

## Stanford lab makes it a reality

### The Virtual Human Interaction Lab uses virtual reality to study human social behaviors

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By Loren Newman

McClatchy Hall's room 453 houses a treadmill, a 30-foot pit, a dark alley, a conference room, a highway and a police station in a space not much larger than two dorm rooms squeezed together. How? The room is home to the Virtual Human Interaction Lab (VHIL) where Communications Prof. Jeremy Bailenson and a team of researchers are observing human interaction in the realm of virtual reality.

A few computers and one \$25,000 virtual reality helmet create all of the virtual scenarios. While there are many labs worldwide that use similar equipment, the Stanford lab is fundamentally different because it focuses solely on human reactions, behaviors and decisions in virtual space, whereas other labs focus on military simulations or virtual surgery.

Jesse Fox, a doctoral student in communications, manages the lab.

"What's unique about our lab is that we are firmly rooted in the communication discipline," she said. "We focus on transformed social interactions, or how our interactions with other people or virtual humans have changed based on technology. We're very much a social science lab, answering questions about human behavior that haven't been explored before."

Bailenson began working in virtual reality nine years ago when virtual interaction was considered implausible.

"The idea of people spending time in virtual space was still science fiction," he said. "But now, with the amount of time people are spending in Second Life and MySpace and Facebook, we're realizing that people have second virtual identities. That's helped us get more attention."

VHIL is now in its fourth year and has attracted a good deal of media attention. Recent articles in the San Francisco Chronicle, Wired Magazine and Business Week, as well as segments on CNN and the Discovery Channel, have propelled the lab into the spotlight.

"We've always been doing very important work," Bailenson said. "It just takes a little while for people to find out you're on the map. We're finally starting to get some recognition."

The situations that can be created in an artificial world are almost limitless, leading to research in a variety of different areas. Currently, the lab is performing studies ranging from education simulations and police lineup re-creations to automotive safety.

Fox said she is interested in the health applications of the technology. She said she recently finished a study in which subjects were shown an avatar (or virtual representation) of a person running on a treadmill.

"We found that when people saw the representation of themselves running, they exercised more in the 24 hours following the experiment," she said. "This may be useful for developing programs or developing online support for people who are trying to lose weight."

"[The research] is also useful in combating the obesity epidemic, especially with children," she added. "Kids love



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At the Stanford Virtual Human Interaction Lab, a study participant dons special head gear that allows him to enter a virtual world. The center, located in the McClatchy communications building, is doing state-of-the-art research on health, racism, sexism and a variety of topics that can be tested through simulation.

video games, and if we can get them more personally involved by putting their avatar in a virtual space, maybe they'd be encouraged to exercise more."

Applications for the new technology do not end with health and exercise.

"We're doing stuff with the automotive industry about creating virtual characters in cars to help you drive better in terms of detecting when you're tired and trying to alert you to problems on the road," Bailenson said.

The lab is also working on virtual demos to treat people for phobias, including a fear of heights, and other specific situations, said Grace Joo Ahn, a doctoral student in communications. VHIL is considering working with labs in France, Tahiti and Jamaica to explore the possibility of an international HIV/AIDS study.

The researchers are also tackling issues such as sexism, racism and ageism by placing subjects into virtual bodies different from their own.

"People react to avatars as if they are real people," Joo Ahn said. "It's amazing that they know they're in virtual reality yet they react with everyday social behavior. I would like to apply the findings to situations where people can learn from virtual reality environments."

In the near future, Bailenson predicts, people's virtual identities will play a larger role in their lives.

"Soon your cell phone will be able to track your facial expressions and send them to someone else," he said. "We're going to see people, no matter where they are in physical space, be able to pop into virtual space."