

# Access

MICHAEL BERNSTEIN  
CS 376

THANKS TO JEFF BIGHAM

# Announcements

- Stats tutorial by Geza on Thursday
- Project Fair Round Two on the Thursday after Thanksgiving
- CS 547 seminar on AR and Accessibility this Friday

CSCW 2018

JOIN THE MOVEMENT TO

# End online harassment

*“HeartMob... aims to be the place where those facing harassment can easily report abuse across social networks and find support from others who know what they're going through” – The Washington Post*

HOW IT WORKS

DONATE

## Want to take action?

*Join the HeartMob!*

We're fighting fire with water, and working step by step to assist victims, educate communities, and stop harassment online.

 **1178** PEOPLE SUPPORTED  
 **6908** ACTIONS TAKEN

## Experiencing harassment?

*You are not alone!*

HeartMob lets you report and get the help you need across platforms and get the support you need from the community.

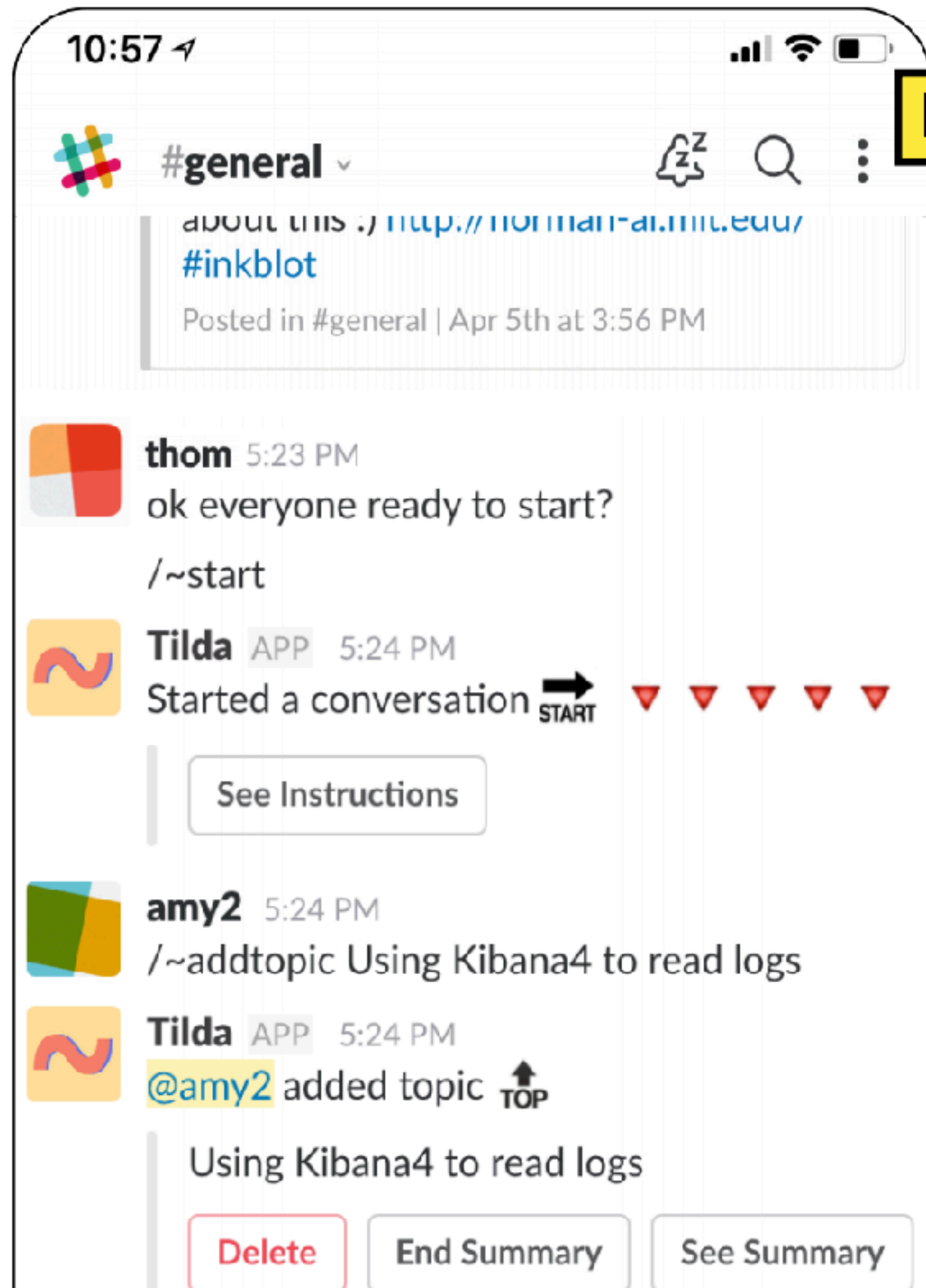
# Classification and Its Consequences for Online Harassment

[Blackwell 2018]

JOIN THE COMMUNITY

# Making sense of group chat

[Zhang and Cranshaw 2018]



## Notes

Add a note by typing a /- for all possible Tilda commands.

