

Human Centered Data Science

DATA 512 — Jonathan T. Morgan & Oliver Keyes

Mixed methods | Week 6 | November 2, 2017

Overview of the day

- Guest speakers: Aaron Halfaker and Caroline Sinderson
- *Dinner break (15 min)*
- Understanding the WP gender gap using mixed methods
- Qualitative research case study: Tor users and Wikipedians
- The role of qualitative research in data science
- *Break (15 min)*
- Week 5 reading reflections
- Final project plan brainstorming session

In-Class Activity

Graded, *Individual*

Reflect on the lectures

- Listen to the two guest lectures and take notes
- Pick one lecture to focus on for your graded reflection
 - In at least 2-3 full sentences, answer the question *"How does this lecture inform your understanding of human centered data science?"*
 - Using full sentences, list at least 1 question that you have for the guest lecturer.

Submit your reflection and questions to the 'week 6 in-class activity' discussion on Canvas.

Remember: this is an individual assignment.

Lecture:
Aaron Halfaker

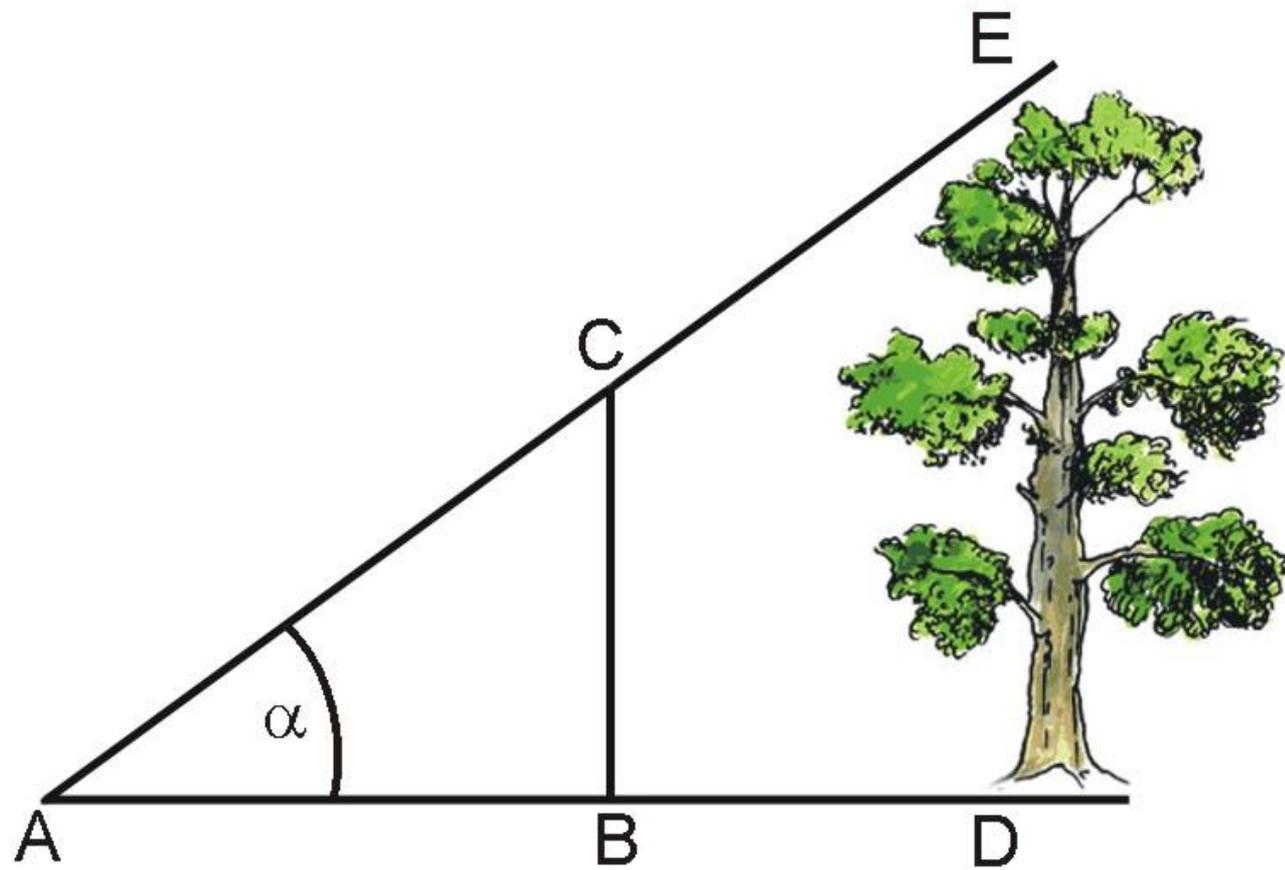
Lecture Q&A

Lecture:
Caroline Sindors

Lecture Q&A

Break (15 minutes)

