



# Hamilton Institute

The National Digital Research Centre:  
Overview, New Call for Proposals and Some  
Potential Topics for Proposals

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**Abstract:**

Kevin Smith is a Research Leader at NDRC. He currently leads two projects: Haystack (focused on the development a hpto-visual based simulator for the training and assessment of ultrasound guided peripheral nerve blocks), and ClearSight (focused on the development of algorithms and hardware to produce more accurate 3D reconstructions of the optical elements of the eye to assist ophthalmic surgery), and Kevin has a background in massively parallel computing, pattern processing and collaborative virtual environments. In this session, Kevin will present three topics that may provide the basis for future collaboration, either as proposals in NDRC's upcoming call for proposals, or for EU collaboration.

These topics are:

- The development of a system for the postproduction processing of lightfields captured using large camera arrays to produce customised stereoscopic 3D video. Conformal Geometric Algebra would be used to represent the light rays and perform lightfield segmentation.
- The development of a platform that would enable advanced tele-medicine and education applications. The platform would build upon User Controlled Light Paths (UCLP) of between 1 Gbps to 10 Gbps available from R&E networks such as HEAnet, JANET and CANARIE. The UCLPs would enable multiple uncompressed HD and 3D HD video streams as well as high quality audio streams and tele-haptics.
- The development of a system for modelling the control of a "hub and spoke" network of major data centers collocated with sustainable energy sources such as wind farms or solar arrays.

Amy Neale is NDRC's Programme Manager with a PhD in computational linguistics. Amy will present about NDRC, its current project portfolio, and our next call for proposals.

NDRC (the National Digital Research Centre) is an independent enterprise dedicated to accelerating the commercialisation of research with support from the Department of Communications, Energy and Natural Resources. For academic partners, NDRC is an active, participatory collaborator, complementing academic expertise while increasing the prospects for successful technology development and commercialisation of research.

Originally set up by Dublin City University, Dun Laoghaire Institute of Art, Design and Technology, National College of Art and Design, Trinity College Dublin and University College Dublin, NDRC works with universities and companies across Ireland and internationally on collaborative translational research projects, providing investment, space and expertise.

**Venue:** Seminar Room, Hamilton Institute, Rye Hall,  
NUI Maynooth

**Time:** 2.00 - 3.00pm (followed by tea/coffee)

Travel directions are available at [www.hamilton.ie](http://www.hamilton.ie)