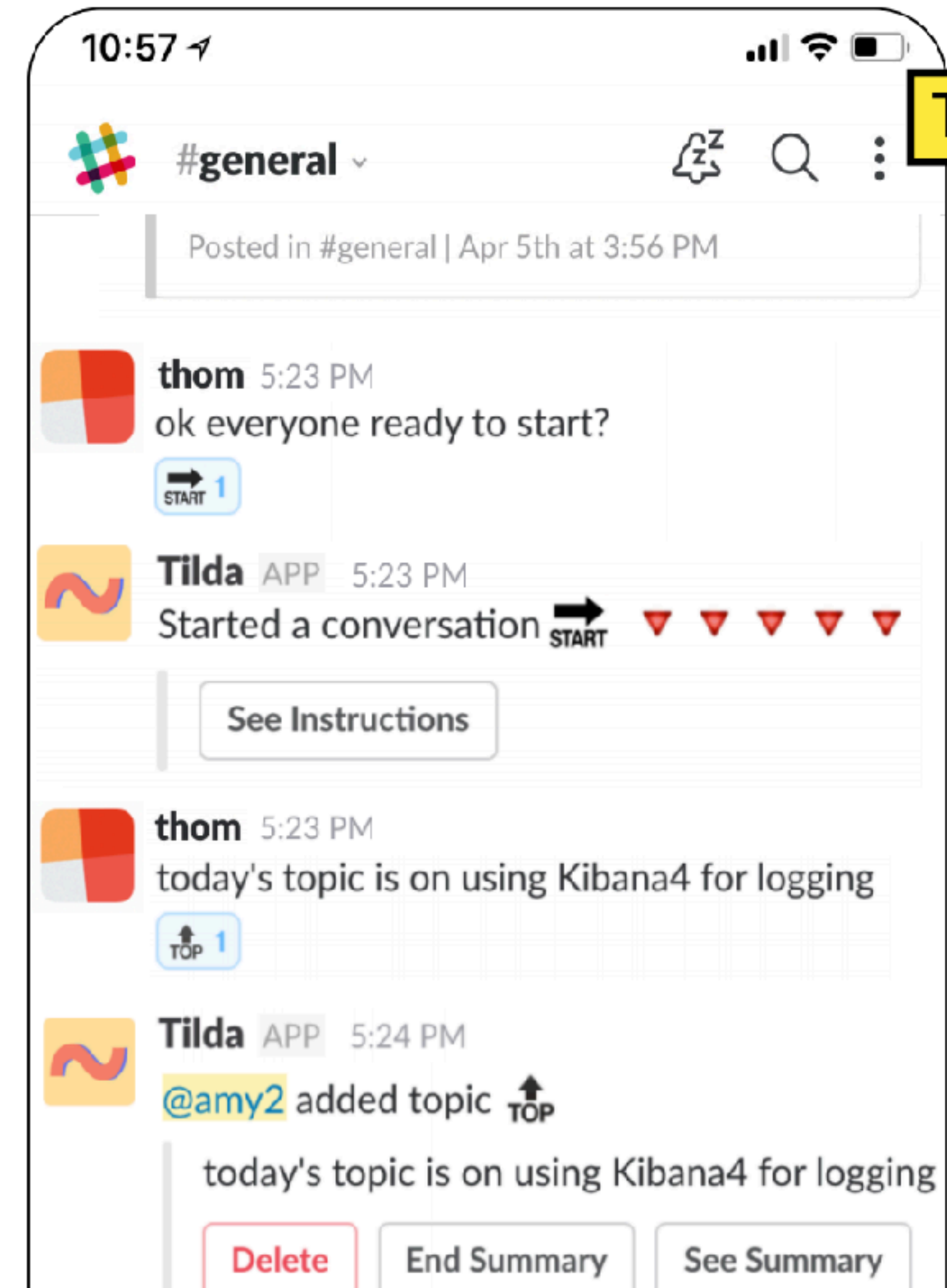
☆ | 4 | 1 | Add a topic

Commands matching "/-"

Tilda

- /~addtag optional: [tag]  
Tag this conversation with keywords.
- /~addaction [action item]  
Add an action item.
- /~adddecision [decision]  
Add a decision that was made.
- /~addidea [idea]  
Add an idea or proposal item.
- /~addinfo [info item]  
Add an info item.
- /~addquestion [question]  
Add a question or request for help.
- /~addanswer [answer]  
Add an answer or suggestion to a question.
- /~addtopic [topic]  
Set the topic of conversation.
- /~end

+ /~addtag



## Tags

Tag an existing message by adding an emoji reaction.

Add reaction ...

Search for the name of the item or see it in the list of Frequently Used emojis.

action

Search Results

Handy Reactions

# Online harassment and content moderation: blocklists

- Blocklists (e.g., on Twitter): lists of accounts that are shared by harassed individuals — you block all of them
- Qualitative investigation of users of blocklists found:
  - They don't adequately protect users, and...
  - The blocked individuals feel unfairly blocked, due to disagreements on what constitutes harassment

# How do we manage trolls?


[Chandrasekharan et al., CSCW 2017–2018]

- Question: does banning bad behavior help, or just relocate the behavior?
- Dataset: Reddit banned /r/CoonTown and /r/FatPeopleHate as violating its hate speech policy
- Result: many accounts left; those that stayed, did not introduce hate speech into other subreddits they migrated into



# HabitLab

Change your online habits

 HabitLab is already installed



Some anonymized data will be sent to Stanford for research purposes. See our privacy policy for details.



