4530 Week 11: Engineering Equitable Software

3/29 Course meeting agenda:

1. Project discussion - less than 3 weeks left!
    1. Netlify auto-publish (should leave this set to “on”)
2. Ethics in SE Discussion
    1. What ways might software unintentionally cause harm?
        1. Algorithmic bias - not having a complete dataset to train on
            1. Google search results for terms like “unprofessional hair styles”
        2. Accessibility
        3. Inclusivity
        4. Climate impact
            1. ML models
            2. CDN - content delivery networks (live, low-latency video takes lots of processing)
        5. Safety critical - direct physical+emotional harm
            1. THERAC-25

6. Q: What about non-safety critical software. Can we still harm users?
    1. Can exclude potential users from becoming actual users
    2. Violate privacy
    3. Harmful content - does your platform allow users to post content without moderation?
        1. https://www.theverge.com/2021/3/24/22348743/slack-connect-dm-abuse-harassment-disable-message-invite-response
7. Psychological feedback loops
    1. Social media - features like autoplay or likes can increase time on app + revenue, but is this a good behavior?
        1. Studies show addiction can/does develop
        2. How does this get regulated?
    2. Loot boxes - Gambling?
8. Software for military purposes
    1. Defense vs offense....

2. What is our ethical responsibility as a software engineer?
    1. Choosing to work for a company or not...

    2. Thing about the impact of software...
    3. No licensing/accreditation board
    4. Comply with laws - more so in Europe (GDPR)
    5. “Will this choice end up in the newspaper [for a bad reason]?”
3. Team meetings

4/1 Course Meeting Agenda:
1. Project discussion
2. Ethics in SE discussion (continued)
    1. GenderMag
        1. Persona-based design is a common way to perform UX design - conduct user research to find “types” of users, and then consider your design through the eyes of this user
        2. NOT a way to guarantee inclusivity - but a “cheap” approach to find low-hanging fruit before doing a user study with a diverse group of users
    2. Q: How do we validate that our software is inclusive, for some definition of inclusive?
        1. Start with heuristic evaluations to find low hanging fruit, then validate with real

    users in usability studies
    2. Talk to users early and often
        1. Talk to a diverse group of users
    3. Have a diverse team (maybe someone will notice a bias that we don't)
3. Q: We have been talking a lot about "unexpected" errors - how do we make them become "expected"? So that they stop happening
    1. A/B testing, small rollout - Release your software to a small group of users, get feedback
    2. UI/UX teams - who are experts in usability - design and evaluation
    3. Heuristic evaluations
4. Curb cut effect

Making things more inclusive for one user will likely help the larger group as well - Curb cuts (and ramps) help not only those in wheelchairs, but also those with deliveries, strollers. Closed captions - good for many. Elevators?