

## Emerging Technologies Law and Ethics

**Gary Marchant, Ph.D., JD**  
Center for Law, Science & Innovation  
Sandra Day O'Connor College of Law  
[gary.marchant@asu.edu](mailto:gary.marchant@asu.edu)

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# CHANGE

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## CHANGE



Chief Justice Roberts

*"[P]oliticians – and judges for that matter – should be wary of the assumption that the future will be little more than an extension of things as they are."*

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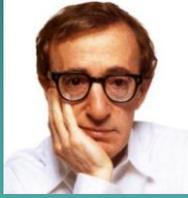
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**CHANGE**



Woody Allen

*“Change is inevitable, except from vending machines.”*

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**CHANGE**

Technology Revolutions  
of the  
20<sup>th</sup> Century



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**CHANGE**

Technologies with  
*radical, pervasive & enduring* impact

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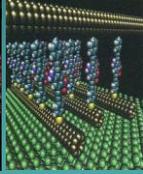
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## CHANGE

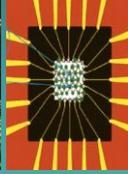
### Early 21<sup>st</sup> Century: Multiple Converging Technology Revolutions



Biotechnology  
and Genetics



Nanotechnology



Computing  
and  
Communication  
Technologies



Neurobiology  
and  
Cognitive  
Sciences

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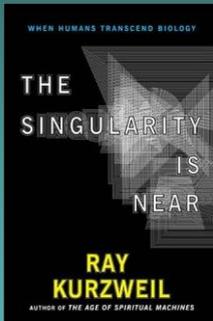
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## CHANGE – Exponential Change



*“An analysis of the history of technology shows that technological change is exponential, contrary to the common-sense ‘intuitive linear’ view.”*

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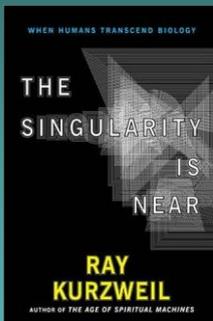
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## CHANGE – Exponential Change



*“So we won’t experience 100 years of progress in the 21<sup>st</sup> century – it will be more like 20,000 years of progress (at today’s rate).”*

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## GENETICS

### Disclosure Example : Custody



- Fatal, neurodegenerative disease
- Mid-life onset
- Children of HD patient have 50% probability of inheriting the gene
- Most at risk people choose not to find out if they have the gene

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## GENETICS

### Disclosure Example : Custody



*In recent S. Carolina divorce case, husband convinced judge to require HD testing of mother before she could receive custody.*

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## GENETICS

### Direct-to-Consumer Genetic Testing



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**BGI**  
cognitivegenomics

About... Privacy... FAQ... Volunteer... Log in...

### Advancing the frontier of cognitive science

BGI Cognitive Genomics is an interdisciplinary research group at [BGI](#), one of the largest genomics institutes in the world. Our focus is human cognition, with emphasis on the use of tools made available by rapid advances in DNA sequencing technology.

We seek to address questions such as:

- How does the human brain work?
- How do genes affect cognitive ability?
- How do genes and environment interact to produce human intelligence and personality?

We are currently recruiting subjects for:

1. A Gene-Trait Association Study of *g*. If you are cognitively gifted, we encourage you to [participate!](#)
2. A Genome Wide Association Study of Prosopagnosia (face blindness). If you suspect you may have this condition, see [here](#).




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## GENETICS

### Our DNA is Everywhere

# GENE SWIPE



With more DNA labs, few know whether those chromosomes are yours—or you stole them from someone else

By Eric Gardner  
with photography  
by David Swann

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## GENETICS

### Our DNA is Everywhere

- We are constantly shedding our DNA in saliva, hair, skin cells...
- New techniques allows collection, amplification, and characterization of our DNA
- Examples:
  - Cigarette butt
  - Chewing gum
  - Drinking glass
  - Straw
  - Envelope

ABA Journal, August 2011

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## GENETICS

### Surreptitious Genetic Testing: *Fidelity National Title*



- In small business dispute, one party and its lawyers received threatening anonymous letters
- They suspected owner of other company, but he denied it

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## GENETICS

### Surreptitious Genetic Testing: *Fidelity National Title*



- They deposed owner in their lawyer's office; clerk collected his used drinking glass
- DNA obtained from drinking glass matched DNA from saliva on envelopes

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## GENETICS

### New Era of Personalized Medicine



*“In the very near future, primary care physicians will routinely perform genetic tests before writing a prescription because (they will) want to identify the poor responders.”*

Francis Collins  
(AAFP Annual Meeting, 1998)

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## GENETICS

### Personalized Medicine Liability: Physicians



#### The Perfect Target?

- Direct patient contact
- Ample supply of critics, with plenty of ammunition
- Limited defenses
- Defenses for payors and manufacturers

Source: Robert Milligan

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## GENETICS

### Genetics and Toxic Torts: Overview

- Two major types of data:
  - Genetic susceptibility to toxic agents
  - Genetic biomarkers of exposure or effect
- Can benefit plaintiffs or defendants in appropriate cases
  - Like forensic DNA in criminal cases, genetic biomarkers in tort cases have the potential to inculpate the guilty and exonerate the innocent

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## GENETICS

### Genetics and Toxic Torts: Overview

- Doctrinal templates for using genetic data in toxic torts already exist
- Key Issues:
  - Premature or invalid use
  - Inconsistent treatment by judges and juries
  - Ethical issues (privacy, etc.)