Set Goals



Try Interventions

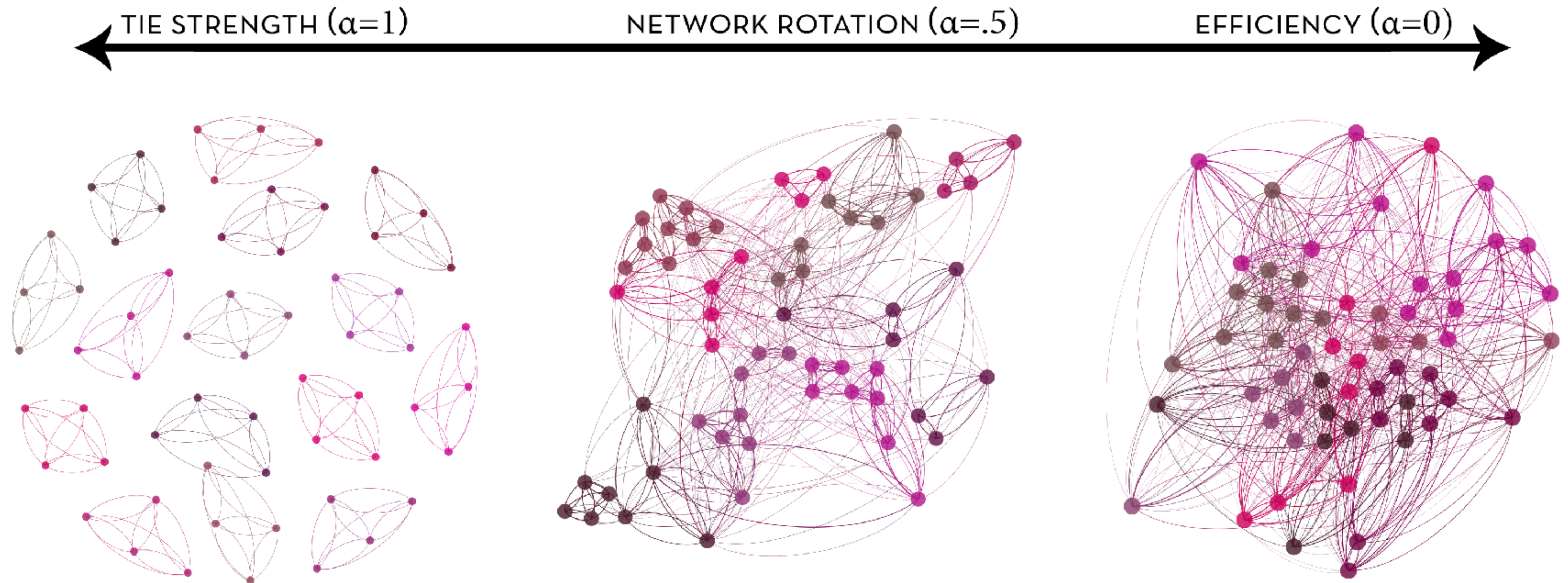


View Progress



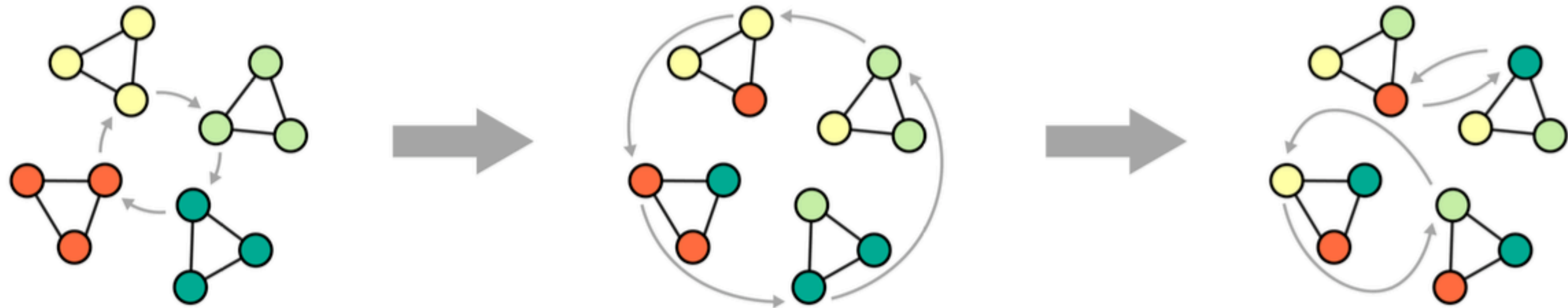
# Hive: collective design through network rotation

[Salehi and Bernstein 2018]



# Hive: collective design through network rotation

[Salehi and Bernstein 2018]



