PhD Scholarship:
Improving texture and shape analysis in MRI data

The Digital Media Technology Lab at Birmingham City University are looking to recruit an outstanding PhD applicant for research into Image processing.

The PhD position is one of BCU's STEAM scholarships, STEAM Scholarships are fully funded PhD scholarships across subjects in the Physical, Social and Life **S**ciences, **T**echnology, **E**ngineering, **A**rts and Humanities, and **M**athematics. This investment is an integral part of our research vision.

The successful candidate will receive a tax-free research stipend that tracks UK Research Council rates (currently £14,296 PA) alongside a full fee waiver to the value of Home / EU student PhD fees (currently £4,121).

Applicants should apply by completing the project proposal form, and upload this as part of their online application for the relevant area, applicants are requested to read over the project brief (below) and submit a formal application here (How to apply section). Applicants should also upload a full CV and a cover letter as part of their application, highlighting their motivation for undertaking a Ph.D., their skills, experience and suitability for the scholarship topic for which they are applying.

Complete applications should be also emailed directly to Dr Ian Williams (ian.williams@bcu.ac.uk)

Dissertation Topic Proposal:

Title:	Improving texture and shape analysis in MRI data
Aim:	To analyse and develop novel methods of image texture analysis in MRI data.
Context:	Birmingham City University's DMT Lab specialise in texture analysis applied to medical image data. The lab has developed many novel methods in texture analysis for classifying surfaces which can exist in MRI data. This project will look to asses new methods for texture analysis which can be applied to MRI data. The new methods will look to improve the segmentation and shape analysis of tumours both in a pre and post treatment stage. The texture analysis will look to quantify the extent of difference between the stages and look to measure this difference. Comparisons and performance improvements from any proposed methods will be objectively analysed in comparison to current standards in MRI data analysis. The eventual aim of this work will be to aid in treatment analysis via an objective study of texture analysis with real image data.

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Our growing research team is exploring some of the most exciting developments in the field of computing and the processing of digital media. We are active in:

- Digital media technology in the DMT Lab exploring novel techniques for medical image processing, audio processing, mixed and augmented reality and digital media distribution.
- Emerging computing research in the areas of HCI and serious games technology

We are offering a number of scholarships to highly motivated research students currently studying for PhDs, to join our teams in creating and applying expertise from our core research areas to emerging application domains.

The successful candidates should have a first class or upper second class degree in a computing or related technology subject. A Master's degree with a distinction is preferred but not essential. Candidates should display a thirst of knowledge and academic learning in the context of real world challenges and a strong desire to see their theoretical work applied in solving impactful problems. Experience of having studied our core technologies to the depth of undergraduate final year options and projects or in a master's programme is advantageous. Evidence of robust programming and implementation skills is desirable. Team working skills are essential.

Example Research Projects

- Improving task driven interaction in Augmented and Mixed Reality
- Improving region Segmentation for Paediatric Brain Tumour classification.
- Music Information Retrieval for Music Creation.
- Computer Games and Simulations in Medical Education.

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