

## **GWR PhD Studentship in Human Robot Interaction**

This project is a partnership between the Bristol Robotics Laboratory ([www.brl.ac.uk](http://www.brl.ac.uk)) and Avian Technologies Ltd. Avian is developing technology and design expertise for high-dependability robotic applications, and is supporting this GWR Studentship at the Bristol Robotics Laboratory to study the problems of safety assurance of Human Robot Interaction in industrial service robots. The University of the West of England (UWE) and the University of Bristol (UoB) are the two academic partners.

The aim of the project shall be to research new techniques and methods necessary to prove that the interactive behaviour of service robots with humans, particularly those that are of humanoid form, is dependable and can be certified as such. The project seeks to investigate new techniques for functional design, safety analysis, and certification of this class of system in preparation for the time when industrial corporations seek to market such products.

Three major tasks are envisaged to form the overall work of the PhD programme:

- Task 1: Theories and techniques The basic theories and techniques for design of dependable human-robot interaction will be developed in this task. The intention is that these be extended as much as possible from existing techniques developed by Avian Technologies, but considerable scope will exist for development of new approaches.
- Task 2: Tools This task will concentrate on the development of prototypes for design tools, particularly software tools, for applying the ideas developed in Task 1. It is envisaged that a prototype integrated development environment (IDE) would be developed.
- Task 3: Demonstration The final task of the project would be to demonstrate the concepts, tools and techniques developed in Tasks 1 and 2 in the application to some example application. The demonstration is envisaged to have three steps:
  - a. Specification of an interactive/cooperative task (customer requirement)
  - b. System design using the prototype tools and techniques developed on the project
  - c. Implementation on the BRL robotic torso

### **Eligibility**

We are looking for a highly motivated candidate with a good honours degree (minimum 2.i) or Masters in Electronic Engineering, Computer Science, Mathematics or a related discipline, have good analytical and programming skills and a strong interest in some or all of the following: robotics, safety critical systems, control theory, formal approaches to software development and human factors. The candidate must also have a positive attitude toward interdisciplinary research and teamwork. A recognised English language qualification (minimum IELTS 6.5, TOEFL 600) is required if English is not the candidate's first language. For informal enquiries and further details of this project please contact Professor Alan Winfield, preferably by email: [alan.winfield@uwe.ac.uk](mailto:alan.winfield@uwe.ac.uk).

The candidate would be paid a bursary equivalent to the Research Council bursary rate, which is £12,600 in the academic year 2007-08, and is not subject to UK taxes. In addition, tuition fees will be waived for the duration of the bursary (3 years) if you are UK/EU national. International students would have to pay the difference between Home and Overseas tuition fees, which would be in the region of £5,500 per year.

### **How to apply**

For application forms, please contact the Graduate School Office, Faculty of Computing Engineering and Mathematical Sciences via email [cemsgraduateschool@uwe.ac.uk](mailto:cemsgraduateschool@uwe.ac.uk) or telephone (+44) 0117 32 83580.

### **Closing Date**

31<sup>st</sup> January 2009.