

# Evolving Technology & Marital Relationships: Can Law Keep Pace?

May 28, 2014

Gary E. Marchant, Ph.D., J.D.  
Lincoln Professor of Emerging Technologies, Law & Ethics  
Center for Law, Science & Innovation  
Sandra Day O'Connor College of Law  
[gary.marchant@asu.edu](mailto:gary.marchant@asu.edu)

Yvonne A. Stevens, J.D., LL.M.  
Research Fellow, Center for Law, Science & Innovation  
Sandra Day O'Connor College of Law  
[ystevens@asu.edu](mailto:ystevens@asu.edu)

CENTER FOR  
Law, Science & Innovation

**ASU** SANDRA DAY O'CONNOR  
COLLEGE of LAW  
ARIZONA STATE UNIVERSITY

Innovating law, policy and ethics for science & technology

# Emerging Technologies and Relationships: Research Cluster 2012-2013

- Gary Marchant
- Yvonne Stevens
- Mitesh Patel
- Alissa Abril
- Christopher Fong



# Emerging Technologies: Transforming All Aspects of Our Lives

Health

Family

Animals

Identity

Relationships

Behavior

Appearance

Work

Death

“[E]verything is in play.”



# Technologies in Play

## All's fair in love...

- Internet.
- E-marriage.
- fMRI.
- Genetics.
- Bioenhanced marriage.
- Implants.
- "True love" bra.
- Relationship pillow.
- Virtual marriage.
- Love Plus.
- Kissenger.
- Robots.

## and doubt:

- Social media.
- GPS.
- Google Street View.
- Spyware & spy sticks.
- Keystroke loggers.
- Lab analysis (DNA).
- Video & audio recording.
- Online gaming.
- Drones.

# Marital satisfaction and break-ups differ across on-line and off-line meeting venues

John T. Cacioppo<sup>a,1</sup>, Stephanie Cacioppo<sup>a</sup>, Gian C. Gonzaga<sup>b</sup>, Elizabeth L. Ogburn<sup>c</sup>, and Tyler J. VanderWeele<sup>c</sup>

<sup>a</sup>Department of Psychology, Center for Cognitive and Social Neuroscience, University of Chicago, Chicago, IL 60637; <sup>b</sup>Gestalt Research, Santa Monica, CA 90403; and <sup>c</sup>Department of Epidemiology, Harvard University, Boston, MA 02115

Edited by Linda M. Bartoshuk, University of Florida, Gainesville, FL, and approved May 1, 2013 (received for review December 24, 2012)

Marital discord is costly to children, families, and communities. The advent of the Internet, social networking, and on-line dating has affected how people meet future spouses, but little is known about the prevalence or outcomes of these marriages or the demographics of those involved. We addressed these questions in a nationally representative sample of 19,131 respondents who married between 2005 and 2012. Results indicate that more than one-third of marriages in America now begin on-line. In addition, marriages that began on-line, when compared with those that began through traditional off-line venues, were slightly less likely to result in a marital break-up (separation or divorce) and were associated with slightly higher marital satisfaction among those respondents who remained married. Demographic differences were identified between respondents who met their spouse through on-line vs. traditional off-line venues, but the findings for marital break-up and marital satisfaction remained significant after statistically controlling for these differences. These data suggest that the Internet may be altering the dynamics and outcomes of marriage itself.

because on-line venues have tended to be treated as a homogenous terrain (2) despite on-line venues having grown in number, variety, and complexity.

## Results

The demographic characteristics of the respondents who married between 2005 and 2012 as well as US Census data for married individuals indicated that the weighted sample of 19,131 respondents was generally representative (Table S1). For each marriage, participants were asked the month and year of the marriage and, if the most recent marriage ended in divorce, the month and year of the divorce. As summarized in Fig. 1A, 92.01% of the sample reported being currently married, 4.94% reported being divorced, 2.50% reported being separated from their spouse, and 0.55% reported being widowed (7). As in prior research (2), marital break-ups were defined as separated or divorced and constituted 7.44% of the sample.

