Title: Modelling goal-oriented pedestrian behaviour

Type of award	PhD Research Studentship
Department	Engineering Mathematics
Scholarship Details	Scholarship covers full UK/EU (EU applicants who have been resident in the UK for 3 years prior to 1 September 2018) PhD tuition fees and a tax-free stipend at the current RCUK rate (£14,553 in 2017/18). Plus, an industrial top-up of £4,000 (subject to contracts). EU national's resident in the EU may also apply but will qualify only for PhD tuition fees
Duration	3.5 years
Eligibility	Home/EU applicants only
Start Date	24 September 2018

PhD Topic Background/Description

Developing intelligent cities has become a major economic activity in the 21st century and an unprecedented number of people will live together in urban areas all over the globe. This represents incredible challenges in the field of transport. Rising urbanisation and mobility lead to busier transportation hubs, shopping malls and public spaces that need to be carefully designed and managed to cope with growing demand.

In this project, you will be working on computer simulation models for pedestrian crowds that are currently revolutionising the industry. Pedestrian movement is self-organised, as individuals respond to the movement of others whilst walking. Built on mathematical representations of individual behaviour, simulation models are a versatile tool that promise to accurately predict the flow patterns observed in real crowds. Your work will address a crucial open problem by developing a model for how individuals plan, review and execute their activities when navigating through any public space.

The project will be carried out in collaboration with Legion Ltd *(contact: Dr Oksana Koltsova)*. Pioneering pedestrian simulation in the transportation sector, Legion software has been used for the design and optimisation of public space utilisation. For example, Legion has supported the planning of pedestrian facilities for every Summer Olympic Game from Sydney 2000 to Rio 2016. Through this collaboration, you will establish links with additional top universities in a joint project to develop the next generation Legion Simulator.

You will join a dynamic research environment in the Engineering Mathematics Department at Bristol with an opportunity to tackle real-world problems. This multidisciplinary project offers an exciting opportunity to obtain a PhD conferring a set of highly sought-after skills at the interface of mathematical and computational modelling, machine learning, data science and industry.

Further Particulars

Candidate Requirements

An essential requirement is a good undergraduate degree (1st, 2:1 or equivalent) in mathematics, statistics, physics, engineering or computer science (or a closely related subject). Having a Master degree (distinction, merit) in a related subject will also be an advantage. Equivalent experience will also be considered.

Funding Notes

If awarded, the University's Doctoral Training Programme award combined with this project sponsorship will offer the successful candidate:

- full UK/EU PhD tuition fees
- a tax-free bursary at the current RCUK rate (£14,553 p.a. in 2017/18) and
- an industrial top-up of £4,000 p.a. (subject to contracts)
- opportunities for short-term industrial placements

Informal enquiries

Please contact Dr Nikolai Bode, Nikolai.bode@bristol.ac.uk

For general enquiries, please email gsen-pgrs@bristol.ac.uk

Application Details

Candidates should get in touch prior to applying, as a letter of support from the intended lead supervisor is required (Prof. Eddie Wilson, Re.Wilson@bristol.ac.uk).

To apply for this studentship, submit a PhD application using our online application system [www.bristol.ac.uk/pg-howtoapply]

Please ensure that in the Funding section you tick "I would like to be considered for a funding award from the Engineering Mathematics Department" and specify the title of the scholarship in the "other" box below with the name of the supervisor Prof. Eddie Wilson.

Closing date for applications 22 January 2018

Apply now