Triangulating
the Wikipedia gender gap
with mixed methods



grafika: Marek 2006

What we (think we) know already

H1a (supported) a gender gap exists

H1b (not supported) gender gap is shrinking

H2a (supported) male and female editors focus on different content areas

H2b (supported) areas of “special interest” to female editors have less coverage

H2c (partial support) women editors more involved in social/community activities

H3a (reversed) women editors avoid contentious articles

H3b (supported) new women editors are more likely to be reverted

H3c (not supported) new women editors are more likely to leave when reverted

H3d (reversed) women editors are less likely to be blocked

Source: Shyong (Tony) K. Lam et al. 2011. *WP:clubhouse?: an exploration of Wikipedia's gender imbalance*. In Proceedings of the 7th International Symposium on Wikis and Open Collaboration (WikiSym '11).

Biographies of women across languages

The researchers used a structured database (WikiData) that tracks the relative proportion of biographical articles of women across language editions of Wikipedia, identifying:

- Widespread and substantial inequality of coverage of 'notable' women
- The languages with the greatest and least number of biographies of women
- The languages with the highest and lowest ratio of female-to-male biographies

Bonus: The researchers released all of their code and data openly, and developed online dashboards to track changes in the number of proportion of biographies of women over time.

Why women don't edit Wikipedia #1

The researchers re-analyzed existing Wikipedia survey data. They drew on existing research from social psychology, and gender studies to develop four hypotheses to explain the gender gap. They found that:

- Women are less likely to contribute because of the potential for conflict
- Women are less likely to contribute because of lower confidence in their expertise
- Women are less likely to contribute because they prefer to work in a more collaborative/cooperative way
- Interestingly, they did *not* find support for the fourth hypothesis: that women are more likely than men to list “less discretionary time” as a reason for not contributing

Source: Benjamin Collier and Julia Bear. Conflict, criticism, or confidence: an empirical examination of the gender gap in wikipedia contributions. In *Proceedings of the ACM 2012 conference on Computer Supported Cooperative Work (CSCW '12)*. DOI: <https://doi.org/10.1145/2145204.2145265>

Why women don't edit Wikipedia #2

The researchers asked a mixed-gender group of college students to perform a collaborative editing task under controlled conditions. They found:

- Women edit more overall, but less under conditions that mimic Wikipedia: few or no visible women peers; edit feedback is 'neutral' instead of 'constructive'
- Women and men both perceived anonymous peers as male, but women were more likely than men to perceive feedback from anonymous peers as critical
- Implications
 - more visible women, use of constructive feedback may alleviate the gender gap
 - Possible tradeoffs: supporting anonymity and supporting female participation

Source: Christina Shane-Simpson, Kristen Gillespie-Lynch, Examining potential mechanisms underlying the Wikipedia gender gap through a collaborative editing task, In *Computers in Human Behavior*, Volume 66, 2017, <https://doi.org/10.1016/j.chb.2016.09.043>.

Emotional labor and Wikipedia editing

The researchers interviewed 20 current women editors to learn about "the possible causes of the Wikipedia gender gap by looking more closely at the experiences of women actively engaged in the community."

- Avoids framing the gender gap as a “woman problem”: rather than asking ‘why don’t more women participate’, asks ‘how do the women who participate persevere?’
- Why this is important: it shifts the focus to the *lived experience* of woman Wikipedians.
 - Research has identified many plausible reasons why more women don’t participate in Wikipedia. What might the existing research lead us to assume about the women who do participate?

Source: Amanda Menking and Ingrid Erickson. 2015. The Heart Work of Wikipedia: Gendered, Emotional Labor in the World's Largest Online Encyclopedia. In *Proceedings of the 33rd Annual ACM Conference on Human Factors in Computing Systems* (CHI '15). ACM, New York, NY, USA, 207-210. DOI: <https://doi.org/10.1145/2702123.2702514>

Findings

Women Wikipedians are not immune to the negative aspects of Wikipedia culture. They must change both how they work and *how they feel about their work*. They must perform extra *emotional labor* in order to participate as 'equals'.

- To avoid signaling "weakness" and becoming targets of gender-based harassment, they avoided publicly discussing harassment or gender.
- They changed their language they used in order to fit in and avoid drawing attention.
- Wikipedia's rules around civil interaction disproportionately impact women editors by placing greater responsibility on the *recipient* of toxic behavior than the *source*.

Bottom line: These women were able to continue to participate in Wikipedia because they believed so deeply in Wikipedia's mission that they could justify the emotional toll of working in an environment that exposed them to constant conflict and toxicity, made them regular targets of harassment, and expected them to pro-actively make it all okay.