We found evidence for a dramatic shift since the advent of the Internet in how people are meeting their spouse (3, 8). Analyses

# E-Marriage

SiliconANGLE » E-Marriage Project: An Online Wedding Proposal

## E-Marriage Project: An Online Wedding Proposal

VAL GALIN | OCTOBER 11TH

READ MORE



Are you itching to get married but your bride or groom is on another physical location? Or do you want to take advantage of the same-sex marriage law of a certain state without having to be physically there? Your wish may one day come true, as two Michigan State University law professors, Mae Kuykendall and Adam Candeub, proposed the E-Marriage Project, which was published in the *Journal of Law Reform*.



# Brain Scans and Love

## Brain Scans Could Reveal If Your Relationship Will Last

By: Natalie Wolchover, Life's Little Mysteries Staff Writer

Date: 14 February 2012 Time: 10:42 AM ET

 Recommend <259

 Tweet <37

 +1 <5

 Share <4



### Top Rated Email Marketing from AWeber

Free Support, Tips, Templates & More. Unconditional Money Back Guarantee. We're So Confident In Our Email Marketing Software You Can <http://www.AWeber.com>

When you're in the early stages of falling in love, you might hide it from friends and family. But you can't hide it from neuroscientists. By charting brain activity with an fMRI (functional magnetic resonance imaging) machine, scientists can spot telltale regions of your brain glowing joyously when you look at a photograph of your beloved.

Deep inside, your mind may already be made up about the fate of your relationship.

## Featured Research

from universities, journals, and other organizations

# I like your genes: People more likely to choose a spouse with similar DNA

*Date:* May 19, 2014

*Source:* University of Colorado at Boulder

*Summary:* Individuals are more genetically similar to their spouses than they are to randomly selected individuals from the same population, according to a new study. Scientists already knew that people tend to marry others who have similar characteristics, including religion, age, race, income, body type and education, among others. Scientists now show that people also are more likely to pick mates who have similar DNA.

### Share This

- >  Email to a friend
- >  Facebook
- >  Twitter
- >  Google+
- >  Print this page
- >  More options

### Related Topics

#### Health & Medicine

- > Genes
- > Personalized Medicine
- > Human Biology

#### Mind & Brain



## Neuroenhancement of Love and Marriage: The Chemicals Between Us

Julian Savulescu · Anders Sandberg

Received: 9 December 2007 / Accepted: 29 December 2007 / Published online: 7 February 2008

© Springer Science + Business Media B.V. 2008

**Abstract** This paper reviews the evolutionary history and biology of love and marriage. It examines the current and imminent possibilities of biological manipulation of lust, attraction and attachment, so called neuroenhancement of love. We examine the arguments for and against these biological interventions to influence love. We argue that biological interventions offer an important adjunct to psychosocial interventions, especially given the biological limitations inherent in human love.

Swedish folklore, to capture the love of someone you should carry an apple in your armpit for a day, and then give it to the intended lover. Since Roman times a long list of foodstuffs and drugs have been supposed to stimulate lust, love and good relationships [78]. Chemically helping love on its way has a long history. While in the past this was based on symbolism and wishful thinking, today the biological underpinnings of love are beginning to be elucidated, enabling science-

## Couples' nervous system linked by implants in limbs

12:00AM Tuesday July 06, 2004

By [Simon Collins](#)

By SIMON COLLINS, science reporter

When Kevin Warwick lifted his finger, his wife Irena felt as if a bolt of lightning ran down her palm and into her own finger.

In what they billed as the first direct link between nervous systems, the couple had electrodes surgically implanted in their arms and linked by radio signals to a computer.

Blindfolded for the experiment, they could feel when their spouse's finger moved.

"For me, it was like my wife communicating with me," Dr Warwick said in Auckland yesterday en route to Dunedin's science festival.

The professor of cybernetics (automated control systems) at Britain's University of Reading claims to be the world's first cybernetic organism or "cyborg" – part-human, part-machine.

Although he had the electronic implant in his arm for just three months, and his wife for only a day, he is now building up to putting one in his brain within 10 years or so.

In his book *I, Cyborg*, Dr Warwick imagines that 50 years from now most human brains will be linked electronically through a global computer network.

"They can tap into it, call on its intellectual power, its memory, merely by thinking to it," he says.

"In return, the global network calls on its cyborg nodes for information or to carry out a task."

That technology is a long way off. For the experiment on the arm, the experts started with a device the size of a cigarette packet. This was far too big to insert surgically so they put a lot of the electronics in an external pack strapped to Dr Warwick's arm and connected by 100 tiny wires to the internal device.

