The Tech Giants are harvesting your data. Should you care?

Geoff Webb
Monash University

http://i.giwebb.com
## Top 10 Public Companies by Market Capitalisation

<table>
<thead>
<tr>
<th>Company</th>
<th>Capitalisation US$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microsoft</td>
<td>780,520,000,000,000</td>
</tr>
<tr>
<td>Apple Inc</td>
<td>748,680,000,000,000</td>
</tr>
<tr>
<td>Amazon.com</td>
<td>735,900,000,000,000</td>
</tr>
<tr>
<td>Alphabet</td>
<td>728,360,000,000,000</td>
</tr>
<tr>
<td>Tencent</td>
<td>507,990,000,000,000</td>
</tr>
<tr>
<td>Berkshire Hathaway</td>
<td>499,590,000,000,000</td>
</tr>
<tr>
<td>Facebook</td>
<td>464,189,000,000,000</td>
</tr>
<tr>
<td>Alibaba Group</td>
<td>355,130,000,000,000</td>
</tr>
<tr>
<td>Johnson &amp; Johnson</td>
<td>346,110,000,000,000</td>
</tr>
<tr>
<td>JPMorgan Chase</td>
<td>324,660,000,000,000</td>
</tr>
</tbody>
</table>
# Top 10 Public Companies by Market Capitalisation

<table>
<thead>
<tr>
<th>Company</th>
<th>Capitalisation US$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microsoft</td>
<td>780,520,000,000</td>
</tr>
<tr>
<td>Apple Inc</td>
<td>748,680,000,000</td>
</tr>
<tr>
<td>Amazon.com</td>
<td>735,900,000,000</td>
</tr>
<tr>
<td>Alphabet</td>
<td>728,360,000,000</td>
</tr>
<tr>
<td>Tencent</td>
<td>507,990,000,000</td>
</tr>
<tr>
<td>Berkshire Hathaway</td>
<td>499,590,000,000</td>
</tr>
<tr>
<td>Facebook</td>
<td>464,189,000,000</td>
</tr>
<tr>
<td>Alibaba Group</td>
<td>355,130,000,000</td>
</tr>
<tr>
<td>Johnson &amp; Johnson</td>
<td>346,110,000,000</td>
</tr>
<tr>
<td>JPMorgan Chase</td>
<td>324,660,000,000</td>
</tr>
</tbody>
</table>
# Top 10 Public Companies by Market Capitalisation

<table>
<thead>
<tr>
<th>Company</th>
<th>Capitalisation US$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microsoft</td>
<td>780,520,000,000</td>
</tr>
<tr>
<td>Apple Inc</td>
<td>748,680,000,000</td>
</tr>
<tr>
<td>Amazon.com</td>
<td>735,900,000,000</td>
</tr>
<tr>
<td>Alphabet</td>
<td>728,360,000,000</td>
</tr>
<tr>
<td>Tencent</td>
<td>507,990,000,000</td>
</tr>
<tr>
<td>Berkshire Hathaway</td>
<td>499,590,000,000</td>
</tr>
<tr>
<td>Facebook</td>
<td>464,189,000,000</td>
</tr>
<tr>
<td>Alibaba Group</td>
<td>355,130,000,000</td>
</tr>
<tr>
<td>Johnson &amp; Johnson</td>
<td>346,110,000,000</td>
</tr>
<tr>
<td>JPMorgan Chase</td>
<td>324,660,000,000</td>
</tr>
</tbody>
</table>
Who is tracking you,
What do they know and
How do they do it?
Probability of surviving
Gender, age, fare price or travel class

Everyone
Survival 40%
Gender, age, fare price or travel class

- Everyone: Survival 40%
  - Female: Survival 75%
  - Male: Survival 20%
Gender, age, fare price or travel class

Everyone
Survival 40%

- female
  Survival 75%
- male
  Survival 20%

- 1st/2nd class
  Survival 95%
- 3rd class/crew
  Survival 46%
Gender, age, fare price or travel class

