HCI: ETHICS AND CONSENT

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First, the news…

- http://money.cnn.com/2016/10/11/technology/pokemon-go-exercise-health/index.html

The only real way to know if your interface works is to test it on humans. Which means that we are regularly performing human experiments. Which naturally leads to ethics issues...

A short history lesson on ethics

Tuskegee Syphilis Experiment

- Between 1932 and 1972 the US Public Health Service conducted a study on untreated syphilis
- 600 African American men in Alabama were given free medical care and food for participating
- They were told it was a 6 month study on “bad blood”, but it actually lasted 40 years
- They were never told that they had syphilis, even though the researchers knew that they did
- A cure was found in the 1940’s, but Tuskegee patients were prevented from gaining access to it
- 28 participants died of syphilis, 100 died of related complications, 40 wives contracted syphilis, and 19 children were born with congenital syphilis

History of ethics

- 1972 – Tuskegee study ended
- 1974 – US Congress created a commission to study research ethics and write regulations around ethics
- 1978 – Belmont Report officially released detailing a set of guidelines around what “ethical” research on humans looks like
- 1981 – Common Rule went into effect in the US regarding biomedical and behavioral research involving human subects.
- 2010 – All researchers working on US funded grants must go through ethics training
- 2012 – Menlo Report officially published. Update to the Belmont Report focusing on Security research

The Belmont Report (1974)

- Respect for persons
  - Protecting the autonomy of all people and treating them with courtesy and respect and allowing for informed consent. Researchers must be truthful and conduct no deception
- Beneficence
  - The philosophy of "Do no harm" while maximizing benefits for the research project and minimizing risks to the research subjects
- Justice
  - Ensuring reasonable, non-exploitative, and well-considered procedures are administered fairly — the fair distribution of costs and benefits to *potential* research participants — and equally.

http://www.hhs.gov/ohrp/regulations-and-policy/belmont-report/index.html

Respect for persons

- Treat individuals as autonomous agents
- Give them the right to choose and the knowledge they need to make a good decision
- Persons with diminished autonomy are entitled to protection
- Applications
  - Participation should be voluntary
  - Participants should be fully informed of the costs and benefits of participation (consent)

Good Example

Research on children in schools Information sheet created for both adults and parents

Dance-in-Schools Evaluation

Pupil & Parental Information Sheet

What is the Dance-in-Schools Evaluation?

You may be aware that an organisation called YDance is visiting schools across Scotland to introduce children to dance. The school your child attends has been offered the chance to take part and YDance tutors will visit his/her class for 5 weeks during April and May. The aim of the programme is to increase levels of physical activity (which are particularly low amongst young people in Scotland) and improve health/well-being.

Alongside the programme, an evaluation (or study) is also taking place to assess the effects it has on pupils and teachers. Eight local authorities in Scotland are taking part and the focus will be on P6 through to S2.

Who is conducting the study?

The Dance-in-Schools Initiative (DISI) and evaluation are funded by the Scottish Executive Health Department. Dr Candace Currie, Jo Inchley and Janine Muldoon at the Child & Adolescent Health Research Unit (Edinburgh University) are carrying out the research. Should you require any further information, please contact Janine on 0131 651 6561 or by writing to the following address:

Poor Example

Purposely selected vulnerable population and did not provide data

Tuskegee Syphilis Experiment

- Vulnerable population specifically selected with low education and access to resources
- They were told it was a 6 month study on “bad blood”, but it actually lasted 40 years
- They were never told that they had syphilis, even though the researchers knew that they did
- A cure was found in the 1940’s, but Tuskegee patients were prevented from gaining access to it

Beneficence

- Do not harm
- Maximize the possible benefits and minimize the possible harms
- Applications
  - Systematic analysis of the risks and benefits of the research to both the individual and to society at large

Good Example

Deception study where participants were asked to log into their actual bank accounts on a computer which had been "hacked" by the researchers but the security indicators were still acuate

Research question: will users enter their password if all the security indicators are missing?

- Notified participants that their actions would be recorded
- System did not record passcodes or other private data
- Care was taken with the technical design to make sure the participant's bank credentials remained safe
- Participant was debriefed after the study
- Participant was told how to protect themselves in the future

http://www.usablesecurity.org//emperor/emperor.pdf

Poor Example

Researchers knew before the study that being in the study might negatively impact the survival of a baby

Research question: how much oxygen do premature babies need to prevent death or blindness?

