

# Virtual Touch. Towards an Interdisciplinary Research Agenda for the Arts and Humanities. **An invitation..**

## Problems



- Much can be learned about an artefact through touch, but heritage objects of value need to be protected from touching.
- Direct access to the artefact is often unavailable to researchers and students of material culture.

- Virtual artefacts constitute viable 3D surrogates of real objects in many areas of education and research. Their use in the Arts and Humanities could be much wider if existing technical and conceptual barriers are resolved.

## Solutions



### NON-INVASIVE 3D RECORDING



Laser scanning of objects in the Potteries Museum, Stoke-on-Trent, UK, to create virtual 3D replicas. Photo: L. Hewett, User-lab

- Medicine, product design and other fields employ virtual touch - mediated through the application of haptic interfaces - to much success. **More research is needed to assess the potential benefit of haptic technologies in the Arts and Humanities.**

## Perception and Physics of Touch

- How haptic interfaces can engage touch more effectively to deliver a more realistic user experience?
- Can we use our knowledge of touch to create haptic simulations that overcome the technological limitations of the current haptic interfaces?



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## Haptic Computer Interfaces for Cultural Heritage

- What are the characteristics of a successful haptic system for museum objects?
- Is the required level of haptic resolution ('feelable detail') different, depending on the needs of identified groups of users, for example museum visitors, academic researchers and the visually impaired?
- What are the most cost-effective and simple methods for creation and optimisation of virtual 3D models for haptic display, tactual exploration and study?



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### VIRTUAL ARTEFACTS



A screen grab of a 3D model of a carved ivory inlaid box, scanned and optimised for haptic display, created as a demonstration for Warwick Castle, UK. Image: D. Prytherch

## Histories and Cultures of Touch

- What are the sources for the cultural history of touch: How we touched through the ages and what has been written about it?
- What is the relevance, if any, of past knowledge to modern understanding of the human sensory experience?
- What can be learned about art objects through touch?
- Can the experience of touch be successfully simulated in a virtual 3D environment? (case studies and critique of earlier research)
- What are the potential benefits for learning?



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## Towards an Interdisciplinary Research Agenda

- Connecting existing expertise, applications and resources across disciplines;
- Seeking the engagement of the Arts and Humanities communities;
- Assessing the needs and expectations of practitioners, professionals, researchers, teachers and students;
- Identifying potential benefits and issues in application of computer haptic interfaces within the Arts and Humanities research and education;
- Influencing future developments in haptic computing for the benefit of the Arts and Humanities;
- Resolving issues in access to and re-use of 3D virtual artefacts;
- Advocating the provision of haptic know-how and equipment;
- Promoting scholarly rigour and good practice in the creation of virtual artefacts for use in heritage research and education.



Haptics in the classroom. A postgraduate course in Digital Arts and Culture, Centre for Computing in the Humanities, King's College London, UK, 24 November 2010. Photo: A. Bentkowska-Kafel



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