Everyone
Survival 40%

female
Survival 75%

1st/2nd class
Survival 95%

3rd class/crew
Survival 46%

male
Survival 20%

child
Survival 67%

adult
Survival 18%
Gender, age, fare price or travel class

Everyone
Survival 40%

female
Survival 75%

1\textsuperscript{st}/2\textsuperscript{nd} class
Survival 95%

3\textsuperscript{rd} class/crew
Survival 46%

male
Survival 20%

child
Survival 67%

adult
Survival 18%
Gender, age, fare price or travel class

- Everyone: Survival 40%
  - Female: Survival 75%
    - 1st/2nd class: Survival 95%
    - 3rd class/crew: Survival 46%
  - Male: Survival 20%
    - Child: Survival 67%
    - Adult: Survival 18%
Gender, age, fare price or travel class

- Everyone
  - Survival 40%

- Female
  - Survival 75%

- Male
  - Survival 20%

- 1st/2nd class
  - Survival 95%

- 3rd class/crew
  - Survival 46%

- Child
  - Survival 67%

- Adult
  - Survival 18%
Online controlled experiments
Online controlled experiments
Online controlled experiments
Online controlled experiments
Online controlled experiments
Online controlled experiments
Aren’t better ads a good thing?
Experimental evidence of massive-scale emotional contagion through social networks

Adam D. I. Kramer*, Jamie E. Guiltner**, and Jeffrey T. Hancock***

*Core Data Science Team, Facebook, Inc., Menlo Park, CA 94025, and Department of Communication and Information Science, Cornell University, Ithaca, NY 14853
**Department of Psychology, Stanford University, Stanford, CA 94305
***Department of Communication and Information Science, Cornell University, Ithaca, NY 14853

*Address correspondence to: adiakramer@facebook.com
**Present address: Department of Psychology, Stanford University, Stanford, CA 94305
***Address correspondence to: jeffh@cornell.edu

Edited by Susan T. Fiske, Princeton University, Princeton, NJ, and approved March 29, 2010; published for review October 26, 2010.

Emotional states can be transferred to others via emotional contagion, leading people to experience the same emotions without their awareness. Emotional contagion is well established in laboratory experiments, with people transferring positive and negative emotions to others. Data from a large-scale social network collected over 20–25 days suggests that long-lasting moods (e.g., depression, happiness) can be transferred through networks (Fowler JH, Christakis NA [2008] Proc Natl Acad Sci USA 105: 1730–1735), although the results are controversial. In an experiment with people who use Facebook, we test whether emotional contagion occurs outside of in-person interaction between individuals by reducing the amount of emotional content in the News Feed. When positive experiences were reduced, people produced fewer positive posts and more negative posts; when negative experiences were reduced, the opposite pattern occurred. These results indicate that emotions expressed by others on Facebook influence our own emotions, constituting experimental evidence for massive-scale contagion via social networks. This work also suggests that, in contrast to prevailing assumptions, in-person interaction and nonverbal cues are not strictly necessary for emotional contagion, and that the observation of others’ positive experiences constitutes a positive experience for people.

Electronic communications can be monitored for social media big data.

Emotional states can be transferred to others via emotional contagion, leading people to experience the same emotions without their awareness. Emotional contagion is well established in laboratory experiments, with people transferring positive and negative emotions to others. Data from a large-scale social network collected over 20–25 days suggests that long-lasting moods (e.g., depression, happiness) can be transferred through networks (Fowler JH, Christakis NA [2008] Proc Natl Acad Sci USA 105: 1730–1735), although the results are controversial. In an experiment with people who use Facebook, we test whether emotional contagion occurs outside of in-person interaction between individuals by reducing the amount of emotional content in the News Feed. When positive experiences were reduced, people produced fewer positive posts and more negative posts; when negative experiences were reduced, the opposite pattern occurred. These results indicate that emotions expressed by others on Facebook influence our own emotions, constituting experimental evidence for massive-scale contagion via social networks. This work also suggests that, in contrast to prevailing assumptions, in-person interaction and nonverbal cues are not strictly necessary for emotional contagion, and that the observation of others’ positive experiences constitutes a positive experience for people.
Cambridge Analytica

• 270,000 users paid to take a personality survey and download an app
  • Users told it was for academic use
  • Collected personal information including identities, friends, friends’ friends, likes.
  • Believed to have profiled over 50 million individuals
• This and other information was used to influence elections around the world
• Built profiles on all voters
• Used information warfare techniques to influence voters
How can you protect yourself?

