ECE 2750 – INFO SCI 2750 – STS 2751

Ethics of Intelligent Autonomous Systems

or

'Robot Ethics'

T/TH – 2:55-4:10 PH 219

Instructor:

Dr. Park Doing

Rhodes Hall 396
pad9 : 607-342-3874

Intelligent Autonomous System:

Sensing – Digital or Physical

Thinking – Algorithms - Analytics

Acting – Digital or Physical

No computer is ever going to ask a new, reasonable question.

It takes trained people to do that.

- Grace Hopper, Computer Pioneer

b. 1906
Yale PhD
Compiler Development
UNIVAC – 1
COBOL
Rear Admiral – US Navy
Professor – Vassar
Consultant – DEC
National Medal of Technology
Presidential Medal of Freedom
USS Hopper

Square Root of Kids' Math Anxiety: Their Parents' Help

By JAN HOFFMAN AUGUST 24, 2015 1:53 PM
August 24, 2015 1:53 pm
NYTuimes

How an Algorithm Learned to Identify Depressed Individuals by Studying Their Instagram Photos

Your mental health is reflected in the images you choose to post on social media, say researchers who have trained a machine to spot depression on Instagram.

Emerging Technology from the arXiv August 19, 2016

High Frequency Trading

Chargers Take Down Chiefs, 37-20

Even with an unexceptional outing for Philip Rivers, the Chargers handled the Chiefs, 37-20, at Arrowhead Stadium.

Rivers found the end zone for two touchdowns against the Chiefs on 18 of 23 passing for 209 yards and one pick. Matt Cassel went 24 of 42 with 251 yards passing, two touchdowns and three picks for the Chiefs.

Jackie Battle carried the ball 15 times for 39 yards with a touchdown in addition to four receptions for 42 yards and another touchdown. Antonio Gates caught three passes for 59 yards.

The San Diego defensive unit led the way to a victory, allowing 119 yards rushing and 234 passing while bringing back one interception for a touchdown. They brought down Cassel for two sacks.

Lastly, Nick Novak was perfect, hitting all three of the field goals he attempted.

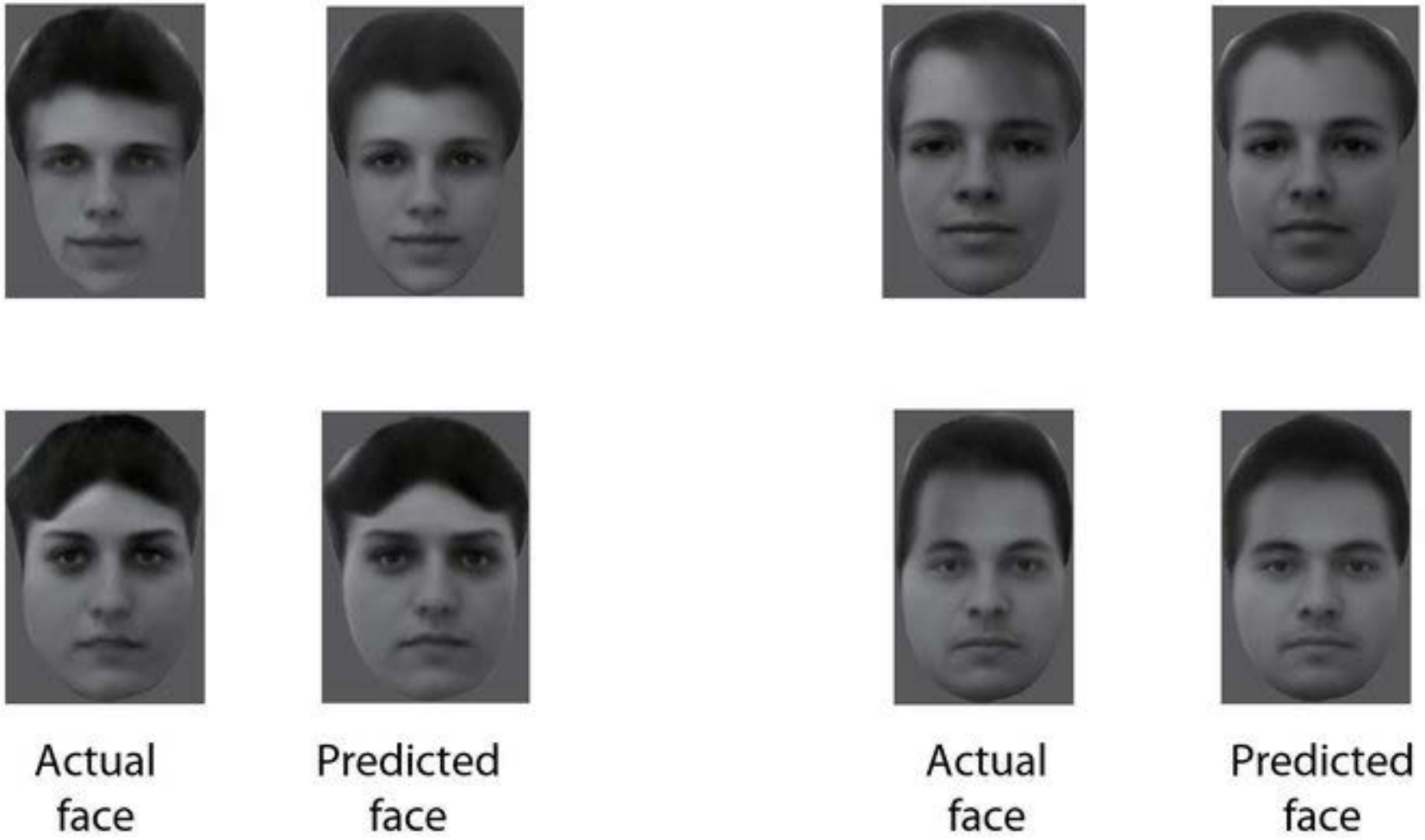
Chiefs running back Jamaal Charles provided some spark with 92 yards rushing, 23 receiving and two touchdowns. Wide receiver Dwayne Bowe also gave a strong effort with 108 receiving yards and one touchdown.

