### Title of Project
Embodied Anatomy: Learning the brain from the neuron’s perspective

### Project Leader
Dr Richard Wingate

### Lead Department
MRC Centre for Developmental Neurobiology, School of Biomedical Science

### Other contributors/Departments
Marcus Sorensen  
Preloaded  
Wellcome Trust

## PROJECT DETAILED

### Project Aims: What did the project aim to achieve?

1. Development of a new e-learning tool for second year Neuroscientists in MBBS, Biomedical Sciences, Dentistry and Physiotherapy (800+ students/annum) studying neuroanatomy
2. Pedagogical research into the potential of embodied approaches for enhanced learning of anatomy

### Project Outline: Please provide a brief outline of the project including an overview of the project methodology.

The aim of this College Teaching Fund bid was to develop “Axon” as learning tool in neuroanatomy. “Axon” had been collaboratively developed with the Wellcome Trust and presented the possibility of embodying the neuron’s-eye view of anatomical pathways, emphasising the more useful and significant landmarks encountered in their appropriate sequence. We proposed to adapt the game so that students learn anatomy by taking on the perspective of a navigating axon.

The project design comprised three phases:

1. Research into the anatomical/pedagogical framework of a new game
2. Software development
3. Evaluation

### Outputs: What has been produced?

An extensive research phase produced a framework for the extension of “Axon” into a pedagogical tool.

Unfortunately, the project stalled at this point due to personal circumstances of the main collaborator, Marcus Sorensen, a 4th year medical student who subsequently withdrew from the degree course. The project manager at Preloaded also changed during this period. Development of the software then required an additional expenditure beyond the budget of the grant to be fully realised. We decided as a team at this point to halt the project rather than spend resources on a non-effective tool.
**Outcomes/Impact:** To what extent have you achieved the original aims of the project? Please include examples where possible.

The exploration phase generated important insights into the design of software for anatomical exploration. Essentially, building the game is potentially as powerful a learning opportunity as playing the game.

**Supportive factors:** What were the main factors that contributed to the successful outcomes of the project.

N/A

**Challenges:** Have you experienced any barriers or challenges in developing your project? What could be done to support innovation in the curriculum?

The challenges to the success of the project fell outside the College’s control. An important factor is that the budget for developing educational gaming software of high quality can be extremely large.

**Recommendations:** Based on your study, what recommendations would you make for improving the curriculum and student experience generally? Are there any wider implications of your project for the College/University undergraduate and/or postgraduate curriculum? In particular what would be the implications of introducing your innovation on a large scale across a range of disciplines?

It is important to engage outside partners before launching into in-house software development. The dialogue between educational and commercial interests prevented a wasteful expenditure of budget.

**Dissemination:** How has the project been shared with colleagues within and beyond the institution?

The development of Axon and its potential as an HE resource has been presented at a number of workshops and conferences.

A case study of Axon’s development and application is available on-line at: [http://preloaded.com/games/axon/](http://preloaded.com/games/axon/)