• Use the Firefox browser
How can you protect yourself?

• Use the Firefox browser
• Use an ad blocker: Adblock Plus
How can you protect yourself?

• Use the Firefox browser
• Use an ad blocker: Adblock Plus
• Use a tracker blocker: uBlock Origin
How can you protect yourself?

• Use the Firefox browser
• Use an ad blocker: Adblock Plus
• Use a tracker blocker: uBlock Origin

• Clear cookies from time to time
How can you protect yourself?

• Use the Firefox browser
• Use an ad blocker: Adblock Plus
• Use a tracker blocker: uBlock Origin

• Turn off location services
• Clear cookies from time to time
How can you protect yourself?

• Use the Firefox browser
• Use an ad blocker: Adblock Plus
• Use a tracker blocker: uBlock Origin
• Use DuckDuckGo for search
• Turn off location services
• Clear cookies from time to time
How can you protect yourself?

• Use the Firefox browser
• Use an ad blocker: Adblock Plus
• Use a tracker blocker: uBlock Origin
• Use DuckDuckGo for search
• Turn off location services
• Clear cookies from time to time

• Uninstall social media apps and use social media via web browsers
How can you protect yourself?

• Use the Firefox browser
• Use an ad blocker: Adblock Plus
• Use a tracker blocker: uBlock Origin
• Use DuckDuckGo for search
• Turn off location services
• Clear cookies from time to time
• Remove unnecessary apps from your phone
• Uninstall social media apps and use social media via web browsers
How can you protect yourself?

- Use the Firefox browser
- Use an ad blocker: Adblock Plus
- Use a tracker blocker: uBlock Origin
- Use DuckDuckGo for search
- Turn off location services
- Clear cookies from time to time
- Remove unnecessary apps from your phone
- Uninstall social media apps and use social media via web browsers

- If you use Facebook, install the Firefox Facebook Container addon
How can you protect yourself?

- Use the Firefox browser
- Use an ad blocker: Adblock Plus
- Use a tracker blocker: uBlock Origin
- Use DuckDuckGo for search
- Turn off location services
- Clear cookies from time to time
- Remove unnecessary apps from your phone
- Uninstall social media apps and use social media via web browsers

- If you use Facebook, install the Firefox Facebook Container addon
- Don’t use social media to log into apps or web sites
How can you protect yourself?

• Use the Firefox browser
• Use an ad blocker: Adblock Plus
• Use a tracker blocker: uBlock Origin
• Use DuckDuckGo for search
• Turn off location services
• Clear cookies from time to time
• Remove unnecessary apps from your phone
• Uninstall social media apps and use social media via web browsers
• If you use Facebook, install the Firefox Facebook Container addon
• Don’t use social media to log into apps or web sites
• Opt out at Digital Advertising Alliance:
  http://www.aboutads.info/choices/
How can you protect yourself?

• Use the Firefox browser
• Use an ad blocker: Adblock Plus
• Use a tracker blocker: uBlock Origin
• Use DuckDuckGo for search
• Turn off location services
• Clear cookies from time to time
• Remove unnecessary apps from your phone
• Uninstall social media apps and use social media via web browsers

• If you use Facebook, install the Firefox Facebook Container addon
• Don’t use social media to log into apps or web sites
• Opt out at Digital Advertising Alliance: http://www.aboutads.info/choices/
• Pay for reputable media
How can you protect yourself?

- Use the Firefox browser
- Use an ad blocker: Adblock Plus
- Use a tracker blocker: uBlock Origin
- Use DuckDuckGo for search
- Turn off location services
- Clear cookies from time to time
- Remove unnecessary apps from your phone
- Uninstall social media apps and use social media via web browsers

- If you use Facebook, install the Firefox Facebook Container addon
- Don’t use social media to log into apps or web sites
- Opt out at Digital Advertising Alliance: http://www.aboutads.info/choices/
- Pay for reputable media
- Support legislative controls over data acquisition and use
Questions?