Center for Digital Health & Precision Medicine

PhD Position Advertisement

AI/ML for Orthopedics Fracture Detection and Characterization

Supervisors: Dr Jithendra Mangwani (University of Leicester), Prof. Raju Vaishya (Apollo Hospitals), Dr Seth O'Neill (University of Leicester), Prof. Huiyu Zhou (University of Leicester).

Project Overview

Fractures are among the most common presentations in orthopaedics and emergency medicine. However, despite their frequency, misdiagnosis and delayed detection remain significant challenges, often resulting in complications such as malunion, non-union, chronic pain, neurovascular injury, and long-term functional impairment. To address this critical clinical gap, this project within the Centre for Digital Health and Precision Medicine (CDHPM), a joint Centre between the University of Leicester (UK), the Apollo University and Apollo Healthcare aims to develop an AI/ML-based tool(s) to support clinicians and radiologists for accurate detection and classification of lower limb fractures in accordance with established clinical standards. If successful, the project will improve clinical efficiency, and reduce time-to-treatment, ultimately optimising patient outcomes in emergency and orthopaedic care.

The PhD Scholar appointed to this project will focus on developing AI-driven computer vision models for the detection, localization, and characterization of lower-limb fractures using medical imaging data. The primary imaging modality will be X-ray, with exploratory use of CT images where available. The candidate will work with real-world clinical imaging data to build robust and clinically meaningful AI systems for fracture identification, fracture localization, and assessment of fracture stability, with an emphasis on methodological rigor, clinical relevance, and ethical AI.

Location and Funding of the Studentship

The Studentship is funded by the University of Leicester. The Scholar will be based at the CDHPM Hub in Chittoor. The Studentship is available for 3.5 years on a full-time basis. Funding will fully cover the student's stipend, tuition fees, bench fees and funding for attending conferences and for an extended visit to Leicester during the course of the Studentship. The initial stipend will be INR 47,000 per month, inclusive of HRA and is set in accordance to Government of India University Grants Commission guidelines. On successful completion, the Scholar will receive a PhD awarded by the University of Leicester.

Training and Development Opportunities

The successful Scholar will receive end-to-end training in developing and applying state-of-the-art computer vision methods (CNN-based architectures, Vision Transformers, Hybrid deep learning models) and end product testing the resulting AI Tools in clinical diagnosis of fracture. Access to large-scale

orthopaedic imaging data and clinical resources will be provided. Based within CDHPM the Scholar will receive regular supervision and mentorship from an interdisciplinary team of world-renowned experts within the University of Leicester, Apollo Hospitals and The Apollo University. The scholar will receive strong support for professional development from both the University of Leicester and the Apollo University. Scholars will be supported towards developing research independence and a competitive research portfolio and work within a positive research environment with a commitment to honesty and personal and professional growth.

Eligibility and Selection Criteria

We are looking for highlight motivated individuals who are looking to build a career in medical research and who are committed to working within the collaborative nature of the CDHPM.

Candidates should hold a MS in Computer Science, Data Science or related field, have experience with Python + PyTorch/TensorFlow and a strong interest in computer vision and medical imaging. Experience or familiarity with medical image analysis (X-ray/CT), object detection or segmentation models and working with large datasets is desirable. Candidates will need to meet the University of Leicester English Language requirements, full information for which can be found https://le.ac.uk/study/research-degrees/entry-reqs/eng-lang-reqs. Candidates should not already hold a doctoral degree in a related discipline.

Applications

For further details and to apply please visit:
https://le.ac.uk/study/research-degrees/funded-opportunities/cls-digital-health-and-precision-medicine.

Candidates will need to upload their CV, copies of their degree certificates and academic transcripts, personal statement, and provide the details for 2 academic referees.

Informal enquiries are welcomed and should be directed to Dr Lokesh Ravi, Deputy Director, CDHPM at lokesh_r@apollouniversity.edu.in

Deadline for applications: Sunday 8th March 2026