# Access

MICHAEL BERNSTEIN  
CS 376

THANKS TO JEFF BIGHAM

# The future is not evenly distributed

- The systems we've been discussing so far have targeted those who join the digital revolution
- However, this revolution leaves many behind, either by virtue of their design or the infrastructure required to use them

# Today: access

- Terribly, excruciatingly brief introductions of two fields that intersect substantially with HCI: accessibility and ICT for Development
  - Each has an intense acronym: AIIY and ICT4D
- Each examines how technology design can be rethought in the context of truly universal access

**Accessibility**

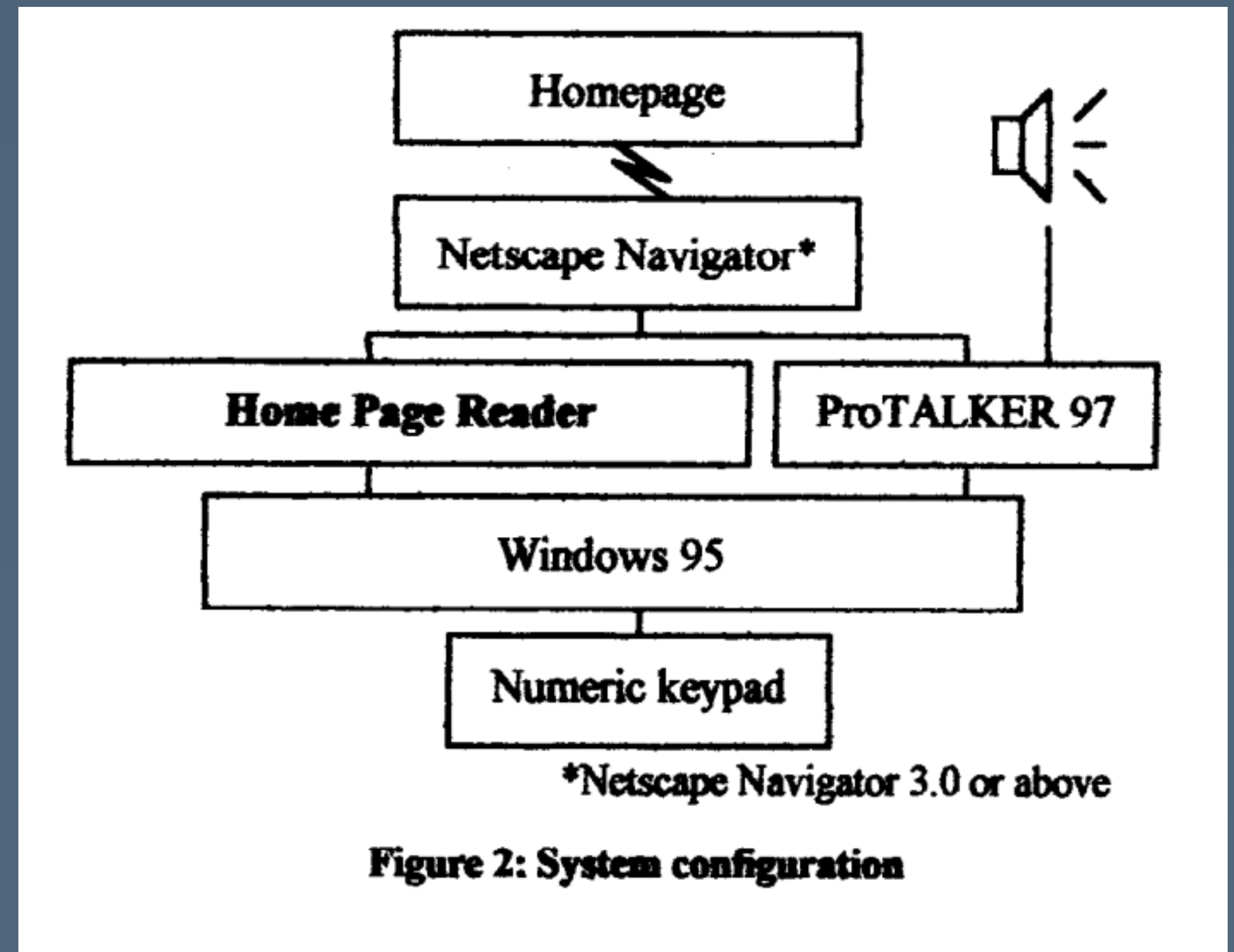
# Why?

- 19% of the US population is disabled [US Census Bureau 2012]
- This takes many forms: [Jenny Lay-Flurrie]
  - Visual: colorblind, low vision, blind
  - Hearing: loss, deaf
  - Cognitive: dyslexia, seizure, learning disabilities, autism
  - Speech: speech impediment, unable to speak
  - Mobility: arthritis, quadripilegia
  - Neural: bipolar, anxiety, PTSD, depression
- Research projects often target one or more of these groups

# Web page screen reader

[Asakawa and Itoh 1998]

- The first interface for reading the web out loud
- Explains: why is it hard to provide audio access to two-dimensional, complex web designs?