The Chargers travel to New Orleans next week to meet the Saints (0-3) while the Chiefs are at home to take on the Ravens (3-1).

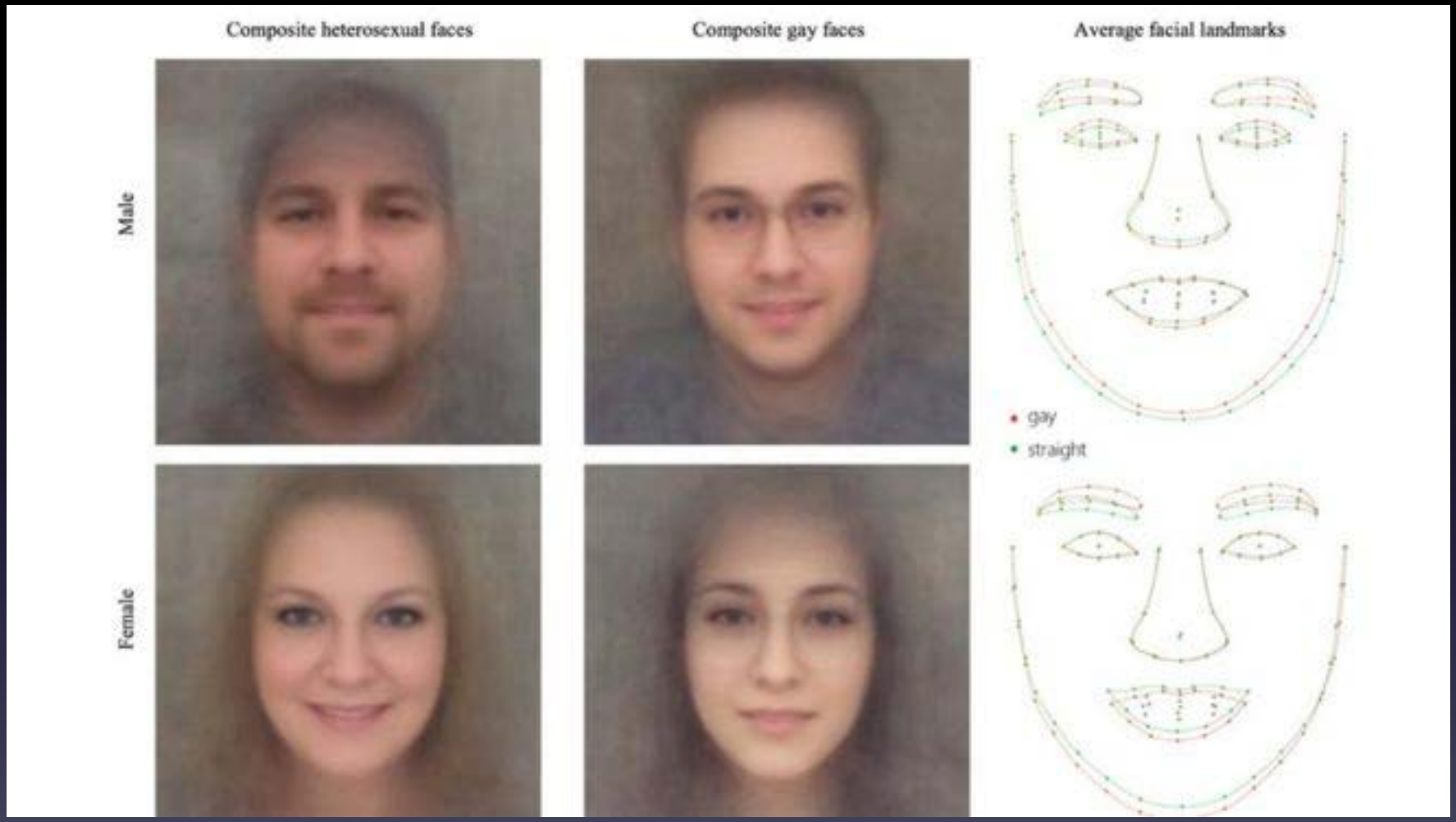
Autonomous Driving

Robot Medicine...

trust, expertise…information (early detection…)

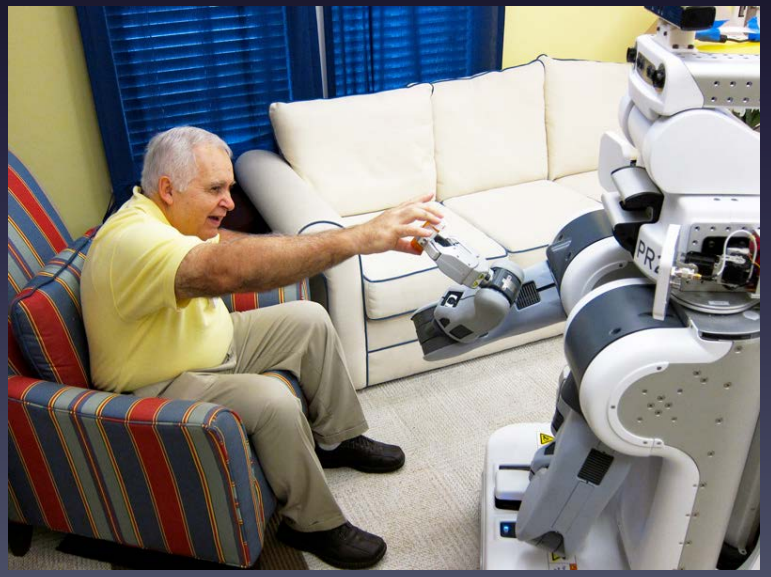


Chang and Tsao – CalTech - 2017 (220 'face cells' used in facial recognition…)

