

JOIN US ON THE QUEST TO SAVE THE HUMAN BRAIN



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## Northumbria academic helps design ground-breaking mobile game to support early dementia diagnosis

**Sea Hero Quest is an innovative new mobile game specifically designed to create the world's largest crowd sourced data set to benchmark human spatial navigation.**

Launched today by Deutsche Telekom, one of the world's leading telecommunication companies, this multi-platform mobile game has been specifically designed to help advance understanding of spatial navigation and how this aspect of our brain works. Created to help manage the growing

threat of dementia, which affects 850,000 people in the UK; just two minutes of gameplay on Sea Hero Quest can provide five hours' worth of essential dementia research.

Designed in collaboration by University College London, University of East Anglia, Northumbria University, Newcastle, Alzheimer's Research UK, ETH Zurich and game designers from Glitchers, the mobile game brings science one step closer to developing new diagnostic tests for dementia.

Northumbria's [Professor Ruth Dalton](#), a world-authority on wayfinding who teaches in the University's [Architecture and Built Environment Department](#), worked on the level design for the innovative game.

Professor Dalton said: "Sea Hero Quest has been an incredibly exciting project to be part of. It is a game designed to create the world's largest crowd sourced data set to establish the normal range of human spatial navigation ability. If we can bench mark this range of ability, we have the potential to develop novel and innovative navigational tests for dementia, since one of the early symptoms of dementia is having increased difficulties in finding your way around, a symptom that is often intangible and hard to pick up.

"I am an expert on wayfinding in the built environment. As an architect, I have always found it import to understand how to design environments that are easily comprehensible and that people do not get lost in and so I know a lot about the relationship between the design and layout of a building or neighbourhood and how easily people can find their way around it. It was therefore fairly straightforward to take the kinds of design skills and analytic methods that I would normally apply to the design of buildings and instead apply them to the design of the Sea Hero Quest levels.

"For the game, since we wanted to test people's navigational ability, we needed to ensure that we designed games levels with different degrees of layout difficulty, from 'simple' levels through to much more challenging levels, some of which contained visual landmarks to aid navigation and some which didn't, so I also advised on both the level layout and the selection and placement of different types of landmarks."

Dementia arguably presents one of the greatest health and social care challenges that we face as a nation. There are 850,000 people living with dementia in the UK today and that number is expected to rise to two million by 2050. It is estimated that for every child born this year, one in three will

develop dementia during their lifetime and yet there is very little in the way of effective treatments licensed and available for dementia. With age being the biggest risk factor and an increasing life expectancy, a future without available treatments is a bleak one. While trials are underway for medicines that may offer some hope of being able to slow the effects of Alzheimer's, early and timely diagnosis, remain a challenge. Should trials prove successful, improving our ability to detect the earliest signs of the disease will play a key role in effectively deploying new drugs. Dementia disrupts the formation of new memories often leaving those affected isolated and disorientated. For many people living with dementia, one of the first effects they experience is a loss of spatial awareness, as they lose the ability to navigate their way through even well-known places and environments.

Creating a global benchmark for how we navigate is widely acknowledged as one of the key steps towards developing new diagnostic tests for the diseases that cause dementia. According to the The Global Impact of Dementia (2013–2050) report, dementia will affect 135 Million people worldwide by 2050. Every aspect of Sea Hero Quest has been designed jointly by game developers and scientists to provide insights about the way we navigate every day. As players make their way through mazes of islands and icebergs, every second of gameplay can be translated into scientific data by experts exploring this area of our brains. As players make their way through mazes of islands and icebergs, every second of gameplay can be translated into scientific data by experts.

Sea Hero Quest is available globally for iOS and Android and can be downloaded now for free from the App Store and Google Play. More information about this unique game for good, the story of its creation and the condition it is designed to help us understand can be found at [www.seaheroquest.com](http://www.seaheroquest.com).

Northumbria University offers a range of courses in Architecture and the Built Environment. For more information go to: [www.northumbria.ac.uk/architectureandbuiltenvironment](http://www.northumbria.ac.uk/architectureandbuiltenvironment) or sign up for one of our upcoming Open Days on July 2 and 3.

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