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## GENETICS

### Lead / IQ / Genetics

- Lead paint manufacturers have argued that low IQ of children exposed to lead paint may be caused by genetic factors
- Racially charged issue – many of inner-city kids exposed to highest lead levels are minority

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## GENETICS

### Lead / IQ / Genetics

- E.g., Jones v. NL Industries, N.D. Miss., 03-229, *verdict* 8/4/06
  - Defendant argued that plaintiff children (14 kids in 2 families) had genetic condition causing slight mental retardation; conducted genetic testing
    - One mother stated she hoped her children didn't find out about defendant's argument
  - Jury returned verdict for defense

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## GENETICS

### Natural Born Killers?



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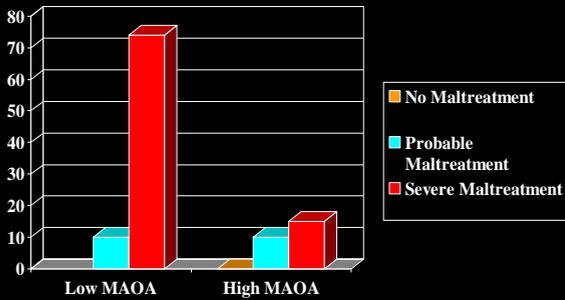
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## GENETICS

### Disposition Towards Violence



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## GENETICS

### Jeff Landrigan Case



- Biological family: 4 generations of violent criminals (males)
- Adopted into a well-educated, conservative family shortly after birth
- Acted abnormally as a youth - start committing crimes at age 5-6, first jailed at age 11

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## GENETICS

### Jeff Landrigan Case



- Extensive criminal record, including two brutal murders
- Appealed death penalty to US Supreme Court based on "murder gene"

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## GENETICS

### Bradley Waldroup Case (Tenn. 2010)



- Waldroup murdered his estranged wife's friend and tried to also murder his wife
- Charged with capital murder
- Tested positive for MAOA high risk gene variant; suffered from early childhood abuse
- Jury convicted him of voluntary manslaughter rather than felony murder

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## GENETICS



"For the last time, in trademark disputes, you don't get to see any DNA evidence."

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## The Technologies Nanotechnology

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# NANOTECHNOLOGY

## What Is It?



- Definition: The study, manipulation, and design of materials and technologies at the molecular scale
- One nanometer = a billionth (10<sup>-9</sup>) of a meter = 1/75,000 the width of a human hair
  - Nanotechnology generally defined as materials <100nm

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# NANOTECHNOLOGY

## Impacts and Importance

Senator Ron Wyden:

*“The nanotechnology revolution has the potential to change America on a scale equal to, if not greater than, the computer revolution.”*

Newt Gingrich, former House Speaker

*“Nanotechnology is our country’s future.”*

Andrew Eschenbach, Director, NCI

*“We expect to end the pain and suffering due to cancer by 2015 ...”*

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2000-2008						
Estimates show an average growth rate of key nanotechnology indicators of 23 - 35%						
World /US/	People -primary workforce	SCI papers	Patents applications	Final Products Market	R&D Funding public + private	Venture Capital
2000 (actual)	~ 60,000 /25,000/	18,085 /5,342/	1,197 /405/	~ \$30 B /\$13 B/	~ \$1.2 B /\$0.37 B/	~ \$0.21 B /\$0.17 B/
2008 (actual)	~ 400,000 /150,000/	65,000 /15,000/	12,776 /3,729/	~ \$200 B /\$80 B/	~ \$14 B /\$3.7 B/	~ \$1.4 B /\$1.17 B/
2000 - 2008 average growth	~ 25%	~ 23%	~ 35%	~ 25%	~ 35%	~ 30%
2015 (estimation in 2000)	~ 2,000,000 /800,000/			~ \$1,000B /\$400B/		
2020 (extrapolation)	~ 6,000,000 /2,000,000/			~ \$3,000B /\$1,000B/		
<b>Evolving Topics</b>	<b>Research frontiers change from passive nanostructures in 2000-2005, to active nanostructures after 2006, and to nanosystems after 2010</b>					

Nano2 Report, 2010, p. XXXIII MC Res, Dec 1 2010

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## NANOTECHNOLOGY

### Corporate America Embraces Nano



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## NANOTECHNOLOGY

### Over 1300 Nano Products Already On Market



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## NANOTECHNOLOGY

### “Cool” Nanotech Products

- Stain resistant pants
- Odor-free socks
- Self-cleaning glass
- Nano-sized sensors to “signal” food spoilage
- Nano “smart dusts” to detect chemicals
- Advanced drug delivery devices that can target individual cancer cells