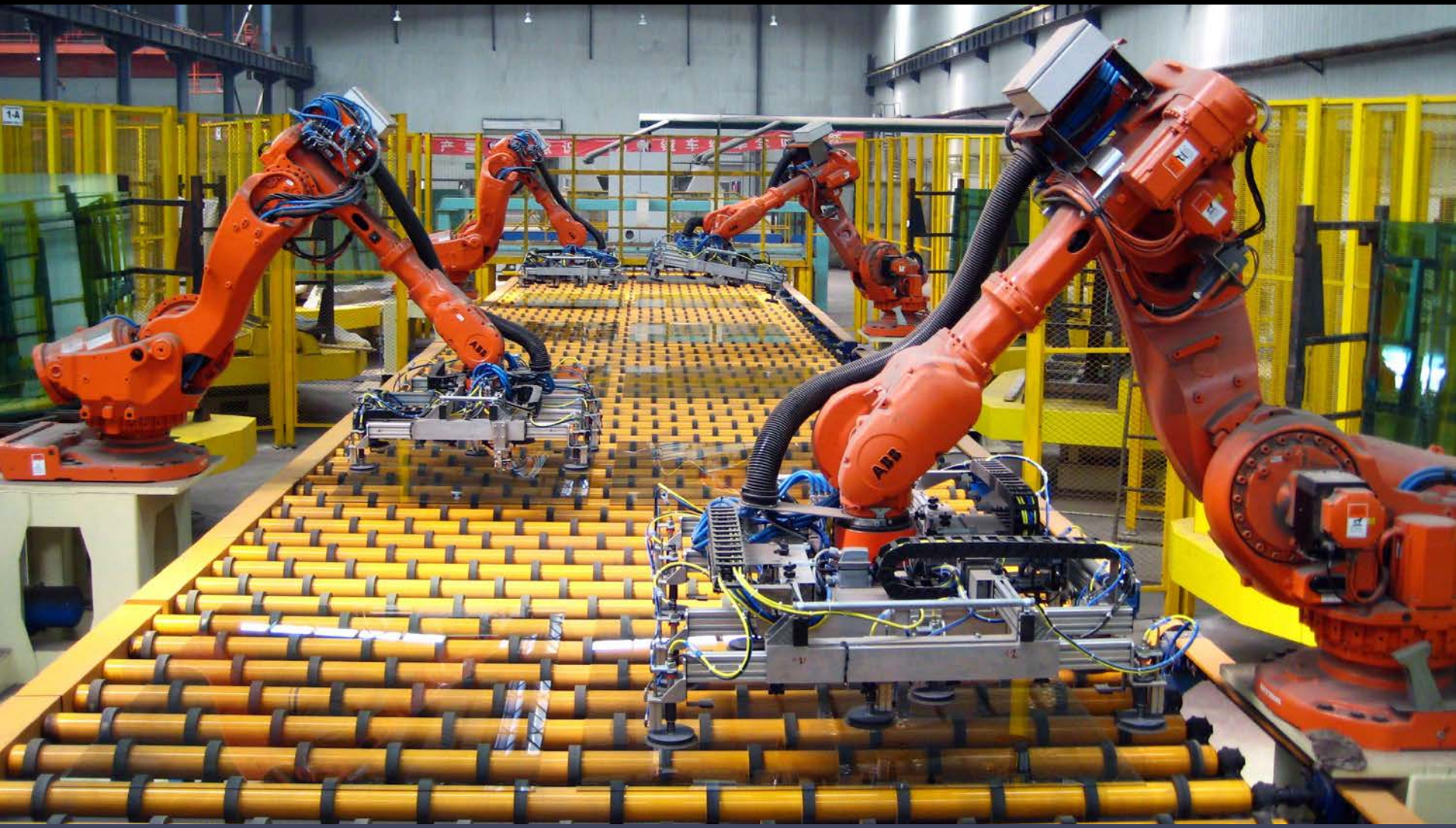


Stanford - 2017

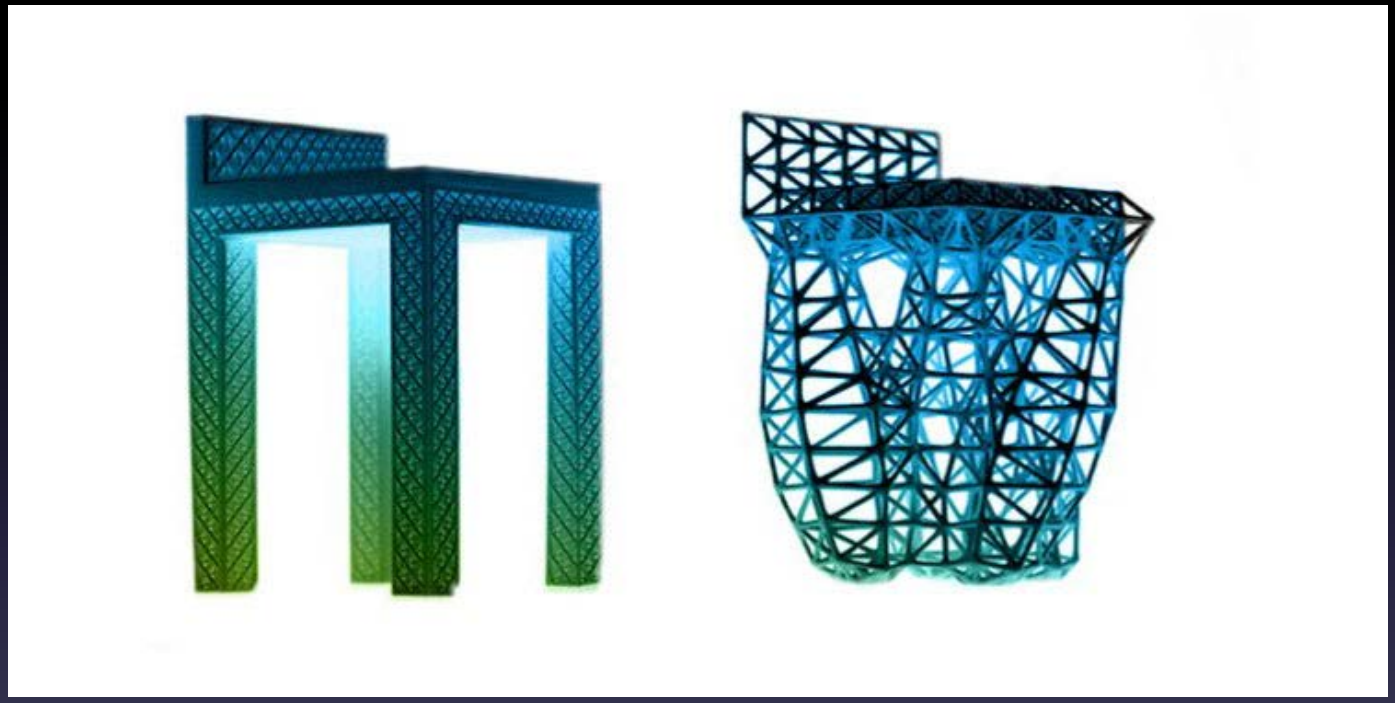
Therapeutic Robots



Automation and Labor (Economics…)



Generative Design…



Productivity and Employment, 1947-2010...What Happened?!?
500.0
400.0
300.0
200.0
100.0
0.0
1947=100
1947
1950
1953
1956
1959
1962
1965
1968
1971
1974
1977
1980
1983
1986
1989
1992
1995
1998
2001
2004
2007
2010
Productivity
Employment

Source: BLS

McKinsey and Co 2016 report

As technology develops, robotics and machine learning will make greater inroads into activities that today have only a low technical potential for automation. New techniques, for example, are enabling safer and more enhanced physical collaboration between robots and humans in what are now considered unpredictable environments. These developments could enable the automation of more activities in sectors such as construction. Artificial intelligence can be used to design components in engineer-heavy sectors.

One of the biggest technological breakthroughs would come if machines were to develop an understanding of natural language on par with median human performance—that is, if computers gained the ability to recognize the concepts in everyday communication between people. In retailing, such natural-language advances would increase the technical potential for automation from 53 percent of all labor time to 60 percent. In finance and insurance, the leap would be even greater, to 66 percent, from 43 percent. In