PhD studentship: Model-Based Software Development

Apply for a full-time studentship to support work on model-based development of safety-critical software.

Qualification type: PhD
Location: York
Funding for: UK citizens only
Funding amount: £14,553
Hours: Full Time

Placed on: 2 June 2017
Closes: 28 July 2017

The project

The primary aim of the project is to demonstrate the feasibility of using model-based systems engineering (MBSE), to support the development and automated assurance of safety-critical software. In particular this work will focus on control and protection software for nuclear power plants. Previous work has shown the potential of an MBSE approach based on David Parnas' Software Cost Reduction (SCR) method for automatically generating protection software from formal specifications. However protection software is simple, and the extension of the approach to control software, and the automation of assurance (verification and validation) is challenging. This project forms part of a programme of work funded by the Ministry of Defence (MoD) at a number of Universities, including Cambridge and York.

Research supervision

If successful, you will conduct your research under the co-supervision of:

- **Professor John McDermid** is a world leading international expert on the development and assessment of high integrity computer-based systems.
- **Dr Richard Hawkins** is an expert in software safety assurance and safety cases.

You will be part of the High Integrity Systems Engineering (HISE) research group but
with strong links to the Enterprise Systems (ES) group, who have considerable expertise in model-based development, particularly using Eclipse and related tools.

**Award funding**

If successful, you will be supported for three years. Funding includes:

- £14,553 (2017/18 rate) per year stipend
- Home/EU tuition fees

**Funding requirements**

To be considered for this funding you must:

- meet the entrance requirements for a PhD in Computer Science
- be a UK citizen
- be able and willing to develop tools, based on platforms such as Eclipse, in order to demonstrate the approaches being studied.
- have an interest and experience in MBSE

We will look favourably on applicants that can demonstrate knowledge of safety engineering and/or safety critical systems.

**Apply for this studentship**

1. **Apply to study**
   
   You must apply online for a full-time PhD in Computer Science
   
   You must quote the project title (Model-Based Software Development for Critical Systems) in your application.
   
   There is no need to write a full formal research proposal (2,000-3,000 words) in your application to study as this studentship is for a specific project.

2. **Provide a personal statement**
   
   As part of your application please provide a personal statement of 500-1,000 words with your initial thoughts on the research topic.
Deadlines

The closing date for the receipt of applications is Friday 28 July 2017.

Interviews are expected to take place within 14 days of the relevant closing date.

The studentships will begin in October 2017.

Informal enquiries

Project enquiries
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Application enquiries
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