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# NANOTECHNOLOGY

## The Next Asbestos?

HOME PAGE | MY TIMES | TODAY'S PAPER | VIDEO | MOST POPULAR | TIMES TOPICS

The New York Times Science

WORLD | U.S. | N.Y. / REGION | BUSINESS | TECHNOLOGY | SCIENCE | HEALTH | SPORTS | OPINION

ENVIRONMENT | SPACE & COSMOS

**WELL,**

### In Study, Researchers Find Nanotubes May Pose Health Risks Similar to Asbestos

By KENNETH CHANG  
Published: May 21, 2009

Nanotubes, one of the wonder materials of the new age of nanotechnology, may carry a health risk similar to that of asbestos, a wonder material of an earlier age that turned into a scourge after decades of use when its fibers were found to cause lung disease, researchers said Tuesday.

EMAIL | PRINT | REPRINTS | SAVE | SHARE

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# NANOTECHNOLOGY

## Uncertainty: Single-Walled Nanotubes

*Are single-walled carbon nanotubes toxic?*

- 20 major types of SWNT
- 4 manufacturing types (trace impurities)
- Lengths ranging from 5 – 300 nm
- 5 methods of purification
- 10 possible surface coatings

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> 50,000 SWNT samples

Nanomaterial-by-nanomaterial risk assessment not feasible

Source: CBEN, Rice U.

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# NANOTECHNOLOGY

### 1. LAW: What's the next big thing in nanotech? Litigation (08/14/2009)

Sara Goodman, Greenwire reporter

Nanotechnology - the science of manipulating matter at the nanoscale, down to 1/100,000 the width of a human hair, to create new and unique materials and products - holds great promise for revolutions in medicine, energy and agriculture.

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# The Technologies



## Surveillance Technologies

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### SURVEILLANCE TECHNOLOGIES

#### Surveillance Cameras

- Tens of millions of advanced surveillance cameras installed in cities worldwide
- In London, each person is filmed more than 300 times per day by network of >4 million surveillance cameras

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### SURVEILLANCE TECHNOLOGIES

#### Surveillance Cameras

- Critics allege that cameras have had very little effect in deterring crime
  - But helpful in solving crimes (e.g., London train terrorism attack)
- Many U.S. cities now installing closed-circuit television cameras in public places

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## SURVEILLANCE TECHNOLOGIES

### Boston Marathon Bombers



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## SURVEILLANCE TECHNOLOGIES

### Other Camera/Privacy Examples

- Photo radar and red light cameras
- Nanny cams
- Cameras that allow parents to watch in real-time on their computers their children at day care, etc.
- Facial recognition cameras
- Behavioral monitoring cameras
- Cell phone cameras

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## SURVEILLANCE TECHNOLOGIES

### Employee Computer Monitoring Technologies

- Surveillance monitoring software allows supervisors to review, monitor every keystroke made by worker
- Several commercial computer programs available to view and search employee e-mails

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## SURVEILLANCE TECHNOLOGIES

### Employee Computer Monitoring Technologies

- Software can display in real-time screen currently on worker's computer; or take "snap shots" of worker's screen at regular intervals for subsequent review
- One program can send pop-up message: "You are not working as fast as the person next to you."

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## SURVEILLANCE TECHNOLOGIES

### Employee Location/Access Monitoring

- Building access monitoring used to investigate employee theft/misconduct
- "Tripmaster" - installed on trucks -- keeps track of speed, shifting, excessive idling and frequency and duration of stops
- "Hygiene Guard" - smart badge records whether worker used the soap dispenser and stood for required time in front of sink each time worker enters bathroom

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## SURVEILLANCE TECHNOLOGIES

### Employer Monitoring of Internet/Email Use: Rationales

- Increase productivity
  - Wall Street Journal estimates that "cyberslacking" results in 40% reduction in productivity
- Prevent sexual harassment lawsuits

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## SURVEILLANCE TECHNOLOGIES

### Employer Monitoring of Internet/Email Use: Rationales

- Prevent computer crime against employer
  - e.g., white-collar embezzlement, theft of trade secrets, alteration of files
- Avoid vicarious liability for employee acts
  - e.g., obscenity, copyright violations, unlawful disclosure of confidential information, stock manipulation, “cybersmearing,” viruses

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## SURVEILLANCE TECHNOLOGIES

### Employer Monitoring: Backfire Potential

- Workers may find ways to disrupt or deceive monitors
  - e.g., typists hold key down to get multiple keystrokes
- Create more adversarial work environment

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## SURVEILLANCE TECHNOLOGIES

### Employer Monitoring: Backfire Potential

- Can produce increased stress, absenteeism, and turnover that reduce productivity
- Emphasis on quantity over quality can result in inferior product
  - e.g., phone operators avoid/cut-off time-consuming calls from customers

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**THE WALL STREET JOURNAL**  
WSJ.com

TECHNOLOGY | Updated August 23, 2012, 6:07 p.m. ET

## On Orbitz, Mac Users Steered to Pricier Hotels

By DANA MATTIOLI



Orbitz Worldwide Inc. has found that people who use Apple Inc. hotels, so the online travel agency is starting to show them different visitors see.

