MSc, MPhil or PhD opportunity in Biomedical Engineering Applications

Biomedical engineering is a multidisciplinary research area where application of engineering principals and design concepts to medicine, physical sciences for healthcare purposes.

We invite applications from highly motivated and enthusiastic candidates to pursue a fulltime MSc, MPhil or a PhD under the project title entitle “Mechanical tester for biomedical engineering applications” with Dr. Angelo Karunaratne, in the Department of Mechanical Engineering at the University of Moratuwa, Sri Lanka.

This project aims to develop a mechanical test rig combined with imaging techniques to investigate bone quality (mechanical and structural) alterations during disease conditions at physiologically relevant loading rates. Successful candidate will receive a full stipend and research funding to continue MSc, MPhil or a PhD. Also during this project student will be able to perform experiments at cutting edge research facilities (Diamond Light Source Ltd.) in the United Kingdom.

Objectives:

• Design of a specialised in-situ micromechanical testing machine combine with imaging techniques for biomedical engineering applications.
• Conduct mechanical testing on healthy bone tissue at different strain rates and investigate strain rate effect on structure and functional relationships.
• Identification of prominent bone diseases in Sri Lanka and develop a literature review on their complexity.
• Develop and execute an experimental protocol to detect bone structural and mechanical alterations in an identified bone disease in Sri Lanka.
• Development of structural and mechanical model for the bone material to detect and predict bone diseases based on the measurements.

Eligibility

Candidates who have a four year degree with first class or second upper division in Mechanical engineering, Medical Engineering, Materials science, Mechatronics, Electronics, Electrical Engineering or any other relevant engineering field in a recognized university are encouraged to apply.

Student stipend and funding

• Student stipend of Rs. 40000/month and teaching assistantship (Rs. 10000/month) can be obtained based on the progress of the research.
• Tuition fee: 70% waiver can be obtained based on the progress of the research.
• Funding will be available from the University Senet Research Council Capital funding grant scheme.

Supervisor: Dr. Angelo Karunaratne (angelok@uom.lk or anjelo100@gmail.com)

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