The device, implanted in March 2002, looked like a square comb, 3mm by 3mm, with 100 sharp electrodes sticking out 1.5mm into his flesh.

Two neurosurgeons, who had practised on sheep, hammered the comb into the nerves in Dr Warwick's forearm under local anaesthetic. Miraculously, some of his nerve cells connected with the artificial electrodes.

During the next three months, he was able to teach a robot, via a computer, to mimic his arm movements.

For one experiment, he flew to New York, plugged his arm into a computer and could manipulate the robot back in Reading via the internet. He also allowed the robot to manipulate his finger in reverse.

His next priority is to develop a system for paraplegics who have lost nerves in their limbs but still have the brain nerves to control the limbs.

[New Zealand International Science Festival](#)

*This story was found at:*

Copyright ©2007, APN Holdings NZ Limited



Kevin Warwick foresees a time when human brains will be linked electronically. Picture / Glenn Jeffrey

# “Kissenger” – the kissing robot

A virtual mouth that can emulate and transmit a kiss



# Relationship Pillow

“Each person has a ring sensor they wear to bed at night. The ring wirelessly communicates with the other person’s pillow; when one person goes to bed, their lover’s pillow begins to glow indicating their presence. Placing your head on the pillow allows you to hear the real-time heartbeat of your loved one.”



# The “True Love” Bra

“When excited, the adrenal medulla secretes catecholamine, which affects the automatic nerve and stimulates the heart rate. A built-in sensor reads the woman’s heart-rate signal and sends it to a special app via Bluetooth for analysis. the app then calculates the True Love Rate based on changes in the heart rate over time. When the True Love Rate exceeds a certain value, the bra hook is opened automatically.”

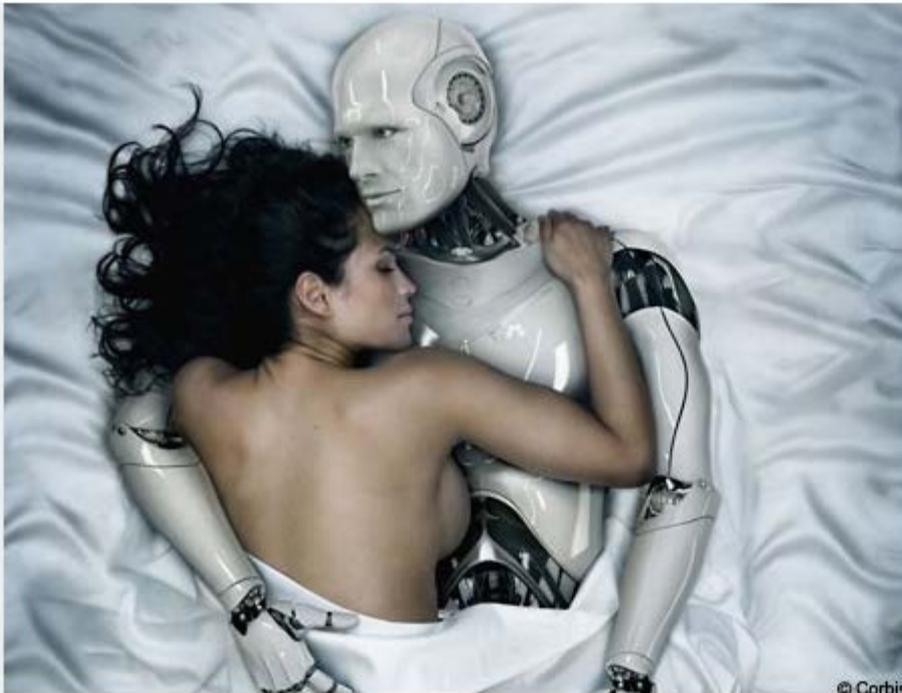


<http://io9.com/meet-the-magic-bra-that-can-only-be-opened-by-true-lov-1508440665>

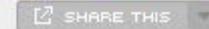
PICKED FOR TV TECH | DECEMBER 22, 2008 | 53 COMMENTS

# Bionic 'sex chip' that stimulates pleasure centre in brain developed by scientists

SOURCE: <http://www.dailymail.co.uk/sciencetech/article-1099722/Bionic-sex-chip-stimulates-pleasure-c...>