# VizWiz

[Bigham et al., UIST '10]

- Visual question answering for the blind

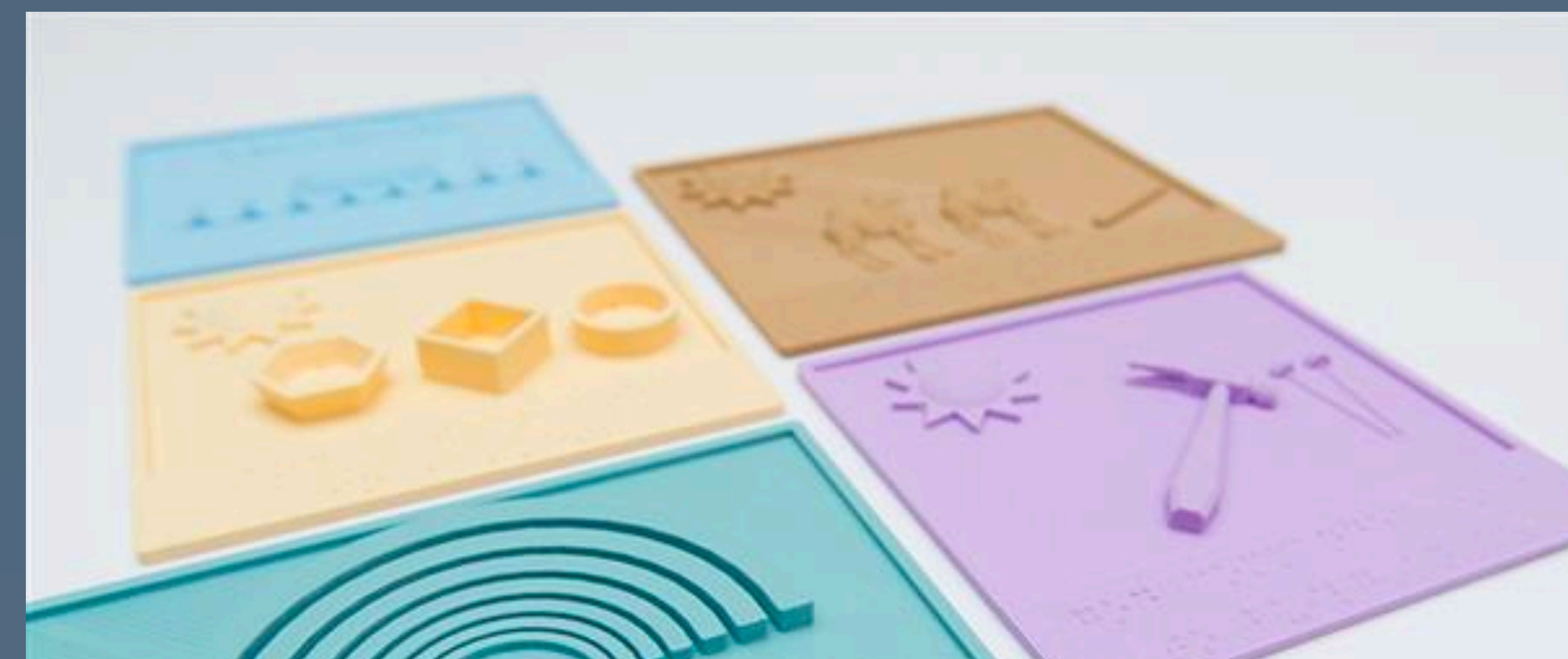
What color is this pillow?	What denomination is this bill?	Do you see picnic tables across the parking lot?	What temperature is my oven set to?	Can you please tell me what this can is?	What kind of drink does this can hold?
					
(89s) I can't tell. (105s) multiple shades of soft green, blue and gold	(24s) 20 (29s) 20	(13s) no (46s) no	(69s) it looks like 425 degrees but the image is difficult to see. (84s) 400 (122s) 450	(183s) chickpeas. (514s) beans (552s) Goya Beans	(91s) Energy (99s) no can in the picture (247s) energy drink

- 1 to 2 minute responses by keeping workers on fake tasks until needed

# 3d-printed tactile picture books

[Stangl, Kim and Yeh 2014]

