17-808 SOFTWARE ENGINEERING RESEARCH
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Ethics in Software Engineering *Research*

Readings

Required:

- [Bruckman] Amy Bruckman. "'Have you thought about…' talking about ethical implications of research." *Communications of the ACM*. pp 38-40. 2020. **Estimated Reading Time: 15 Mins.** Link: https://cacm.acm.org/magazines/2020/9/246935-have-you-thought-about/fulltext
- [UMNDavis] James Davis. Ethical conduct in cybersecurity research. Personal Medium Blog. 22 April 2021. **Estimated Reading Time: 20 Mins.** Link: https://davisjam.medium.com/ethical-conduct-in-cybersecurity-research-86d13b6b6eed
- [🦜] Emily M. Bender, Timnit Gebru, Angelina McMillan-Major, Shmargaret Shmitchell. "On the Dangers of Stochastic Parrots: Can Language Models Be Too Big? 🦜" *Proceedings of the 2021 ACM Conference on Fairness, Accountability, and Transparency*. 2021. **Estimated Reading Time: 1.5 Hrs.**
- [Ko] Amy J. Ko. "*Critical* Computing Education." *HCII Seminar Series*. 30 October 2020. Lecture with Discussion Moderated by Brad Myers. **Viewing Time: 1 Hr.**
- [CMUTanks] CMU Against ICE. "6 Tanks CMU Researchers Have Prototyped" *2020 CMU Disorientation Guide.* pp 47-48. 2020. **Estimated Reading Time: 10 mins.** Link: https://drive.google.com/file/d/1pS67e1Qf_jCzhdlhObk4v8JSuRp7OlJY/view

Optional readings:

- [CMUDefense] Panelists: Andrew Moore, Illah Nourbakhsh, Lorrie Cranor and Martial Hebert. Notes by Andrew Moore, Mary Shaw. "CMU SCS Defense Funding Townhall Thoughts and Notes." 18 May 2018. Link: https://docs.google.com/document/d/1k-BL-xvHkmYshzbBy1hXronzYqryMcw662HYIzIe9vA/edit
- [Menlo] "The Menlo Report: Ethical Principles Guiding Information and Communication Technology Research" U.S. Department of Homeland Security Science and Technology Directorate. 3 August 2012. Link: https://www.dhs.gov/sites/default/files/publications/CSD-MenloPrinciplesCORE-20120803_1.pdf
- [IEEEHypocrite] IEEE Program Committee "IEEE S&P'21 Program Committee Statement Regarding The 'Hypocrite Commits' Paper." 6 May 2021. Link: https://www.ieee-security.org/TC/SP2021/downloads/2021_PC_Statement.pdf
- [Linux] Linux Foundation. "Report on University of Minnesota Breach-of-Trust Incident." 5 May 2021. Link: https://lwn.net/ml/linux-kernel/202105051005.49BFABCE@keescook/

Notes on the readings

[Bruckman] discusses how to raise ethics issues with colleague's research in a way that is effective, humble, and tenacious. Read it to find advice for how you may raise issues with colleagues work in the future.

[UMNDavis] is commentary on the Hypocrite Commits paper, where UMN researchers attempted to introduce known-buggy changes to the Linux Kernel, and got their university banned from contributing

to Linux in the process. Read it to understand the limits of the IRB, and how ethics issues may persist despite formal checks. If you want, [IEEEHypocrite] is an official statement from the program committee which accepted the now-withdrawn paper, and [Linux] is the Linux Foundations report on this situation. The [Menlo] Report is a document outlining ethics which arose out of ethics issues in computer security research, which contextualized the principles from the landmark Belmont Report on protecting human subjects to be more relevant in a computer science research context. Useful as background, and referenced in [IEEEHypocrite].

[🦜] is a paper that asks whether language machine learning models are perhaps too big. This paper is at the center of Timnit Gebru's firing from Google. Pay less attention to the specifics and comparisions of NLP models discussed, and more attention to the risk of possibly overconfident knowledge claims stemming from massive datasets (epistemological issues), the argument of disparately distributed harms (ie, ecological, bias) and benefits (ie, commercial) of NLP research, and issues of ethics questions in "whether to build" rather than "how to build" systems. Read it and think: why might Google not want this published? What meta points does it make?

In [Ko], a CMU HCII PhD Alum outlined her attempts to envision a critical practice for education and research. Pay attention to her role modeling of introspection about the ethical impacts of her past work, and ways to think about the ethical implications of her and students' work going forward. Watch it to engage in similar reflection.

[CMUTanks] is an infographic prepared by student activism group CMU against ICE (Immigration and Customs Enforcement), as part of their "Disorientation Guide", intended to serve as a critical introduction to CMU for new students. Read it to see one viewpoint on the ethics of weapons development in an academic institution. If you want, [CMUDefense] are notes from a townhall held by former SCS Dean Dr. Andrew Moore, with faculty panelists and also staff, student, and faculty audience participants, broadly attempting to understand SCS views on conducting research in service of the US Military.

Question for discussion (post answers in the forum on blackboard)

(1) Reflect on your own (potential) research agenda. What ethics issues might arise? How might it be misused? Whose interests does it serve?

(2). Think about a time you had possible ethics concerns about a friend or colleague's research. If you can't think of one, imagine a PhD student colleague you know is doing research for a new project (perhaps it is DARPA, Facebook, or the NSA), and you have concerns about where the research might go. Describe the (potential) concern. How did you, or could you raise them with your colleague?

(3) Give constructive critique to another student's reply, focusing on either their answer to (1) or (2)