- Randomized assignment to high or low oxygen conditions
- Current best practice is to assign oxygen based on doctors opinion
- Existing research says that high oxygen levels can lead to blindness
- Primary outcome variable was if the babies developed sever eye disease or die

http://ahrp.org/an-experiment-designed-to-kill-babies/

Justice

- Who should bear the burdens of research and who should receive the benefits?
  - To each person an equal share
  - To each person according to individual need
  - To each person according to individual effort
  - To each person according to societal contribution
  - To each person according to merit
- Application
  - Selection of research participants

Good Example

Truly random sample of all students in the US that received a PhD degree.
If you don't "voluntarily" fill out this survey they will keep emailing you and sometimes send someone to your door to have you take it in person.

SDR Study Information

You have been randomly selected to represent the population of doctorate holders trained in science, engineering, and health fields at U.S. academic institutions for the 2017 Survey of Doctorate Recipients (SDR). The SDR is not an employer-based survey and seeks to represent doctorate-degree holders whether they are working, retired, seeking work, or in some other situation.

Your survey participation helps make the SDR data series more complete, accurate, and reliable. While we hope that you will agree to fully participate in the SDR, it is a voluntary survey for which you are not required to answer any questions.

The SDR is sponsored by the National Science Foundation (NSF) and the National Institutes of Health (NIH). The NSF and NIH are independent agencies of the U.S. government dedicated to promoting the progress of science. The 2017 SDR data collection activities are contracted to NORC at the University of Chicago.

NORC at the University of Chicago is a not-for-profit social science research organization serving the public interest and promoting informed decision making.

More information about NORC can be found at:
www.NORC.org/Research/Projects/Pages/Survey-of-Doctorate-Recipients.aspx

If you have questions about your rights as a study participant, you may call the NORC Institutional Review Board Administrator, toll-free within the U.S., at 1-866-309-0542.

All information you provide will be kept strictly confidential and safeguarded in accordance with the Privacy Act of 1974 and the Confidential Information Protection and Statistical Efficiency Act of 2002. Your responses are used for research purposes only.

Per the Federal Cybersecurity Enhancement Act of 2015, your data are protected from cybersecurity risks through screening of the Federal systems that transmit your data.

Information that personally identifies you is separated from your survey responses. Published reports show only summary information.

You are uniquely qualified to contribute to this study and cannot be replaced by anyone else – please participate in the 2017 SDR.

Poor Example

Artificial Intelligence systems are trained on available data, which can be biased.

wccftech NEWS HARDWARE GAMING MO

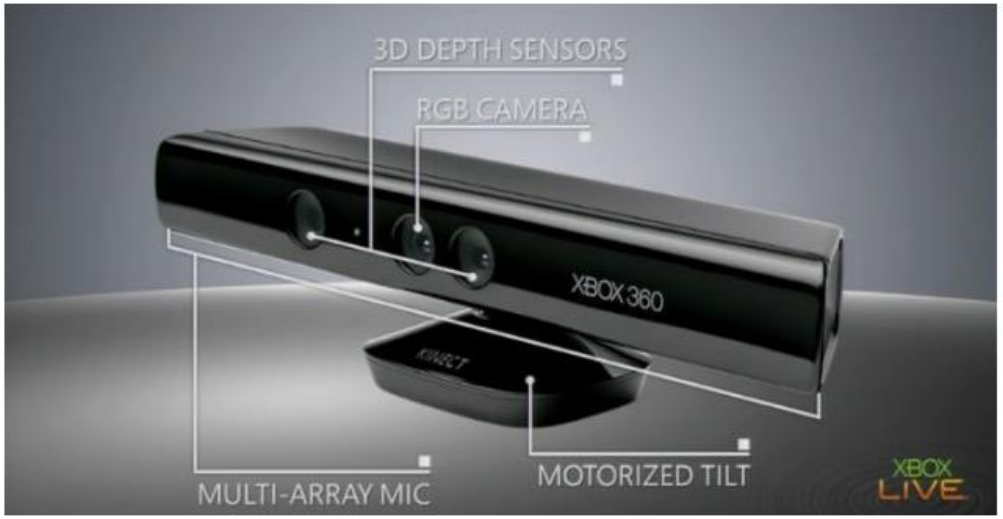
Microsoft Kinect Can't Identify African-Americans?