The Orbitz effort, which is in its early stages, demonstrates how innocuous information—in this case, the fact that customers are tasters and spending habits.

Orbitz executives confirmed that the company is experimenting said the company isn't showing the same room to different user rank results by price.

Orbitz found Mac users on average spend \$20 to \$30 more a night given the site's average nightly hotel booking is around \$100, to book a four- or five-star hotel than PC users, Mr. Yee said, tend to stay in more expensive rooms.

Orbitz has found that Apple users spend as much as 30% more a night on hotels, so the online travel site is starting to show them different, and sometimes costlier, options than Windows visitors see. Dana Mattioli reports. Photo: Bloomberg.

**Why the Apple Demographic is So Important:**  
Apple is practically creating its own demographic, and

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## Your address book is mine: Many iPhone apps take your data



February 14, 2012 4:00 PM  
Jennifer Van Grove 37 Comments

Like 652 +1 152 Tweet 1,420 Share 479 VB More

Path got caught red-handed uploading users' address books to its servers and had to apologize. But the relatively obscure journaling app is not alone. In fact, Path was crucified for a practice that has become an unspoken industry standard.

Facebook, Twitter, Instagram, Foursquare, Foodspotting, Yelp, and Gowalla are among a smattering of iOS applications that have been sending the actual names, email addresses and/or phone numbers from your device's internal address book to their servers, VentureBeat has learned. Several do so without first asking permission, and Instagram and Foursquare only added permissions prompts after the Path flare-up.

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HUFF POST **TECH**

## Carrier IQ: Researcher Trevor Eckhart Out's Creepy, Hidden App Installed On Smartphones (VIDEO) (UPDATE)



A security researcher [has posted a video](#), detailing hidden software installed on smart phones that logs numerous details about users' activities.

In a 17-minute video posted Monday on YouTube, Trevor Eckhart shows how the software — known as Carrier IQ — logs every text message, Google search and phone number typed on a wide variety of smart phones — including HTC, Blackberry, Nokia — and others — and reports them to the mobile phone carrier.

The application, which is labeled on Eckhart's HTC smartphone as "HTC IQ Agent," also logs the URL of websites searched on the phone, even if the user intends to encrypt that data using a URL that begins with "HTTPS," Eckhart said.

The software always runs when Android operating system is running and users are unable to stop it, Eckhart said in the video.

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**PLEASE ROB ME**

**Raising awareness about over-sharing**

Check out our [quest blog post](#) on the CDT website.

**Why**

Hey, do you have a Twitter account? Have you ever noticed those messages in which people tell you where they are? Pretty annoying, eh. Well, they're actually also potentially pretty dangerous. We're about to tell you why.

Don't get us wrong, we love the whole location-aware thing. The information is very interesting and can be used to create some pretty awesome applications. However, the way in which people are stimulated to participate in sharing this information, is less awesome. Services like Foursquare allow you to fulfil some primeval urge to colonize the planet. A part of that is letting everyone know you own that specific spot. You get to tell where you are and if you're there first, it's yours. ☺, and of course there's badges.

**More Info**

[Home](#)  
[Why](#)

**Made Possible By**

**Forthehack**  
[Foursquare](#)  
[Twitter](#)  
[@boyanamster](#)  
[@forthehack](#)

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**cnet** 2012 HOLIDAY GIFT GUIDE

Reviews - News - Download - CNET TV - How To - Deals

CNET | News | Privacy & data protection

December 1, 2006 2:20 PM PST

**FBI taps cell phone mic as eavesdropping tool**

By Declan McCullagh and Anne Broache  
 Staff Writers, CNET News  
 Last modified: December 1, 2006 6:35 PM PST

**Related Stories**

Judge won't halt AT&T wiretapping lawsuit  
 November 17, 2006

Networking exec blasts wiretapping rules  
 November 16, 2006

Group appeals government eavesdropping ruling  
 July 21, 2006

**The FBI appears to have begun using a novel form of electronic surveillance in criminal investigations: remotely activating a mobile phone's microphone and using it to eavesdrop on nearby conversations.**

The technique is called a "toeing bug," and was approved by top U.S. Department of Justice officials for use against members of a New York organized crime family who were wary of conventional surveillance techniques such as tailing a suspect or wiretapping him.

Nextel cell phones owned by two alleged mobsters, John Ardito and his attorney Peter Peluso, were used by the FBI to listen in on nearby conversations. The FBI views Ardito as one of the most powerful men in the Genovese family, a major part of the national Mafia.

