streams.

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### Software Engineering & Coding

- Write clean, maintainable, modular, and highly efficient production code primarily in **Python** and/or **C++** and/or **MATLAB**.
- Optimize AI models and algorithms for real-time performance, low latency, and efficient memory usage on GPU and edge devices.
- Build scalable APIs/microservices, maintain CI/CD pipelines, and adhere to strict software documentation and version control standards.

## Required Qualifications

- **Education:** Bachelor's, Master's, or Ph.D. in Biomedical Engineering, Computer Science, Electrical Engineering, or a related field.
- **AI & Machine Learning:** Strong experience in developing deep learning models using modern frameworks (**PyTorch** or **TensorFlow**).
- **Image Processing:** Proficiency in digital image processing techniques using libraries like **OpenCV**, **scikit-image**, or **SimpleITK**.
- **Coding Proficiency:** Solid programming foundations in **Python** and **C++**, and/or **MATLAB**, with expertise in data structures, design patterns, and algorithm optimization.
- **Development Tools:** Familiarity with **Git**, **Docker**, and Linux development environments.

## Preferred Qualifications

- **Ultrasound Domain Expertise:** Understanding of ultrasound physics, beamforming, acoustic artifact handling, and signal/image acquisition techniques is a plus and will be favorably considered.
- **AI in Medical Imaging:** Experience developing AI algorithms specifically for medical modalities (Ultrasound, CT, MRI, X-ray) using specialized toolkits like **MONAI** or **ITK**.
- **Regulatory & Quality Standards:** Awareness of medical software compliance and clinical data privacy standards (e.g., ISO 13485, IEC 62304, HIPAA/GDPR).

## Apply

Link to apply:

https://forms.gle/xeQXDnYip9bd6zr17

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