



# Creativity

Image - Mark Woodward

**Creativity is a key driver of modern, dynamic societies and is at the centre of our research excellence.** The UK creative industries are socially important and export-driven. They are one of the UK's leading industrial sectors, with a world-leading reputation for content production and technological innovation.

At the University of York our work considers the broad nature of creativity and the creative process across linguistic, cultural, aesthetic and cognitive dimensions. This research links traditional arts and humanities disciplines with science and engineering. We work with key partners in the creative sector and, through this interaction, provoke challenges for social scientists in terms of how the creative sector functions and what impact creativity has on our society and our economy.

## Our research excellence

We are leading the Digital Creativity Labs (DC Labs), an £18m investment from three major UK research councils, in partnership with three other UK higher education institutions and over 80 partners from the creative sector. The Centre for Digital Heritage (CDH) brings together researchers from five international universities and York to undertake interdisciplinary research in digital heritage, including data management, analysis and visualisation. The DC Labs are closely linked to this international centre through shared research goals around digital creativity, as they are to York's £12m Centre for Doctoral Training in Intelligent Games and Game Intelligence. DC Labs and the University are working with City of York Council, following York's designation as a UNESCO City of Media Arts, to place the creative output from our research on an international stage in a major media arts biennale: *Mediale*.

Artificial Intelligence (AI) is a key feature in digital gaming and research at York. Our expertise in this area has led to a breakthrough approach to AI in games, resulting in a major article that is in the top one per cent of papers in Web of Science and Scopus for citations. This research has been applied in AI for a leading mobile game that has been downloaded more than 2.5m times.

Browne, C. B., et al. (2012). A survey of monte carlo tree search methods. *IEEE Transactions on Computational Intelligence and AI in Games*, 4 (1), 1-43



