

## Neuroscience

# Craving a Cure

Researchers turn to virtual worlds for real-world insights into addiction

**Virtual worlds** offer millions of online visitors the chance to ride a dragon or build a fake real estate empire. Addiction researchers have discovered that these communities can also produce something very real—drug cravings—which may help scientists develop and test new treatments for substance abuse.

Researchers have struggled for decades with the problem of reproducing so-called environmental cues within the confines of a sterile lab environment. These reminders—a rolled-up dollar bill, the smell of cigarette smoke—make users crave their drug of choice. The investigators stoke powerful cravings in their subjects to better understand the physiology of addiction and to reliably test whether a new drug or behavioral therapy can prevent relapse.

Chris Culbertson, a doctoral student in neuroscience at the University of California, Los Angeles, had read reports of alcoholics and smokers developing cravings while visiting virtual

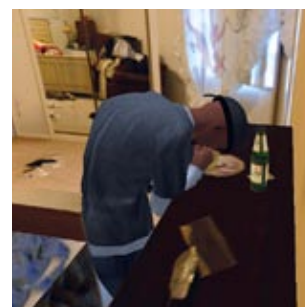
worlds devised by addiction researchers. He decided to use one of the largest online communities, Second Life, to study another intractable problem: addiction to the psychostimulant methamphetamine. Culbertson created a virtual meth house, a place where addicts gather, and invited 17 meth users to U.C.L.A. to test it out. To determine their levels of craving, Culbertson had the addicts fill out questionnaires and measured their heart rates as they navigated via computer through the meth house on Second Life. A recent study in *Pharmacology, Biochemistry and Behavior* showed that Culbertson's virtual-reality meth house bested other imagery in eliciting cravings, including a video of actors pretending to use the drug.

For now, Culbertson says, his virtual meth house is off-limits to the general public: "It would throw a monkey wrench into the whole thing if someone showed up in a dragon suit while we were doing an experiment."

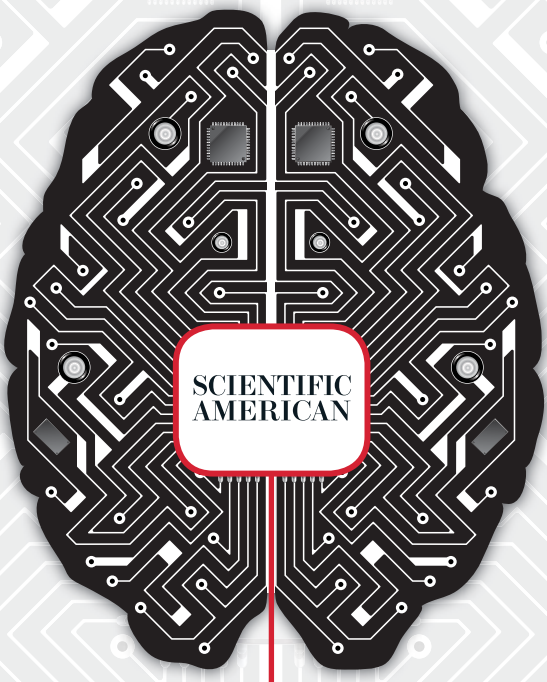
—Gary Stix



**Virtual high:** Culbertson's meth house on Second Life portrayed graffiti-covered walls and pipe-strewn floors.








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