Taking Augmented Reality out of the Laboratory and into the Real World

Presentation Summary:

This presentation introduces our efforts to create commercial applications with Augmented Reality (AR), a user interface technology that overlays computer graphics over the user's view of their surroundings. Together with our industry partners, we investigate two scenarios: first, to mobile information browsing on mobile phones (Nokia); second, to industrial product design (Canon).

During the last decade, mobile information browsing on mobile phones has become a widely-adopted practice. This was made possible by the increase of wireless networking infrastructure and the ever increasing amount of online data. By employing AR, we enable users to access digital data much more fluidly and therefore assist everyday tasks much more effectively than with previous user interfaces. An example is AR X-Ray vision, which enables users to look through buildings and other obstacles.

A common task in industrial product design is to create physical prototypes of new products. A common prototyping method is to use 3D printers to create physical models. However, 3D printers are slow and expensive and changes to the shape are costly and labour intensive. We are investigating completely virtual prototypes that can be seen through AR and touched through a haptic device. This enables users to interactively change the shape and appearance of a prototype. After having successfully demonstrated virtual prototypes using a pen-shaped haptic device, we are currently developing a system that enables users to touch the virtual prototypes with all their fingertips.

Videos of our prototypes can be viewed at: http://www.magicvisionlab.com