PhD in Computer Science

Why go for a PhD?
You will work within the Interactive Systems group and participate in generating cutting-edge research in the exciting field of Human Computer Interaction.

Get paid while you work towards your PhD:
- EU/UK Students: Stipend of £14,533/year for 3.5 years + fees £4195 + £800 training costs.
- Overseas*: Stipend of £14,533/year for 3 years + fees £17,510 + £800 training costs.

What can I study?

Pi-3D: Perception and Interactivity for 3D Display

The candidate will investigate perception and interaction related effects during the use of 3D-capable displays. This includes new generation HMDs like the Rift, HoloLens and Vive; as well as other large form-factor 3D displays (flat-panel as well as volumetric). The candidate will also be responsible for building an experimental rig that is compatible with different types of displays as well as tracking systems and use it for user experiments to identify perception/interaction related effects. There is additional opportunity to look into novel display fabrication if the candidate wishes.

Candidate Profile (Desirable Experience)
The ideal candidate will have experience with hardware prototyping, understanding of graphics and game-engine based applications and awareness of eye-tracking.

VR-IDES: Virtual Reality based Integrated Delivery of Education

The candidate will investigate the use of commercial state-of-art Virtual Reality (VR) and Augmented Reality (AR) technologies in an educational learning context of Massive Open Online Classrooms (MOOCs) and Computing. The exploration is structured around leveraging VR/AR environmental setups to rethink the delivery of computing concepts and support programming and software development. This can extend into multi-user peer programming/learning scenarios, large classroom VLEs or offer new VR paradigms for VLEs. The main focus is the design of interactions, metaphors and interfaces to support such activities.

Candidate Profile (Desirable Experience)
The ideal candidate will have experience with programming, understanding of graphics and game-engine based applications in VR/AR.

* Overseas funding is not guaranteed and is highly competitive. Thus overseas students are encouraged to explore self-funding/other scholarship sources.
**Side-by-Side: Collaborative Work through Transparent Displays**

The candidate will investigate the use of a two-sided transparent display for collaborative work between two or more users. Normal implementations of such a display lead to lateral inversion of the content so that it is accessible to each user. This leads to contextual mismatch during collaborative tasks such as pointing. The candidate will explore display designs that overcome lateral inversion or mitigate it through alternative means. Further exploration will involve interactions in situated augmented reality wherein one or both users will see their collaborator immersed (collocated) in an augmented environment.

**Candidate Profile (Desirable Experience)**
The ideal candidate will have experience with hardware prototyping, understanding of graphics and game-engine based applications and interaction design.

**Motile Pixels for Data Physicalization**

The candidate will investigate interaction with data that takes a physical form (data physicalization) and identify a core set of guidelines that can be used to physicalize data in common contexts, based on actuated modules. This will involve exploration of modularized physicalisations capable of self-assembly. Such modular physicalisations will be able to self-assemble into a static structure or a dynamic structure based on user-specified constraining parameters. This work will identify different forms of sensing to support interaction with modular elements.

**Candidate Profile (Desirable Experience)**
The ideal candidate will have experience with programming, hardware prototyping and user studies

Interested applicants (for the above topics) should get in touch with:

**Dr. Karnik (a.karnik@lancs.ac.uk)**