© Corbis



justright  
added this

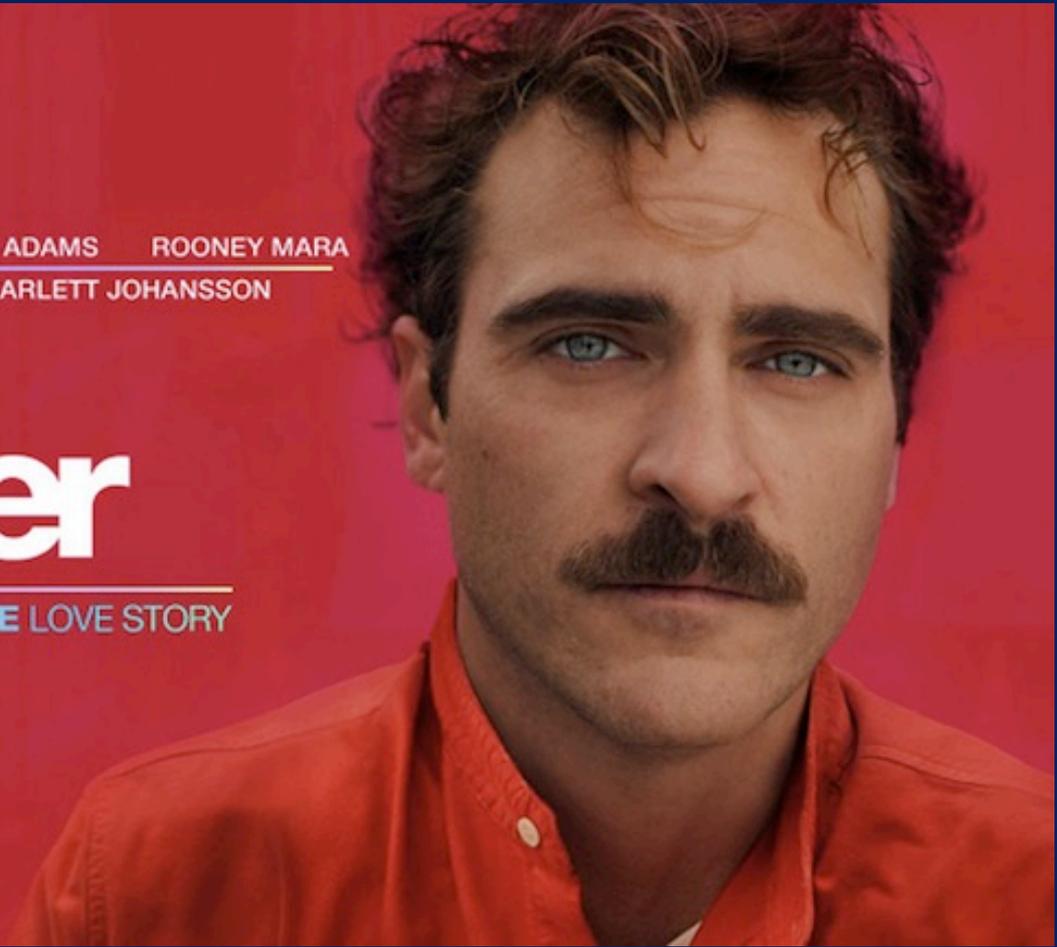


# HER

JOAQUIN PHOENIX    AMY ADAMS    ROONEY MARA  
OLIVIA WILDE    AND SCARLETT JOHANSSON

her

A SPIKE JONZE LOVE STORY



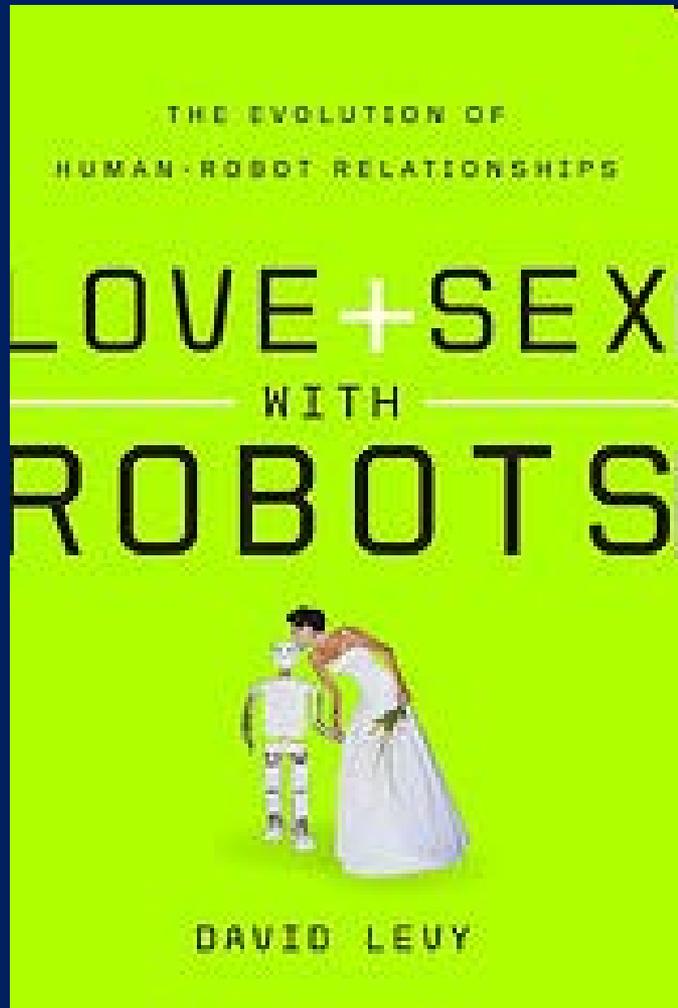
# Japan “Love Plus”

## Tokyo man marries video game character

By **Kyung Lah**, CNN

December 17, 2009 12:27 a.m. EST





“Sexbots will never have headaches, fatigue, impotence, premature ejaculation, pubic lice, disinterest, menstrual blood, jock strap itch, yeast infections, genital warts, AIDS/HIV, herpes, silly expectations, or inhibiting phobias. Sexbots will never stalk us, rape us, diss us on their blog, weep when we dump them, or tell their friends we were boring in bed.”

-Hank Hyena, Sexbots Will Give Us Longevity Orgasm, H+ Magazine, Dec. 2009



# TRUECOMPANION.COM

WORLD'S FIRST SEX ROBOT - ALWAYS TURNED ON AND READY TO TALK OR PLAY

[Shop Home](#) [About Us](#) [Contact Us](#) [FAQ \(Frequently Asked Questions\)](#) [Master Agreement](#)

[Login / Register](#) | [My C](#)

## Categories

- ▶ [Roxxxy TrueCompanion Sex Robot](#)
- ▶ [Rocky TrueCompanion](#)

## Signup for our newsletter

[Click here to unsubscribe](#)

## My Profile

- [Login](#)
- [Register](#)

[Shop Home / Rocky TrueCompanion](#)

[Printable Version](#) !

## Rocky TrueCompanion Sex Robot

Rocky TrueCompanion Sex Robot  
Click over image to enlarge

Price: **\$1,495.00**

[E-mail to a friend](#) | [Add To Wish List](#)

## Purchase

Skin Tone :

HairStyle :

HairColor :

EyeColor :

EyebrowColor :

Razor Stubble on Face :

PubicHair :