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**SURVEILLANCE TECHNOLOGIES**

**Online Exploitation Sites**

- Various “revenge porn” and other such websites (e.g., dirty.com, “Is Anyone Up”, etc) encourage viewers to post naked and other embarrassing pictures of ex’s, etc.
  - Often accompanied by names, facebook links etc. that increase embarrassment, cyber bullying
- Information may be available online permanently – no legal rights to take down?

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## SURVEILLANCE TECHNOLOGIES

### Delta Airlines Flight Attendant



- o Delta did not fire male employees who had also posted risqué pictures of themselves in uniform on social media sites
- o Simonetti filed lawsuit for disparate treatment based on sex

Courtesy of Ellen Simonetti

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## SURVEILLANCE TECHNOLOGIES

### The Fairy Intern



- o October 31, bank intern Kevin Colvin e-mails boss he can't come to work he needs to get to NY for a family emergency.
- o Instead, he attends Halloween party, posting on Facebook a dated picture of himself dressed as a fairy
- o Boss replies to Kevin's email copying everyone in office by attaching the picture he found on facebook, commenting "...nice wand," and firing him for lying

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## Foul-Mouthed Worker Forgot She "Friended" Her Boss



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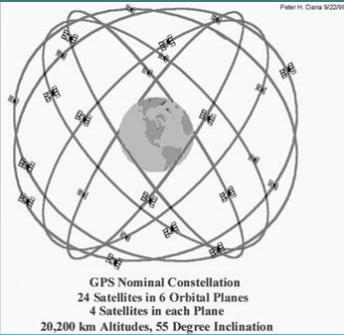
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## SURVEILLANCE TECHNOLOGIES

### The Navstar GPS Constellation



Accuracy  
(civilian use):  
10 meters

EU deploying its  
Galileo satellite  
system –1 meter  
resolution

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## SURVEILLANCE TECHNOLOGIES

### GPS Navigational Units



- Most new cars equipped with GPS navigational unit
- Newest ones include voice instructions
- Some now offer real-time traffic alerts (based on collected data from vehicles)

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## SURVEILLANCE TECHNOLOGIES

### GPS Navigational Units



- New feature – pricing for all nearby gas stations
- Another new GPS unit directs you to nearest empty parking spot

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## SURVEILLANCE TECHNOLOGIES

### Cell Phone Location Technologies: e911 Rule

- Unlike land lines, location of cell phones calling 911 cannot be traced
- Many examples of people calling 911 who could have been saved if emergency response knew caller's location
- In 1996, FCC adopted Enhanced 911 (e911) rules requiring wireless carriers to be capable of detecting location of 911 calls by Dec. 2005
- Most new cell phones contain Global Positioning System (GPS) chips

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## SURVEILLANCE TECHNOLOGIES

### Location Based Services



- Location-based fees - e.g., free calls within 100 yards of residence
- Value-added services - e.g., navigational, traffic, restaurant, police
- Location-based advertising
- Dating compatibility signaling

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## SURVEILLANCE TECHNOLOGIES

### Personal Tracking



- Employers tracking employees
- Parents tracking children
- Suspicious spouses tracking partners
- GPS stalkers

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## SURVEILLANCE TECHNOLOGIES

### Spying on ...?

28 votes  
vote!

#### Mini GPS spy tracker

Sep 13, 2006



If you do not trust your husband or you always want to know where he is. Or if you want to know where your [kids](#) are then you can use the new Sky TRX mini-Tracker. It will help you keep track of the person you want and you will know where he is at any moment. The other thing is that you can use it if you are a private detective.

Sky TRX mini [spy](#) Tracker is a very neat [gadget](#) that uses the GPS system to locate itself. It provides a very exact current location and the accuracy is 2.5 meters. You will be able to know where your husband's car is any time. This gadget works with [Google](#) Earth so you can always find out the location of your device on the internet. It is very convenient because you can track somebody any time any day.

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## SURVEILLANCE TECHNOLOGIES

### GPS Applications: Employee Location Monitoring

- Many employers putting GPS chips on company vehicles or employee badges
  - e.g., "Fleetboss" - installed on trucks -- keeps track of speed, shifting, excessive idling and frequency and duration of stops ([FleetBoss SERIES 5500](#))

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## SURVEILLANCE TECHNOLOGIES

### GPS Applications: Employee Location Monitoring

- Benefits to employers:
  - Ensure long-distance drivers get legally required sleep breaks (enhancing safety)
  - Help employees find locations more efficiently – e.g., UPS trucks, taxis
  - Reduce employee fraud/malingering
    - Some employers have reported 30 percent reduction in mileage on company cars after GPS device installed

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## SURVEILLANCE TECHNOLOGIES

### Some Worker Responses

*“It’s kind of like Big Brother is watching a little bit .... I get testy in the deli when I’m waiting in line for coffee, because it’s like, hey, they’re watching me, I’ve got to go.”*