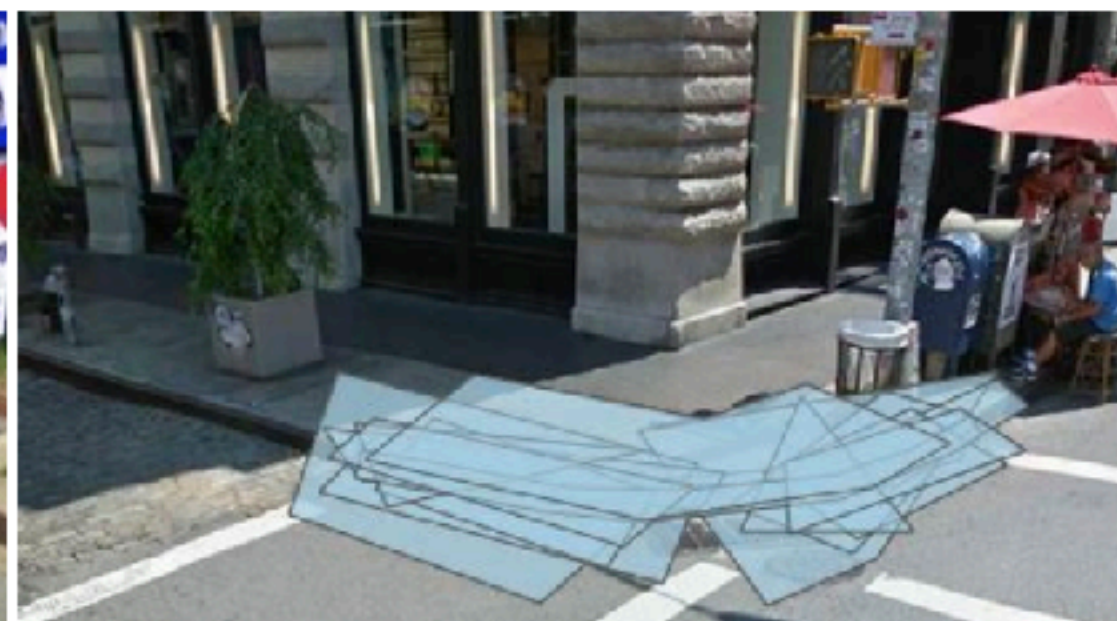
- The pictures in picture books remain inaccessible to blind children
- 3D printing might allow us to make books that convey the contents of the pictures in a tactile channel



# Google Street view accessibility

[Hara, Le, and Froehlich 2013]

- Crowdsourced effort to label Google Street view images for accessibility issues



(a) *Object in Path*

(b) *No Curb Ramp*

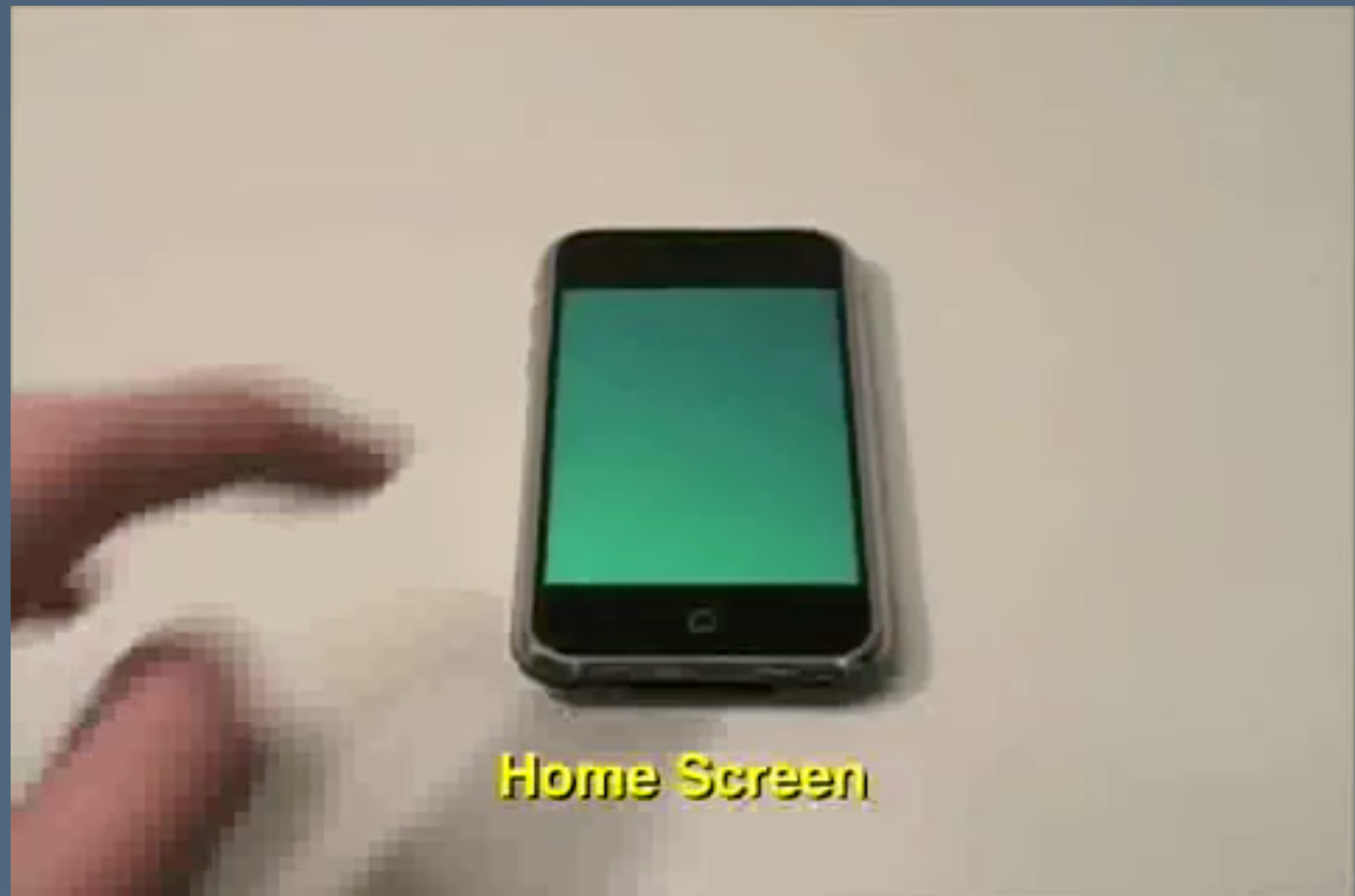
(c) *Surface Problem*

(d) *Prematurely Ending Sidewalk*

# Touchscreen

[Kane, Bigham and Wobbrock 2008]