The role of qualitative research in data science

Qualitative research case study

Tor & Wikipedia users and privacy

Andrea Forte, Nazanin Andalibi, and Rachel Greenstadt. *Privacy, Anonymity, and Perceived Risk in Open Collaboration: A Study of Tor Users and Wikipedians*. In Proceedings of the 2017 ACM Conference on Computer Supported Cooperative Work and Social Computing (CSCW '17). DOI: <https://doi.org/10.1145/2998181.2998273>

Forte et al

The paper is an *ethnographic* look at the experiences of Tor and Wikipedia users who take steps to protect their privacy.

Forte et al spoke to 23 people - 12 with Tor users, 11 with Wikipedians. 16 men, 6 women, 1 genderfluid person.

Structured, audio-recorded interviews, by Skype, with set questions: when did you start using X? Why do you use it? What privacy concerns do you have about participation in online projects?

Forte et al

Results:

- Many participants depend on anonymity due to perceived threats, including surveillance, employment risks, personal safety and harassment
- They responded through anonymity - and also through changing how they contribute and participate
- Conclusion: these are real threats that have a chilling effect on participants
- Wikipedia & other platforms do not properly *consider* these threats.

Those of our interviewees who did not perceive threats self-identified as privileged in various ways. Conversely, those who expressed concern self-identified characteristics that created vulnerabilities; for example, being female, being from an ethnic minority, or being transgender. The work of female Wikipedia editors in coping with harassment and other emotional labor has been identified in related work as a contributor to gender disparity on the site [26]. If such voices are systematically dampened by the threat of harassment, intimidation, violence, or opportunity and reputation loss, projects like Wikipedia cannot hope to attract the diversity of contributors required to produce “the sum of all human knowledge.”

Forte et al

Forte's paper relied on qualitative methods and principles:

- It tried to understand the problem by exploring participant experiences
- It used those participants' own words (not just those of the researchers)
- It got this information through interviews (not numeric measures)

This research could not have been done quantitatively - at least, nowhere near as effectively.

Mixed-methods research case study

Do good bots fight?

R. Stuart Geiger and Aaron Halfaker. 2017. *Operationalizing conflict and cooperation between automated software agents in Wikipedia: A replication and expansion of Even Good Bots Fight*. Proceedings of the ACM on Human-Computer Interaction

The coming Wikipedia bot-pocalypse?

“Between March 5th and 25th, 2013, one of the darkest periods in the robot history of Wikipedia occurred. An automated software agent called Addbot... committed the most aggressive bot-on-bot revert conflict event ever recorded. In a flurry of inefficiency and inefficacy, Addbot reverted 146,614 contributions other bots had made to English Wikipedia.

[Addbot] removed links between different language versions of Wikipedia articles, which had been automatically curated and updated by dozens of different bots for years. During a 20-day rampage, the bot annihilated their work and the work of their maintainers. **The fact that such a massively destructive act could take place without being stopped is evidence that Wikipedia had failed to govern bot behaviors and that bots in Wikipedia are out of control.”**

The coming Wikipedia bot-pocalypse?

Introduction to the paper (this week's required reading) by Aaron Halfaker

R. Stuart Geiger and Aaron Halfaker. 2017. *Operationalizing conflict and cooperation between automated software agents in Wikipedia: A replication and expansion of Even Good Bots Fight*. Proceedings of the ACM on Human-Computer Interaction

Break (15 minutes)

Week 5 reflections

Reading reflections - Auditing algorithms

Michael Browne

However, in recommending a crowdsourced approach, the authors arguably risk placing responsibility for monitoring on volunteer groups of concerned citizens and researchers whose resources are likely to be considerably less than those organizations whose algorithms they are auditing. Why shouldn't the organizations themselves be compelled to demonstrate that their algorithms do not result in negative outcomes (assuming, of course, there can be broad consensus on what negative means)?

Furthermore, assuming that these algorithms are found to be problematic, what next? What avenues exist for fixing the algorithms? The authors rightly point out that many algorithms are so complex that even the developers themselves may not fully understand how the interplay between data and algorithm results in particular outcomes.

Homework

Homework due next week

Readings (read and reflect)

- R. Stuart Geiger and Aaron Halfaker. 2017. *Operationalizing conflict and cooperation between automated software agents in Wikipedia: A replication and expansion of Even Good Bots Fight.* Proceedings of the ACM on Human-Computer Interaction

Assignment 3: Final project plan

- 10 points, due *next Thursday* before class
- Post a link to GitHub repo to designated Canvas submission form
- Make sure to take advantage of Slack and Oliver's office hours if you need help!

See: [https://wiki.communitydata.cc/HCDs_\(Fall_2017\)#Week_6:_November_2](https://wiki.communitydata.cc/HCDs_(Fall_2017)#Week_6:_November_2)

Datasets for final project

- You can use any dataset you want, *as long as it is licensed for reuse*.
- We have assembled a list of datasets and data sources for you to explore

[https://wiki.communitydata.cc/HCDS \(Fall 2017\)/Datasets](https://wiki.communitydata.cc/HCDS_(Fall_2017)/Datasets)

Final project planning

Q&A and brainstorming session

Questions?