*“Previously, as long as we got our work done, there was never any problem. All of a sudden, it became wrong if you stopped at a grocery store for some gum.”*

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## SURVEILLANCE TECHNOLOGIES

### GPS Employee Tracking: Potential for Abuse?

- Frank Coconate was a long-time city worker (water inspector) who is also a political activist and outspoken critic of Mayor Richard Daley
- In July 2005, he was suspended from his job based in part on evidence from GPS chip in his city vehicle
  - Data allegedly showed that he did not visit many of the sites he submitted inspection reports for, and was not working some of the hours he claimed for overtime pay

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## SURVEILLANCE TECHNOLOGIES

### A Self-Fulfilling Prophecy?

*“You already have zero privacy.  
Get over it.”*

- Scott McNealy, CEO of Sun Microsystems  
(1999)

*“1984 may have come a bit later than  
predicted, but it’s here at last”*

- 9<sup>th</sup> Cir. Chief Judge Kozinski (2010)

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## The Technologies Brain Scanning

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## BRAIN SCANNING

### What’s In Your Brain?



*“I already don’t want my  
employer or my insurance  
company to know my genome.  
As to my brainome, I don’t want  
anyone to know it for any  
purpose whatsoever. It is . . . my  
most intimate identity.”*

- Donald Kennedy  
Editor, Science

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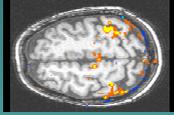
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## BRAIN SCANNING

Current applications include:

- Lie detection
- Crime scene recognition
- Terrorist identification
- Latent racial animus
- Political preferences
- Neuromarketing
- Pain
- Mental health vulnerabilities
- Sexual attraction
- Extraversion
- Drug and alcohol use
- Empathy
- Pessimism
- Intelligence
- Awareness in vegetative state
- Intentions



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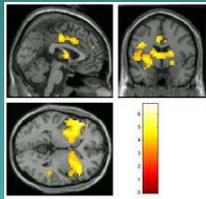
## BRAIN SCANNING

### fMRI Lie Detector

Theory: Different (and more) parts of brain “light up” when telling lie versus truth

*“If you tell the truth you don’t have to remember anything.”*

- Mark Twain



Regions of color show increased blood flow to those areas of the brain, showing more activity

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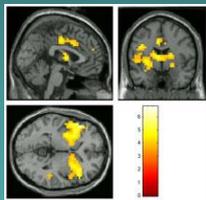
## BRAIN SCANNING

### fMRI Lie Detector

Experimental studies: show approx. 90% accuracy (in ideal lab controlled conditions)

*“I’d use it tomorrow in virtually every criminal and civil case on my desk.”*

- Defense attorney Robert Shapiro



Regions of color show increased blood flow to those areas of the brain, showing more activity

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Address http://www.nolie-mri.com/index.htm



Home | Product | Customers | Investors | Test Centers | Publications | About Us

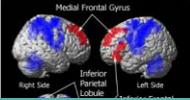
**New Truth Verification Technology**

No Lie MRI, Inc. provides unbiased methods for the detection of deception and other information stored in the brain.

The technology used by No Lie MRI represents the first and only direct measure of truth verification and lie detection in human history!

No Lie MRI uses techniques that:

- Bypass conscious cognitive processing
- Measure the activity of the central nervous system (brain and spinal cord) rather than the peripheral nervous system (as polygraph testing does).




To help identify the information of most interest to you, please let us know who you are.

Individual Customers | Lawyers / Law Firms

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Customers - Legal & Ethics

Overview	<b>Ethics</b>
Corporations	No Lie MRI, Inc. and its franchisees will have and live up to the generally accepted moral and ethical standards of the communities in which it tests. Solutions will be developed in order to fully realize the beneficial potential of this technology while minimizing the potentially harmful aspects.
Lawyers	<b>Examples of Guidelines For Testing</b>
Government	<ul style="list-style-type: none"> <li>Testing will only be conducted with the full consent of the interviewee</li> <li>Testing will only be done on those topics the individual being tested agrees to in advance</li> </ul>
Individuals	<b>Legal</b>
Legal & Ethics	No Lie MRI, Inc. is presently working to have its testing allowed as evidence in U.S. and State courts. Applicable laws depend on the country and jurisdiction involved.

Home | Privacy Policy | Site Map

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## BRAIN SCANNING

### Examples of People Seeking Brain Scanning



- Spouse trying to prove that they were not unfaithful
- Convicts claiming innocence
- Small business owner accused by insurance company with arson
- Priest wanting to clear charges of child molestation
- Australian man who wants to prove he is not gay
- Internet dating companies

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## BRAIN SCANNING

### Potential Courtroom Applications

- Voluntary or compelled testimony of criminal defendants
- Witnesses can introduce brain scans to support veracity of their testimony
- Scanning of jurors for statements on objectivity and biases (e.g., racial animus)
- Issues: 4<sup>th</sup> amendment search? 5<sup>th</sup> amendment right against self-incrimination?