- How do blind users interact with touchscreen phones?
- A “scrubbing”-style interface for voiceover

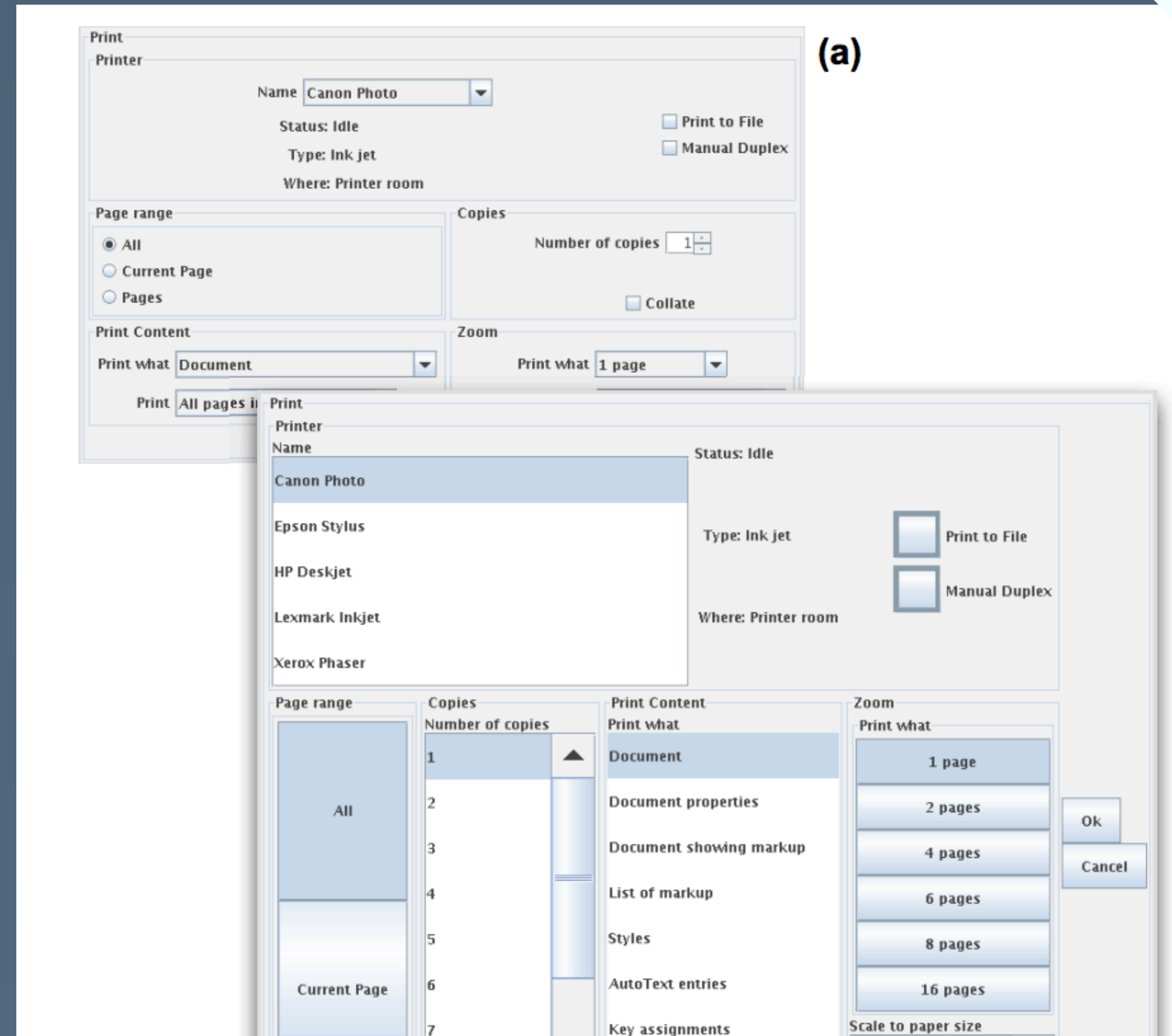


YOU READ THIS

# AI tailoring of user interfaces

[Gajos et al. 2008]