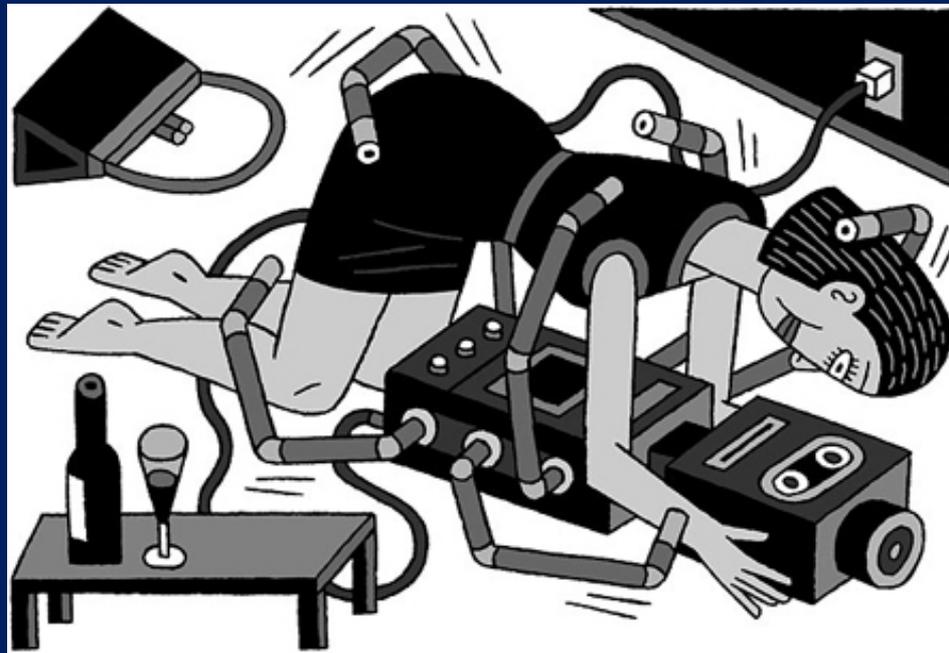
Quantity :

## Overview

This is the male sex robot you have been waiting for! Being well equipped along with two inputs allow him to please all takers! Preorder now for a base price of \$1,495.00 upfront and the balance of the \$6,495.00 plus shipping and handling is due before we ship him to you. He is ready for action to please you - Talk or Play - It is up to you!

Item's limited time special base price is \$6,495.00 is a \$500.00 SAVINGS! This special pricing option is only \$1,499.00 upon ordering (plus taxes and estimated shipping fee) and balance upon shipping to you. There is also a \$19.95 monthly subscription fee for updates, software usage, online girlfriend/boyfriend personality swapping forum and general 24/7 support.

One in five people in the U. K. (out of 2000 respondents) would have sex with a robot, given the opportunity.



[http://www.huffingtonpost.com/2014/05/07/1-in-5-sex-with-robot-poll\\_n\\_5281180.html](http://www.huffingtonpost.com/2014/05/07/1-in-5-sex-with-robot-poll_n_5281180.html)

# Technology: Marriage's Third Wheel?

- “Together” yet “apart”.
- Breeds disconnect.
- Diminishes presence.
- Loss of engagement.



# Technology: Greater Connectedness?

- “Connected presence” or “persistent presence” allows couples to remain closer in touch:
  - Frequent texting throughout the day.
  - Skype when travelling alone.
  - Sharing poignant moments (real time photos/video) when apart.



# Marital Doubt: I Spy With my little Eye...

## Allegedly True Examples

- a) Wii cheat.
- b) Street View TMI.
- c) Password epiphany.
- d) DNA bust.
- e) Websites galore.
- f) Avatar infidelity.
- g) GPS tracking.

# Role of Law

# The Law's Response: Present & Future

## 5 Examples:

- Virtual worlds.
- Internet spying.
- GPS tracking.
- Drones.
- Robots.



# Technology, Law & Relationships

- New technologies are rapidly transforming personal relationships. Law has the potential to play a critical role in governing these transitions and changes, but determining the appropriate legal approach raises many policy, social and ethical issues.

# Policy, Social & Ethical Issues

- Legal boundaries - where & when should law intervene?
- Soft vs. hard regulation (i.e. guidelines vs. directives)?
- Up to industry to regulate itself (uniform standards / greater participation)?
- Wait & see approach (if no specific law, wait and see how issues become resolved)?
- Protection of some at the expense of others (e.g. eraser laws vs. free speech)?
- Personal responsibility & accountability vs. legal protection?
- Live & let live - minimize regulation?

# In Closing:

## Examples of Legal / Ethical Questions Raised by Relationship Technologies

- Should spouses have a right to access the cell phone, social media, e-mail, etc., account(s) of their partner? Under what circumstances?
- Should it be illegal to deliberately expose someone to a pro-love or anti-love inducing agent?
- Should law control unsavory or criminal activities among characters in virtual worlds?
- Should it be adultery to have sex with a robot or an avatar?

# Questions?

“We’re lonely, but we’re afraid of intimacy. And so from social networks to sociable robots, we’re designing technologies that will give us the illusion of companionship without the demands of friendship.” (Sherry Turkle, Professor, MIT, 2012).