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## BRAIN SCANNING

### “Abnormal Brains” in Criminal Law



- Grady Nelson charged with capital murder after stabbing his wife 61 times (also stabbed and raped her 11 yr old daughter)
- Used quantitative EEG (“QEEG”) brain scan to argue involuntary predisposition to impulsiveness and violence.
- Jury gave life without parole rather than death penalty based on brain scan evidence

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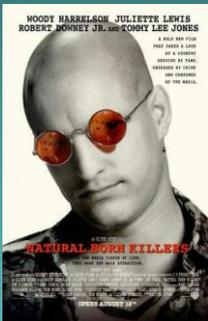
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## BRAIN SCANNING

### “Abnormal Brains” in Criminal Law



Over 200 other criminal cases using other types of brain scanning evidence

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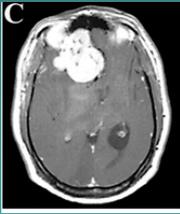
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## BRAIN SCANNING

Free Will? *Archives of Neurology*



Married 40-year old public school teacher with spotless record and behavior started engaging in highly inappropriate, aggressive sexual behavior and was ordered to undergo 12-step program.

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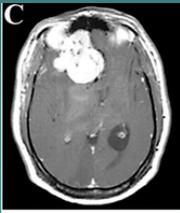
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## BRAIN SCANNING

Free Will? *Archives of Neurology*



He continued aggressive sexual behavior towards staff, but on day before being sent to prison doctors discovered egg-sized tumor pushing against pre-frontal lobe (responsible for self-restraint).

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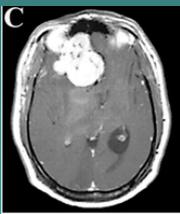
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## BRAIN SCANNING

Free Will? *Archives of Neurology*



After removal of tumor, man reverted to normal behavior.

Approx. one year later, inappropriate conduct started again; tumor had remerged; removal of tumor again led to normal behavior.

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## VIRTUAL WORLDS

### Second Life - [www.SecondLife.com](http://www.SecondLife.com)

- Not a game; but a virtual environment for social interaction, politics, commerce, research, education, entertainment, illicit activities, etc.
- Each participant picks and designs an “avatar”
- Currency: Linden dollars (~186 L = \$1)
- Own IP rights to whatever you design in world
- Approx. 13 million registered users
- Many participants earning real money in 2<sup>nd</sup> Life
- 800,000 unique items sold or traded per month

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## VIRTUAL WORLDS

### Second Life Images



**A Luxurious Second Life** Having a good thing is significantly cheaper in the virtual world. Here is a selection of items and their prices in Second Life.

 Mansion with pool 2,000 Linden \$10.00	 Designer perfume 40 Linden \$0.21	 Athletic shoes 100 Linden \$0.53	 Cellphone 400 Linden \$2.11	 Wedding dress 1,000 Linden \$5.00	 Sailboat 2,000 Linden \$10.00
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## VIRTUAL WORLDS

### Virtual Obsession

- 20-30 million players spend more time in virtual worlds than their real life jobs
- 40% of male and 53% of female regular players say that their best friend is another avatar
- Korean man died from heart failure after playing virtual world game for 50 consecutive hours



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## VIRTUAL WORLDS

### Law in Second Life

- Numerous lawyers now practicing at least part time in Second Life
- Second Life Bar Association
- Various proposals to establish in-world court system
- Several cases pending in U.S. courts arising from activities within virtual worlds

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## VIRTUAL WORLDS

### Criminal Activity

- Second Life Bank Ginko Financial convinced several hundred people to deposit their Linden dollars, bank vanished in July 2007 along with over US\$700,000 in deposits
- Nov. 2007 – Dutch teenager arrested for stealing over \$5K worth of furniture from Habbo Hotel (kid's virtual world)

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## VIRTUAL WORLDS

### “Is This Man Cheating on His Wife?” WSJ, Aug. 10, 2007



While his wife, Sue, watches television in the living room, Mr. Hoogestraat chats online with what appears on the screen to be a tall, slim redhead. He's never met the woman outside of the computer world of Second Life ....

He's never so much as spoken to her on the telephone. But their relationship has taken on curiously real dimensions. They own two dogs, pay a mortgage together and spend hours shopping at the mall and taking long motorcycle rides

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## VIRTUAL WORLDS

“Is This Man Cheating on His Wife?”  
WSJ, Aug. 10, 2007



The woman he's legally wed to is not amused. *"It's really devastating,"* says Sue Hoogestraat, ... *"You try to talk to someone or bring them a drink, and they'll be having sex with a cartoon."*

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## VIRTUAL WORLDS

### Other Legal and Social Issues in Virtual Worlds

- What will be the social, economic, political, and legal impacts of people spending more and more time in “virtual reality”?
- Can enforceable rights (e.g., contractual, IP, marital) be created in virtual reality?
- Should Linden dollar earnings be taxable?
- Jurisdiction over 2<sup>nd</sup> Life disputes?
- Unauthorized practice of law?

