

## **New PhD Student Position**

we are looking for highly motivated candidates for an open PhD position in the National Centre for Computer Animation (NCCA), Faculty of Media and Communication, Bournemouth University, UK. This is a fully-funded 3-year PhD studentship which includes a stipend of £14,000 each year to support living costs.

This project "Interactive Hybrid Modelling of Heterogeneous Volumetric Objects" involves the research, design and development of a generic interactive modelling software system oriented to hybrid modelling of heterogeneous volumetric objects. The overall project involves the research and development of new mathematical techniques and algorithms, and the development of novel software tools, possibly including an Application Programming Interface (API), a scripting language and a Graphical User Interface (GUI). An orientation towards the digital fabrication (3D printing) of the produced geometric models is an additional aspect of this research project. The exact scope of the project will be defined taking into account a particular PhD student's interests and skills.

This is project relevant to several application areas such Computer-Aided Design (CAD), computer simulation and animation, additive manufacturing, computer art and cultural heritage preservation. A variety of research problems are to be addressed.

Fundamental research concerned with geometric and topological representations of multi-material heterogeneous objects will benefit from new mathematical models and their mapping to data structures and operations. Applied research will benefit from the development of new efficient algorithms for realising and transforming both the geometry and physical properties of volume objects, especially multi-material ones, devising the specialist high-level language, rendering and fabrication algorithms, and system architecture design.

The beneficiaries of this project will be CAD and animation system developers, 3D printers production companies, art and design communities, and education. The output of the research in the form of the innovative modelling system will open up new application areas that are impossible to achieve using existing CAD and animation systems. Designers and animators will get easier available tools fine-tuned to their specific styles and facilitating the production of advanced multi-material volume models. Teachers and students will hopefully use the developed tools for learning and exploring mathematical and physical dynamic phenomena.

Candidates must demonstrate outstanding academic potential with preferably a 1st class honours degree and/or a Master's degree with distinction or equivalent Grade Point Average. An IELTS (Academic) score of 6.5 minimum (with a minimum 5.5 in each component) is essential for candidates for whom English is not their first language.

The direct link to the project description is <https://www1.bournemouth.ac.uk/study/courses/phd-studentship-interactive-hybrid-modelling-heterogeneous-volumetric-objects>. For further questions and

informal discussion please get in touch with Prof Alexander Pasko ([apasko@bournemouth.ac.uk](mailto:apasko@bournemouth.ac.uk)) and/or Dr Valery Adzhiev ([vadzhiev@bournemouth.ac.uk](mailto:vadzhev@bournemouth.ac.uk)).

The closing date for applications is Friday 14 April 2017.