

CS377Q: Today's goals

- P1: Brainstorming Idea presentations
 - 2 mins presentation
 - 1 min critique
 - Volunteers to go first?
- Prototyping approaches
- Assign P2
- AI in accessibility
- Guest lecture: AI and bias in Accessibility



Prototyping approaches

- Medium-fidelity
 - Wizard of Oz
 - Wireframe prototype
- Programmed working prototype
- For this class, I'm agnostic—main goal is how to demonstrate the concept and get meaningful user feedback from disabled user population

Wizard of Oz:

- PowerPoint slides + captioning
- Human-powered speech recognition, output
- Assuming AI technology exists, what's the UX?
- Nonvisually Accessible Video Calling example
 - AI to detect conversation cues in a video call
 - Play sounds to communicate them to people who are blind or low vision

P2: Prototyping (15 points)

- a) Thurs. May 2: User scenario (2 points)
- b) Thurs. May 9: Prototype demo (13 points)

P2a: User scenario (2 points)

- Decide on the user scenario that will be the focus of the prototype:
 - The tasks do you want to enable the user to accomplish
 - The context of these user tasks
- Prototype development plan
 - Milestones for getting to conceptual prototype demo by May 9th
- How is this better than prior work that you found
- May 2, 3-minute presentation in class

Researching prior related work

- Google Scholar: <https://scholar.google.com/>
- ACM Digital Library: <https://dl.acm.org/dl.cfm>
 - <https://dl.acm.org/citation.cfm?id=1979044>
 - Ex: blind low vision navigation
- Identify how your concept goes beyond prior related work

P2b: Prototype demo (13 points)

- May 9: 8-minute demo with teaching team in class
 - Structured experience to work through task in 5 minutes
 - 6 minutes of critique feedback
- When not demo'ing to teaching team, demo to another team for feedback
 - Get feedback from 2 other teams
- Besides in-class demo, submit a video demo of the prototype



Microsoft Build // AI for Accessibility

May 7-9, 2018 // Seattle, WA

<https://www.youtube.com/watch?v=bbrZ2pvubL0>



Automatic Alt-text: Computer-generated Image Descriptions for Blind Users on a Social Network Service

<https://dl.acm.org/citation.cfm?id=2998364>

Reactions

Useful: over 90% of the write-in feedback AAT is useful. The major reasons were:

(1) better understanding of images: *"I like how what is in the picture and how many people people are doing if they are smiling etc."*

(2) make people feel included: *"For the first I can enjoy FB like my sighted friends.... Li part of the community."*

