

Email Marketing.
Stop wondering. Start doing.

TRY IT FREE FOR 60 DAYS!
START TODAY!

REPLAY

REAL ESTATE | **JOBS** | CARS | DEALS | CLASSIFIEDS | PLACE AN AD

SUBSCRIBE | E-REGISTER | HELP | TODAY'S PAPER

SEARCH SITE

SURF REPORT | 82.0°F in Santa Ana | TRAFFIC

HOME | NEWS | SPORTS | BUSINESS | ENTERTAINMENT | LIFE | TRAVEL | OPINION | HEADLINES

[Blogs](#) | [California](#) | [City-by-City News](#) | [Columns](#) | [Crime and Courts](#) | [Data Central](#) | [Education](#) | [Nation and World](#) | [Obituaries](#) | [OC Watchdog](#) | [Politics and Government](#) | [Photos](#) | [Videos](#) | [Science](#) | [Technology](#)

SCIENCEDEUDE



By Gary Robbins

UCI robot being given ability to 'think'

November 10th, 2009, 6:00 am · [Post a Comment](#) · posted by [Gary Robbins](#), science writer-editor



HAL 2000? Hardly. But Jeffrey Krichmar (right), a UCI cognitive scientist, and Brian Cox, an animatronics engineer, will give the robot Carl 1 software that simulates the decision making process. Image courtesy of UCI.

A homely little robot with fake ears might end up helping to explain a problem faced by all humans — how to deal with uncertainty.

Scientists at UC San Diego will electronically record neurons in the brains of rats while the animals are deciding how to find food in a series of behavioral experiments. UC Irvine researchers will then incorporate that data into a software model of the brain.

The brain is located in Carl 1, a robot that uses a camera to see, tiny sensors to avoid hitting things and whiskers to manipulate objects, says UCI. Carl 1 also has ears that will, at somepoint, hold microphones so that it can respond to sound commands.

"We have identified brain areas that appear to track uncertainty in the world and how we learn to deal with those uncertainties. But, our knowledge of those areas are incomplete," [Jeffrey Krichmar](#), a UCI cognitive scientist, said by email.

ADVERTISEMENT

News28Online.com

DON'T Let The Dentist Fool You
Single mom discovers 1 simple trick to turn yellow teeth white from home. [Learn More](#)

Do NOT BLEACH
Dentists don't want you to know **this** teeth whitening secret. [Learn More](#)

THINGS TO DO

[EVENTS](#) | [DINING](#) | [MOVIES](#) | [VENUES](#) | [ALL](#)



[Add an Event](#)

1. Raveonettes
2. My Pet Saddle
3. Chris Hardwick
4. Glassjaw
5. Richard Vission
6. Ben Bailey
7. Everclear w/ Clayton...

More event information from our partner [OrangeCounty.com](#)



Search Blog

OC weather photos from readers



- See more Orange County weather photos from readers.
- Share your photos with Sciencedude by [TwitPic](#) (mention [@grobbs](#) or include [#scidude](#) in the Tweet), [Facebook](#) (tag [Sciencedude](#)) or email.



Side view of Carl 1. Image courtesy of UCI.

"My colleagues at UCSD are experts in these areas. The plan at UCSD is to develop a behavioral experiment that challenges the rat with different uncertainties in the world (e.g. there is a 50% chance of getting a Reese's cup when I trick or treat at this house. I'll go there again) and unexpected uncertainties (e.g. I was surprised to get a box of raisins at that house. I better change my trick or treat route).

"We will run the same experiment with the rodent in our lab at UCI, but with a software model of the brain. The information they get from the rodent brains will help us build a better model of those brain areas (e.g. better responses from our simulated neurons, more accurate interactions between these brain areas). Because we can examine every single neuron in our robot's artificial brain (something that can't be done on real brains), we can inform our colleagues at UCSD about how the different brain areas are dealing with uncertainty, and contributing to behavior.

"We are hoping to learn how different areas of the brain identify uncertainty in the world and cause the organism (rodent or robot) to take the appropriate action. At this stage, this is a basic research project to better understand these brain functions. Certainly, it could inform us on how people make decisions and how they pay attention. It also may inform us in the design of robot control systems. Currently, rats are far better than robots at dealing with uncertainty and change in the world. This research may advance the field of robotics and control systems."

The joint UCI/UCSD project is being funded with \$1.6 million from the National Science Foundation.

Recent Sciencedude stories:

▶ [UCI treatment lets rats with damaged spinal cords to walk again](#)
 OUR NEW science section

[NASA sets date for Tracy Caldwell's trip to space station](#)


[Animation of this week's O.C.-area earthquakes](#)

[Easy new way to track O.C. wildfires](#)

[GALLERY of reader weather photos](#)


Posted in: [Ain't that interesting?](#) • [Astronomy and astrophysics](#) • [UCI science news](#) • [animatronics](#) • [cognitive scientist](#) • [National Science Foundation](#) • [robot](#) • [robots](#) • [UC Irvine](#)

Money & Finance



Learn how you can save up to 70% off on your **Car Insurance**. Just enter your zip code.

[Learn More](#)

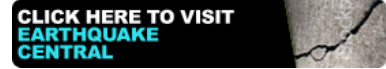


You never know who will be behind the wheel. Get Free Auto Insurance Quotes in 2 minutes.

[Learn More](#)

ADVERTISEMENT

You can follow any responses to this entry through the [RSS 2.0](#) feed. Both comments and pings are currently closed.



Recent Comments

- ▶ [OnlyTheFacts](#) on [UCI restores walking in injured rats](#)
- ▶ [crisscross](#) on [UCI restores walking in injured rats](#)
- ▶ [Gary Robbins, science writer-editor](#) on [Expect fog during early morning commute](#)
- ▶ [I love southern california](#) on [Expect fog during early morning commute](#)
- ▶ [Darlene](#) on [Algae bloom causes bad smell in Mission Viejo area](#)
- ▶ [OnlyTheFacts](#) on [UCI restores walking in injured rats](#)

Go, See, and Do

- ▶ [OC Astronomers: star parties, telescope classes](#)
- ▶ [SyFy Channel show listings](#)
- ▶ [UCI Observatory star parties](#)
- ▶ [Vandenberg rocket launch schedule](#)
- ▶ [When to see the International Space Station](#)



Recent Posts

- ▶ [UCI robot being given ability to 'think'](#)
- ▶ [Expect fog during early morning commute](#)
- ▶ [UCI restores walking in injured rats](#)
- ▶ [80 degree weather to start week](#)
- ▶ [Chapman filmmaker's UFO film a modest success](#)
- ▶ [NASA sets date for Caldwell's trip to space station](#)
- ▶ [Animation of this week's OC-area earthquakes](#)
- ▶ [Here's what the pretty picture shows ...](#)

Fact or myth?

Brian Dunning of Laguna Niguel, producer of the popular Skeptoid podcast, separates fact from fiction in his new video series, InFact. Here's his take on the upcoming movie, "2012."