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New games mixing virtual, physical worlds

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By Greg Bluestein, Associated Press

ATLANTA — There's no alien world behind the virtual reality gear, just a modestly decorated living room that can be seen without the video goggles.

But once the game *AR Facade* starts, you might wish there were space invaders. That's because it puts you in the middle of an excruciatingly uncomfortable argument between Trip and Grace, a bickering thirty-something married couple.

PLAY THE FACADE: [Georgia Tech's 'AR Facade' game](#)

Do you play moderator and decide to help broker a truce? Do you instigate them by complimenting Grace on her decorating style or pretending to be impressed with your pal Trip's place? Or do you act as if everything's peachy while their arguing heats up?

Whatever path is taken, this participatory soap opera at a Georgia Tech research lab is at times funny, awkward and intriguing. And it's always intense and emotionally draining.

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AR Facade is an "augmented reality" game, a genre that mixes a virtual world with physical reality. The technology is still emerging, though someday people may play such games with



Enlarge By Gene Blythe, AP file

Steven Dow, a Georgia Tech Ph.D. candidate, demonstrates *AR Facade* at Georgia Tech in Atlanta. The game puts you in the middle of an uncomfortable argument between Trip and Grace, a sour married couple that wants you to take sides.

gear as simple as their cellphones.

So far, scientists seem to be having fun with the possibilities.

At the University of South Australia, researchers created a version of *Quake*, the popular shoot 'em up game, where users with a wraparound visor and a backpack walk around streets and fight superimposed computer objects that only they can see. A human *Pac-Man* game, created at the University of Singapore, places virtual yellow dots along the city streets and allows players to become the game's hero or one of the Ghosts set on catching the little gobbler.

Some have a more practical use, too.

Mark Billingham's *Magic Book* is an animated children's book that turns into a 3-D pop-up, changing with each page when viewed through head-mounted goggles. The New Zealand scientist also is helping develop *AR Tennis*, which lets gamers use their cellphones as rackets on a virtual court superimposed on a real table. The action is watched on the phones' screens.

"Within five years people will be able to easily experience Augmented Reality applications on their mobile phones, in their homes, schools, hospitals, workplace and cars," he said. "One of the most exciting things is that the current generation of mobile phones have the processing power, display resolution and camera quality necessary to provide compelling AR experiences."

Billy Pidgeon, a games analyst at the research company IDC, says the field shows promise, especially if its future is staked to the growing computing power of cellphones and other handheld devices.

"I don't know if it's a sustainable industry, but there's definitely money in it," he said. "There's many ways you can link gaming and interactive entertainment outside because portable devices are getting pretty powerful — and so

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is the network. I can see it growing."

At Georgia Tech, the Atlanta school where Trip and Grace's *AR Facade* was created, researchers are using the technology to create "interactive dramas."

The games are "somewhere between a movie and a video game," said [Steven Dow](#), a Ph.D. student in Georgia Tech's human-centered computing program.

"You can kind of choose your own outcome, and you can define your own way to win," he said. "In a way, it's a theater and a stage where people can step in to become an actor in the experience."

Researchers there are creating a game called *Four Angry Men*—based on the play—where players debate the fate of a young man accused of killing his father.

AR Facade had a more traditional beginning. Created over a five-year period, it started as a free traditional PC game that asked players to type in comments to interact with the bickering couple. More than 300,000 copies have been downloaded, and it earned critical acclaim for its sophisticated artificial-intelligence system.

Dow and other researchers spent a year trying to bring the game into the real world. They built a living room with a couch, a bar, pictures on the wall, a phone and other household staples. In fact, everything is real except Trip and Grace—the two cartoonish characters can only be seen through a backpack-mounted laptop worn by the player and a screen mounted from the player. The virtual arguing comes through a pair of thankfully comfortable earphones.

The goal of the research is to gain a better understanding of how humans and computers interact. Dow has studied dozens of gamers, watching as some have antagonized the characters while others have grown emotional as the quarreling intensified. One gamer tried to physically stop the fight, only to remember she was trying to block a virtual character from walking away.

The equipment that gamers strap on to enter the *Facade* world seems imposing, but the processing power that runs the system is no more daunting than what's found in an Xbox 360 console.

"This whole thing could run on your home game console," said Blair MacIntyre, an associate professor in Georgia Tech's College of Computing.

Professional voice actors recorded thousands of lines of dialogue to play the young couple's voices. As the player talks, a researcher types the words into a computer behind the set. They trigger certain reactions driven by several complex algorithm engines that control the drama, dialogue and even the facial expressions of Trip, a pushy blond, and Grace, an attractive and temperamental brunette.

There are hundreds of different story lines and seven different outcomes—and most of them end badly, with Trip, Grace or both kicking you out of the apartment. But there's one ending, extremely rare, that can almost be described as happy.

The disgruntled couple argues, as usual, over vacations, home decor, jobs and even wine selection. But then, after a shift in tactics by the gamer, they launch into an emotional, loud and occasionally profane fight. You can almost sense the moment they let their guard down.

That's when Grace admits to a lingering depression and concedes that she has allowed Trip to dominate their relationship. And Trip admits his materialism is rooted in his experience growing up on the edge—including living in a shelter for six months.

They finally come to terms, a hesitant truce, and agree to talk about their problems.

But this time, they talk alone.

Thankfully.

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