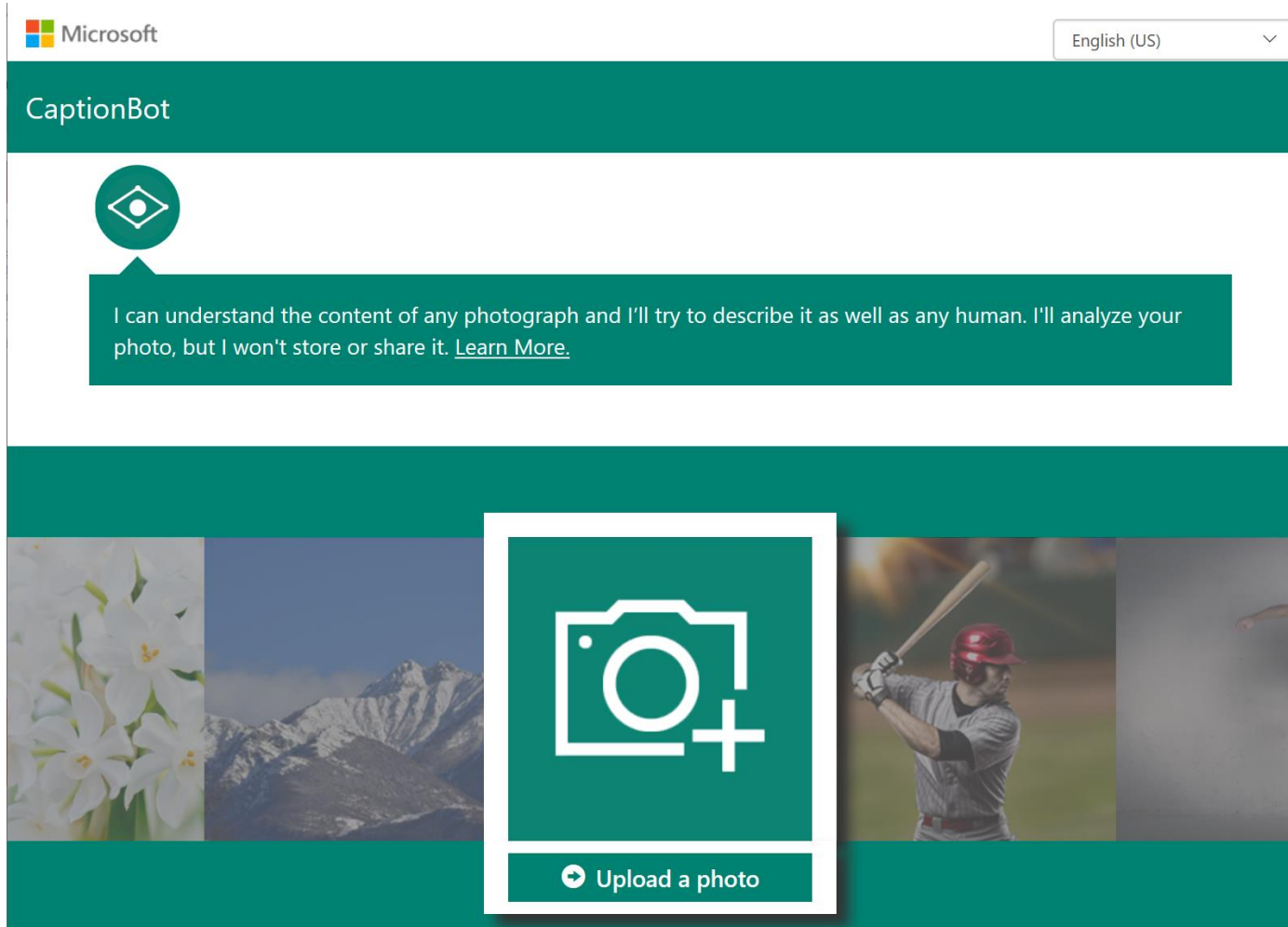
(3) show SNSs' efforts on improving accessibility: *appreciate that Facebook is making an e photos more accessible to those using screen*

Not useful: a few people also expressed their disappointment in this feature, citing a lack of descriptiveness and uncertainty on how much they can trust the algorithm. For example, one user wrote, *"The descriptions are incredibly vague, and don't really give any information. I still have to ask friends what the photo actually is"*. And another user asked for *"[...] more accuracy. I saw one photo that only stated it was indoors when in fact the person that added a description said it was some guide dogs out on the front porch of a restaurant. I do appreciate that FB is trying to work out this type of thing; I just hope it gets a little more reliable."*

Contrary to the self-reported data, we did not see a significant difference in the number of photos liked by users from the test group as compared to the control group.

MSR's captionbot.ai

- <https://www.captionbot.ai/>



Visual recognition APIs

- Microsoft Cognitive Services

<https://azure.microsoft.com/en-us/services/cognitive-services/directory/vision/>

- IBM Watson API

<https://www.ibm.com/watson/services/visual-recognition/>

Visual question answering

Who is wearing glasses?

man



woman



Where is the child sitting?

fridge



arms



Is the umbrella upside down?

yes



no



How many children are in the bed?

2



1



<https://vqa.clouddcv.org>

Guest lecture: AI & Accessibility: Ethical Considerations

- Merrie Morris
- Microsoft Research
- Ability Team
- Stanford alumna