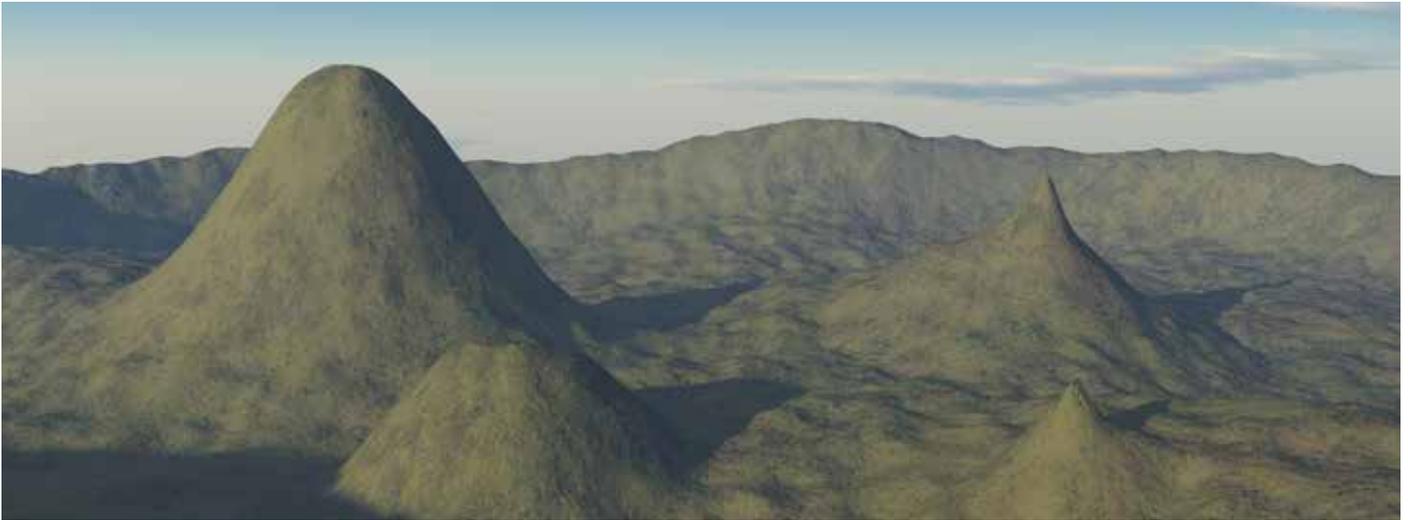
Image - Ian Martindale Photography

## Case study

### YorNight: Architecture II

Our Departments of Electronic Engineering, Music, Archaeology and Physics collaborated with vocal ensemble The Ebor Singers to create a live performance inspired by the reconstructed acoustic of the now ruined St Mary's Abbey Church in York. Acoustic data obtained from a 3D computer model of the reconstructed abbey ruins were analysed and used by composer Professor Ambrose Field to inform *Architecture II*, a score written for The Ebor Singers. Interactive auralisation was used to render the sound of the reconstructed abbey as part of a live performance at *YorNight* European Researchers' Night in York in September 2015.

Murphy, D. T., et al. (2017). Acoustic heritage and audio creativity: the creative application of sound in the representation, understanding and experience of past environments. *Internet Archaeology*, 44



## Case study

### The Four Mountains Test

Our capacity to recognise places and imagine them from alternative viewpoints is thought to depend on the hippocampal formation, a part of the brain implicated in the early stages of Alzheimer's disease. The Four Mountains Test, jointly developed at UCL and by Dr Tom Hartley at the University of York, is a simple test of this capability and of individual variation in healthy people and patients.

The test presents a digital visualisation of a landscape, re-rendered from multiple viewpoints with varying combinations of cloud cover, lighting and vegetation to represent different times of day and year. This test could transform the early diagnosis of Alzheimer's. It is quick and easy to administer, resistant to non-spatial strategies for identifying the correct four mountain landscape and sensitive to hippocampal pathology.

Chan, D., et al. (2016). The 4 Mountains Test: a short test of spatial memory with high sensitivity for the diagnosis of pre-dementia Alzheimer's disease. *Journal of Visualized Experiments*, 116: 54454. [Online]. Available at <http://doi.org/10.3791/54454>

Image: Tom Hartley

## Partnerships and impact

The Department of History of Art at the University of York has long-standing collaborations and partnerships with museums, art galleries and other heritage organisations. Through York Art History Collaborations, we have developed key relationships with the National Gallery, London, Tate Museums, the V&A and York Museums Trust, as well as museums, galleries and country houses across the north of England. These include the Middlesbrough Institute of Modern Art, Castle Howard, the Hepworth Wakefield, Yorkshire Sculpture Park and the Henry Moore Institute.

History of Art academics regularly guest-curate and co-curate major exhibitions including 'Mondrian and his Studios' (Tate Liverpool, 2014), 'Sculpture Victorious' (Tate Britain, 2015), and 'Alma-Tadema: Classical Charm' (Fries Museum, Holland, 2016). These and other leading exhibitions have attracted more than a million visitors.

Over the last ten years, we have received over £2.5m funding from the Arts and Humanities Research Council (AHRC) to work on joint research projects with Tate Britain, the National Gallery, London, and the Houses of Parliament. We have co-supervised more than a dozen PhDs working with leading museums and galleries.



*Vote 100 in 2018 will deliver a major public exhibition in Westminster Hall, exploring the history of campaigns for women's suffrage and the representation of women in both Houses of Parliament. Research conducted by the Departments of History and Electronic Engineering and the DC Labs has created exciting opportunities for both projects and we are keen to work with you to develop this potential."*

Dr Mari Takayanagi, Parliamentary Archives, and Melanie Unwin, Parliamentary Art Collection, Houses of Parliament, London.

For more information on the University of York's interdisciplinary research themes see [www.york.ac.uk/research](http://www.york.ac.uk/research)

**Professor Rachel Cowgill**  
Research Champion for Creativity  
[rachel.cowgill@york.ac.uk](mailto:rachel.cowgill@york.ac.uk)

**Professor Matthias Ruth**  
Pro-Vice-Chancellor for Research  
[pvc-research@york.ac.uk](mailto:pvc-research@york.ac.uk)

**Research Development Manager**  
[rdteam@york.ac.uk](mailto:rdteam@york.ac.uk)