TRINITY COLLEGE DUBLIN

# *Abstract*

Computer Science Department
School Of Computer Science & Statistics

Masters in Computer Science

**Augmented Reality Keyboard for an Interactive Gesture Recognition System**

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Thanks to improved depth sensing hardware becoming inexpensive and widely available in recent years, gesture-based interfaces now represent a feasible platform for human-computer interaction(HCI). This body of work presents my research and development of a touchless, gesture-based keyboard with an augmented reality interface. I performed a small user study to assess the system's performance and observe how users responded to the system as a new model of computer interaction.

The system combines aspects of the traditional QWERTY keyboard with more modern, gesture-based approaches to typing. To enter text, users perform a swipe gesture in which their index finger traces over the letters of their intended word in one continuous motion. It is specifically intended for health-care environments, where the cross contamination of hands via touchscreens on public computer terminals is a large source of infection spread, and there is therefore a realistic application for touchless typing.

The user study conducted has shown that, while the system cannot yet compete with the performance of physical keyboards in terms of speed and accuracy, it provides a viable framework for mid-air text entry in which users do not need to touch any physical surfaces and also demonstrates the suitability of augmented reality as an interface paradigm for gestural interface systems.