

Look at me! Art and geomatics project has collaboration in sight

University student Julian Tan has collaborated with artist Elisabeth Weissensteiner on a unique summer research project sponsored by the University's Melbourne Engineering Research Institute (MERIT).

Art and Engineering rarely intersect, but Ms Weissensteiner's ambitious project required help from the University's Department of Geomatics, which Julian and his supervisor, Head of the Department of Geomatics, Associate Professor Stephan Winter were happy to provide.

Ms Weissensteiner's idea was to display a pair of eyes on a large screen in a public space (imagine Federation Square). The eyes would scan the crowds before focusing on one person who would, presumably, return the gaze. Passers-by would notice the fixation of the large eyes on the screen, and when the person moved, all the eyes would follow.

"The project questions not only the interactions between humans and machines, which gives an ambiguous perception of reality, but also the reactions from the wider crowd, where issues of the feelings of belonging, anonymity and personal exposure are raised," she explains.

This display would be based on mobile, location-aware phones and their interaction with the screen. To bring her idea to fruition, Ms Weissensteiner needed some technical help, which is where Julian's expertise came in.

"I had to find out how localised the feeling of being looked at is," Julian says.

"An obvious factor to consider was the geometry of the place and the screen, and also the scaling of the gazing photo on the screen."

The interactive art display required the use of location-aware mobile phones, the idea being that people would start a certain phone program, then the phone would send its location to the screen, and the screen would display the corresponding picture.

Associate Professor Winter says they began with the assumption that photographs taken in a particular viewing direction and depth, multiplied by certain factors, would produce the desired effect for a person at that location.

Julian and Associate Professor Winter performed two tests to see whether the technical aspects of the project were viable.

The first test assessed the quality of the coordinate output of the phone's GPS sensor. It discovered they are accurate in a range of 10 metres; The test was done in an area with numerous obstructions, so it can be assumed that the iPhone would perform even better in unobstructed areas.

So far, so good.

A second test revealed whether people at the targeted locations would feel watched, even if the gaze from the screen was directed sideways.

To assess this, Julian created a scaled-down environment of a public space and took a series of photographs in the exact geometry of that space, with interesting results: People did feel watched, but only sometimes, and under very specific geometric conditions, disproving the hypothesis.

Julian found that visual perception seems to be sensitive to small vertical deviations of the gaze ('the pair of eyes is looking above me'), but not so sensitive to depth - rendering the art project impossible.

"Of course such an outcome got us thinking," says Associate Professor Winter.

"What is it that lets people under some conditions feel the gaze? What are these conditions?"

Undeterred, Julian and Associate Professor Winter are currently formulating a new hypothesis to hopefully realise Ms Weissensteiner's project.

Summer Research Experience applications will open to students in late July. Go to the Engineering website for more details: <http://www.eng.unimelb.edu.au/>

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