

The Departments of Experimental Psychology and Electrical and Electronic Engineering at the University of Bristol are offering a PhD studentship to commence in March 2004. The successful applicant will be based in the Department of Experimental Psychology and will work on a project entitled

“Fusing motion information with spatial structure for surveillance applications”

under the joint supervision of Dr Chris Benton (Experimental Psychology), Dr Stavri Nikolov (Electrical and Electronic Engineering) and Dr Nick Scott-Samuel (Experimental Psychology).

The project is funded by the newly established Data and Information Fusion Defence Technology Centre (DIF-DTC).

The PhD student will receive £10,000 *per annum* for three years, and his/her fees will be paid. Further funds are available for travel and equipment.

Please note that the studentship is restricted to UK or EU citizens.

The aim of the PhD is to develop algorithms to fuse motion information into static images, with the aim of constructing a representation of dynamic information which can be displayed in a single (or several) key image(s). The main application area for this work will be visual surveillance.

The project will initially concentrate on the assessment and development of algorithms for the extraction of motion signals from video sequences. Once a suitable approach has been established, it will be implemented on available technology, and ways of compressing its output will be investigated. At this stage, the validity of the output will be tested using behavioural techniques in order to guide the subsequent choice of information compression algorithm. This algorithm will combine the motion output with static background features in a form from which it is easy for human observers to extract relevant dynamic information. The ease of extraction will be quantified *via* behavioural testing.

This project will build upon previous work in the two departments in the areas of image fusion, motion analysis and motion perception. Available systems for visualisation and analysis of image sequences as spatio-temporal volumes (based on VTK and utilising a VolumePro real-time volume rendering card) will be used. Dedicated graphics equipment (Cambridge Research Systems VSG 2/5 board) is also available for the presentation of calibrated images in the behavioural phase of the project.

Applicants will ideally have a background in either computer science, engineering or the behavioural sciences, although promising candidates from other fields will also be considered. Strong programming skills (Matlab and/or C++) are essential for the project. Previous knowledge of image/video processing and motion analysis techniques is desirable.

Potential applicants can contact Dr Chris Benton (Chris.Benton@bristol.ac.uk), Dr Stavri Nikolov (Stavri.Nikolov@bristol.ac.uk) or Dr Nick Scott-Samuel (n.e.scott-samuel@bris.ac.uk) for further information.

Application forms are available from:

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The closing date for applications is 9.00am, 16 January 2004. The likely start date will be 1 March 2004.