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## VIRTUAL WORLDS

### Jurisdictional Issues

- Due process requirement – require “minimum contacts” between defendant and forum state to exert jurisdiction
- Forseeability
  - “[T]he foreseeability that is critical to the due process analysis is ... that the defendant’s conduct and connection with the forum State are such that he should reasonably expect to be haled into court there.” *World Wide Volkswagen Corp. v. Woodson*, 444 U.S. 286, 295 (1980)

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## VIRTUAL WORLDS

### Voyeur Dorm (2001)

- Tampa Bay zoning ordinance prohibits adult entertainment businesses in residential areas
- Voyeur Dorm is a house in an upscale Tampa residential area that contains several college-age female residents and dozens of live Web cams that transmit unvarnished images 24 hours per day to thousands of subscribers

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## VIRTUAL WORLDS

### Voyeur Dorm (2001)

11<sup>th</sup> Circuit held that the company did not offer adult entertainment in Tampa, but rather are offered in cyberspace, and is therefore not subject to the Tampa ordinance

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## VIRTUAL WORLDS

### Sealand

- Artificial North Sea island created in WWII by UK and then abandoned
- In 1967, settlers landed and declared independent sovereign nation of Sealand
- Startup company used Sealand as base for internet gambling and pornography



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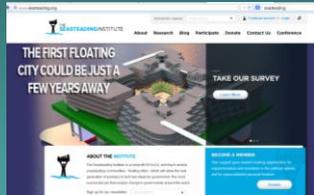
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## VIRTUAL WORLDS



*"There's many, many exciting and important things you could do that you just can't do because they are illegal or they are not allowed by regulation"*

*... I think as technologists we should have some safe places where we can try out some new things and figure out: What is the effect on society? What is the effect on people? Without having to deploy it into the normal world. And people who like those kinds of things can go there and experience that."*

*Larry Page, CEO of Google, May 15, 2013*

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## Many Other Emerging Technologies Coming....

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## BIOTECHNOLOGY



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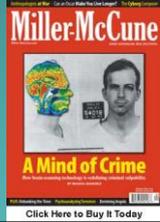
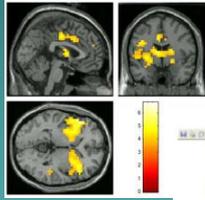
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# BRAIN SCANNING



Click Here to Buy It Today

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# COGNITIVE ENHANCEMENT

WE 4/23/2012 27 December 2007

COMMENTARY

## Professor's little helper

The use of cognitive-enhancing drugs by both ill and healthy individuals raises ethical questions that should not be ignored, argue Barbara Sahakian and Sharon Morein-Zamir.

Why there are several drugs on the market that improve memory, concentration, planning and focus long before Alzheimer's and other dementias, and many more are being developed. Doctors already prescribe these drugs to cognitive decline and improve quality of life in patients with neurodegenerative diseases and to maintain the prescription use of such drugs to help attention in their condition, including in working memory. Memory, of course, is a key part of attention to the general public, it becoming increasingly compromised.

Although the appeal of pharmaceutical cognitive enhancers — to help one study longer, work more effectively or better manage everyday stress — is understandable, potential users must be aware of the risks. To ensure that, scientists, doctors and policy makers should provide easy access to information about the advantages and dangers of using cognitive-enhancing drugs and set clear guidelines for their use. To target the most vulnerable of individuals to the risks of cognitive enhancement, which includes the need to monitor their use, it is vital that the risks are clear.

*Barbara Sahakian and Sharon Morein-Zamir*

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# BRAIN IMPLANTS AND CYBORGS




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## ROBOTICS



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## NEGLIGIBLE SENESCENCE



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## Conclusions

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## EMERGING TECHNOLOGY REVOLUTIONS

We are on the leading edge of a series of simultaneous technological revolutions:

- Genetics/personalized medicine
- Surveillance technologies
- Biotechnology
- Nanotechnology
- Synthetic biology
- Virtual realities
- Enhancement technologies
- Neurosciences

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## THE CHALLENGE OF EMERGING TECHNOLOGIES

Emerging technologies create new challenges to risk management

- Highly uncertain benefits, risks, trajectories
- Extremely rapid development and progression
- Risks go beyond health and safety risks to new types of risks
  - Ethical risks
  - Privacy risks

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## MANAGING THE RISKS OF EMERGING TECHNOLOGIES?

- Religion?
- Social Values and Norms?
- Market Forces?
- Scientific self-regulation?
- Law?
  - Legislation
  - Regulation
  - Liability/Litigation



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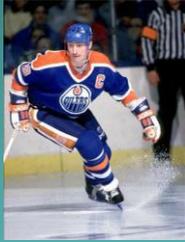
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## CONCLUSION

*"I skate to where the puck is going to be, not where it has been."*

**"The Great One"**  
**Wayne Gretzky**



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