healthcare, too, while we don't believe currently demonstrated technologies could accomplish all of the activities needed to diagnose and treat patients, technology will become more capable over time. Robots may not be cleaning your teeth or teaching your children quite yet, but that doesn't mean they won't in the future.

Autonomous Weapons

'meaningful human control'

proximity, hierarchy, guilt

targeting based on data collection of individuals…

Hello Barbie

Microphone, speaker and tri-color LED lights embedded in necklace.

Turn the doll on with the power button on her belt.

Press and hold down belt buckle to activate speech recognition.

Note: Speech Recognition Is Not "On" Unless Pushed.

Doll cannot stand alone.

Flat feet for charging stand placement.

ONE TIME APP DOWNLOAD AND WIFI CONNECTION REQUIRED FOR 2-WAY CONVERSATION

Disclaimer: Compatible smart device required.

PARENT CONSENT REQUIRED

CHARGING STAND INCLUDED

Note: Playtime on the battery life is about an hour.

DOLLS AVAILABLE IN THREE SKIN TONES

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Microsoft silences its new A.I. bot Tay, after Twitter users teach it racism

Tech Crunch March 2014

"Of course, the bot wasn't *coded* to be racist, but it "learns" from those it interacts with. And naturally, given that this is the Internet, one of the first things online users taught Tay was how to be racist, and how to spout back ill-informed or inflammatory political opinions."