

Stanford and Intel test the boundaries of visual computing

January 27 2011, by Andrew Myers

(PhysOrg.com) -- To hear Stanford Professor Pat Hanrahan tell it, computer simulation of human behavior and appearance could someday become so life-like that a trip to the mall will be replaced by trying clothes on a virtual 3-D model of yourself.

That day may come a little sooner thanks to a research partnership with chip maker Intel, announced Wednesday. Intel will fund research at the new science and technology center with \$2.5 million a year for five years.

The center, along with a half-dozen others across the country, will drive innovation in computing and communications that could help make Hanrahan's vision a reality.

Stanford, under the direction of Hanrahan, a professor of computer science, will host the first center, the headquarters for an eight-university team that will shape the future of visual computing.

"As high-end visual interfaces have become commonplace, our expectations have risen. A few years ago no one knew what multi-touch smartphones, tablet computers, Internet-enabled 3-D high-definition television, e-readers were, now they do," Hanrahan said during a press call to announce the program. "We will focus on visual computing, user experience and user interaction, with a range of devices that will emerge in the next decade."

Hanrahan laid out several broad themes of the research under his direction. "First off, everyone will be creative," he said.

Cell phone cameras could become tools in new forms of sculpting and drawing. Games will become more collaborative, the characters more believable, and the settings more life-like. Crowd-sourcing will become more personal.

Hanrahan also imagines that [computer simulations](#) will become ever more life-like, especially in their representations of human movement and emotion. Other, as-yet-unknown multi-sensory interfaces will shape computer experiences using light, motion, and sound.

"Furthermore, these ever faster, more [powerful computers](#) will mean the realism is real-time," he said.

Entire cities will be digitized using crowd-sourced images from Flickr, the images knitted together by advanced algorithms into realistic 3D models.

When you've forgotten a face, you may be able to use your camera phone to take a picture and look up the name. Law enforcement may be able to discern the law-abiding from the lawless using computers that analyze images. If you can't read a menu, you might take a picture of it and have it translated.

"In the future, our smartphones, laptops and personal cameras will be doorways into augmented realities," said Hanrahan. "Our whole lives will be augmented and social networking will get more social. Facebook might become a virtual world where we meet with friends online."

Stanford students will get the real-world experience of working on campus with Intel scientists; Intel, in turn, will benefit from the creative

ideas of these bright young researchers.

The other universities in the Stanford-based center are the University of Washington, Cornell, Harvard and Princeton, as well as University of California campuses in Berkeley, Irvine and Davis.

Provided by Stanford University

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