By Usman
Nov 5, 2010

6 SHARES

SHARE TWEET SUBMIT

Houston... we have racism. Microsoft's recently launched Kinect device, while undergoing testing at GameSpot, had trouble identifying two dark skinned employees. Apparently, the employees in question had trouble getting the facial recognition features to work.



According to the website, the system recognized one person's face "inconsistently", and when it came to the second staff member, the device was "never able to properly identify the other despite repeated calibration attempts."

What's confounding is the fact that at the same time, the Kinect had no problems identifying a third dark-skinned employee, right after a single calibration. Lighter-skinned employees not of African-American lineage were all easily identified on the first try.

Fortunately, the problem seems to only be with facial recognition, and not with skeletal tracking as that worked fine for all three dark-skinned employees. Since skeltal tracking is the primary manner to play games with Kinect, it's somewhat reassuring that at least this feature works.

Consent

A consent form should:

- Who you are
- What the study involves, what they will be asked t do
- What kind of data will be collected and how it will be used
- What rights the participant has
- Compensation, if any

We are students in the Human-Computer Interaction course. For our first coursework we are studying how students at the University of Edinburgh use calendaring systems such as paper calendars, Google Calendar, and Office 365 Calendar.

In this survey we are investigating how people use their online calendars so that we can better understand their calendar-related needs and choices. We will ask you for some information about yourself, about the way in which you use computers and the internet, about the tools you use to manage your timetable and other events.

Completing the survey will take about 10 minutes. You can interrupt the survey at any time and return to finish it later. All the data that you provide will be stored on SurveyMonkey and user-level access will be restricted to our group. Questions marked with a red star are mandatory - you will need to answer them in order to complete the survey. Data you provide will be deleted two months after the last day of this school term.

This project has undergone ethical screening in accordance with the University of Edinburgh School of Informatics ethics process (RT1432).

Do you agree to take part in this study, and do you agree that I can use your data for my HCI student project?

Case studies in Ethics and Computer Science

Experimental evidence of massive-scale emotional contagion through social networks

by Adam D. I. Kramer, Jamie E. Guillory, and Jeffrey T. Hancock

Aka Facebook emotion contagion study

"We show, via a massive (*N* = 689,003) experiment on Facebook, that emotional states can be transferred to others via emotional contagion, leading people to experience the same emotions without their awareness. We provide experimental evidence that emotional contagion occurs without direct interaction between people (exposure to a friend expressing an emotion is sufficient), and in the complete absence of nonverbal cues."

http://www.pnas.org/content/111/24/8788.full

The study

- All Facebook users who spoke English qualified
- Two groups: positive and negative emotions
- Positive/negative posts where then suppressed from the news feed
- 689,003 participants randomly selected by user id
- Saw an impact
  - When positive posts withheld the participant's posts got more negative
  - When negative posts withheld the participants posts got more positive
  - Withdrawal effect: people who saw less emotion posts less likely to express themselves for several days

Think-pair-share

- Does the Facebook Emotion Contagion study fit the requirements of the Belmont Report?

The Belmont Report (1974)

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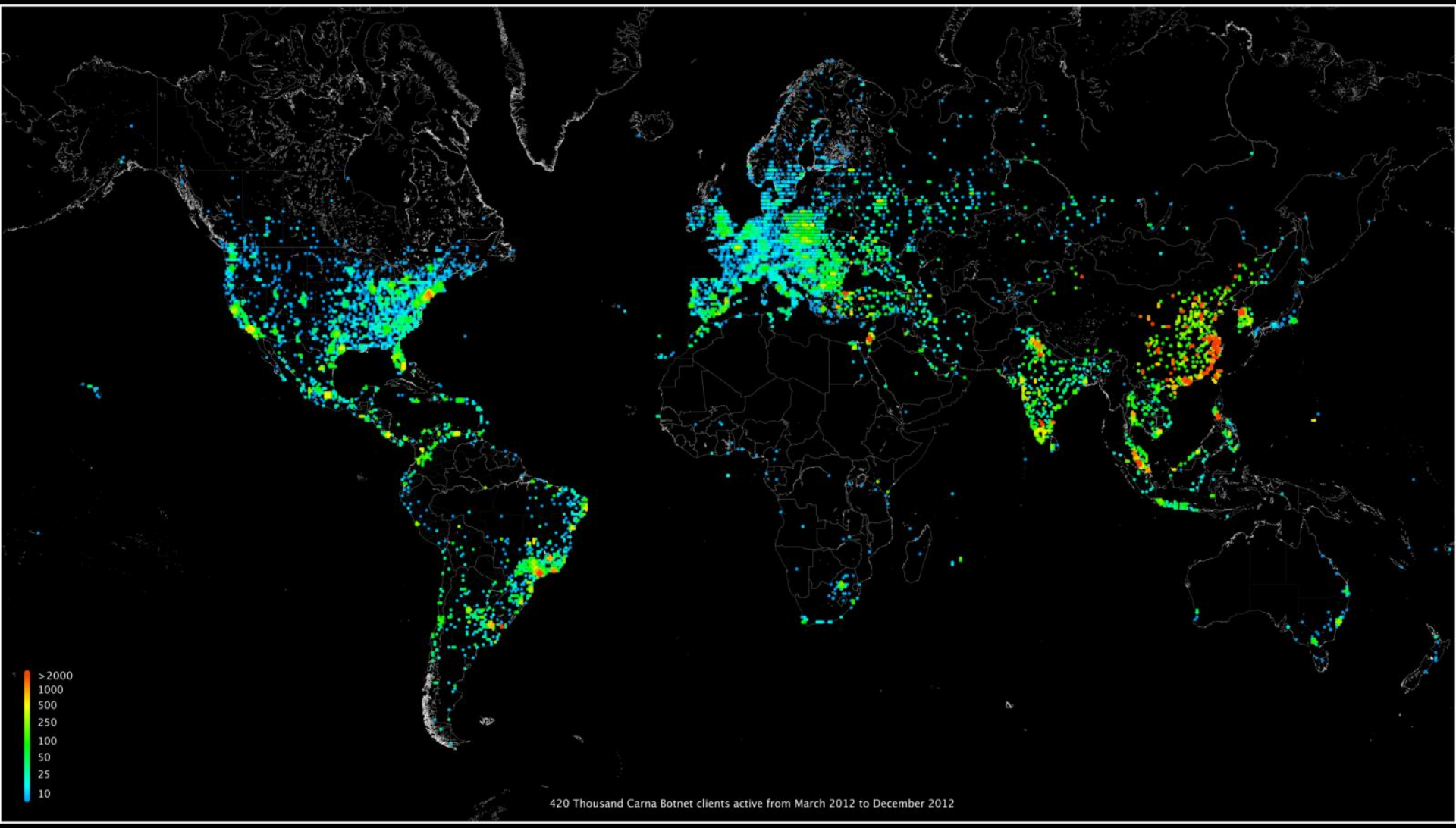
Mapping the internet

Someone made the most detailed map of the internet ever by hacking into just under half a million computers

http://motherboard.vice.com/blog/this-is-most-detailed-picture-internet-ever


>2000
1000
500
250
100
50
25
10
420 Thousand Carna Botnet clients active from March 2012 to December 2012

Is it ethical to use this data to do good things?

The Emperor's New Security Indicators: An evaluation of website authentication and the effect of role playing on usability studies

Stuart E. Schechter, Rachna Dhamija, Andy Ozment, and Ian Fischer

http://www.usablesecurity.org//emperor/emperor.pdf

Will bank customers enter their passwords even if their browsers' [security UI element] is missing?

Study design

- Participants recruited using on-campus flyers
- Flyers said the participant could “earn $25 and make online baking better”
- No mention of security or privacy in any advertising materials or consent form (deception study)
- Participants came to the lab and used a lab computer
- Computer was pre-setup to attack the connection between the bank and the user

To handle ethics the researchers:

- Notified participants that their actions would be recorded
- System did not record passcodes or other private data
- Care was taken with the technical design to make sure the participant's bank credentials remained safe
- Participant was debriefed after the study
- Participant was told how to protect themselves in the future

Brown University P2P

Andy Pavlo

https://hardware.slashdot.org/story/09/04/13/0120226/grad-student-project-uses-wikis-to-stash-data-miffs-admins

"Two graduate students at the Ivy League's Brown University built a P2P system to use abandoned wiki sites to store data. The students were stealing bandwidth from open MediaWiki sites to send data between users as an alternative to BitTorrent. There was immediate backlash as site operators quickly complained to the University. The project appears to be shutdown, but many of the pages still remain on the web. The project homepage was also taken down and the students posted an apology this afternoon."

https://hardware.slashdot.org/story/09/04/13/0120226/grad-student-project-uses-wikis-to-stash-data-miffs-admins

Questions