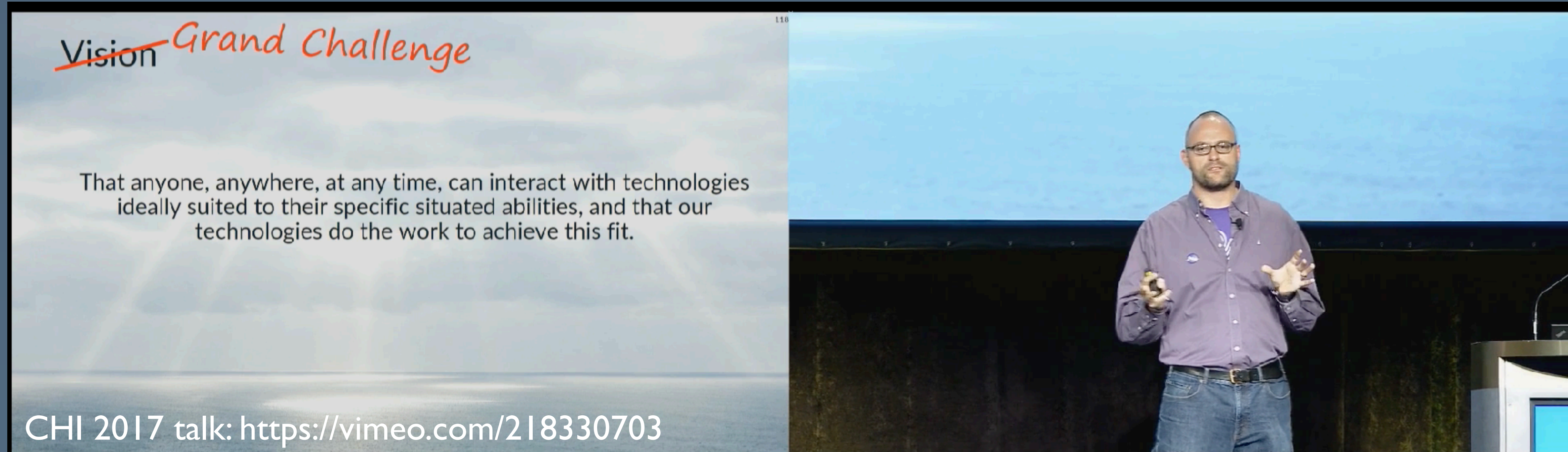
- Step one: model the user's motor abilities
- Step two: customize the user interface to match those abilities



# Ability-based design

[Gajos et al. 2010]

- Stop thinking about “dis”-ability, and think about ability-based interaction



ICT4D

# Why?

- Much of the world's population cannot access the iPhone Xs...  
much less 4G networks
- This area's goals:
  - Work with local populations to solve their problems
  - When appropriate, help extend network, power and other access to people in developing regions
  - Develop design solutions within challenging technical constraints



# Mobile Q&A for farmers

[Patel et al. 2010]

- Forum for asking questions and browsing others' questions and responses about farming
- All voice-based!
- For every user, this was their first online community



# Village Base Station

[Heimerl et al. 2010]

- “How successful would bottom-up cellular networks be?”
- Local cellular network, utilizing existing infrastructure (e.g., power, network, and people) to operate at much lower cost



# Digitizing paper forms

[Dell et al. 2012]

- Most records in low-resource settings are still captured and retained on paper; however, it can be difficult to aggregate and analyze paper data
- mScan: a CV-augmented system to help digitize multiple-choice forms

Brigada móvel  Posto fixo

Ficha de registo diário do PAV para posto fixo ou brigada móvel - BCG, Polio, DTP-HepB-Hib e Sarampo

Vacinas	0 - 11 meses	Total	12 - 23 meses	Total	Frascos Abertos	Total Frascos Abertos
BCG	60	60				
Polio Primário	150	150				
Polio 1ª Dose	150	150				
Polio 2ª Dose	140	140				
Polio 3ª Dose	160	160				
DTP-HepB-Hib 1ª Dose	150	150				
DTP-HepB-Hib 2ª Dose	150	150				
DTP-HepB-Hib 3ª Dose	150	150				
Sarampo	150	150				

Críticas completamente vacinadas: 80

Provincia: Namala  
Distrito: Mucos  
US: ... Código: 12345  
Mês: Agosto Ano: 2011

Posto fixo  Brigada móvel

Ficha de registo diário do PAV para posto fixo ou brigada móvel - BCG, Polio, DTP-HepB-Hib e Sarampo

Vacinas	0 - 11 meses	Total	12 - 23 meses	Total	Frascos Abertos	Total Frascos Abertos
BCG	60	65	27	27	9	9
Polio Primário	90	90			10	10
Polio 1ª Dose	53	53	50	50	11	11
Polio 2ª Dose	41	46	27	27	12	12
Polio 3ª Dose	60	60	22	22	5	5
DTP-HepB-Hib 1ª Dose	84	84	25	25	15	15
DTP-HepB-Hib 2ª Dose	41	41	25	25	5	5
DTP-HepB-Hib 3ª Dose	34	34	10	10	3	3
Sarampo	50	50	30	30	11	11

Críticas completamente vacinadas: 53

Nome legível do responsável pelo preenchimento: \_\_\_\_\_ Categoria: \_\_\_\_\_  
Data: 2/16/2011

NB: Críticas completamente vacinadas é aquela que recebeu todas as vacinas antes de completar um ano de vida.

# Do MOOCs help?

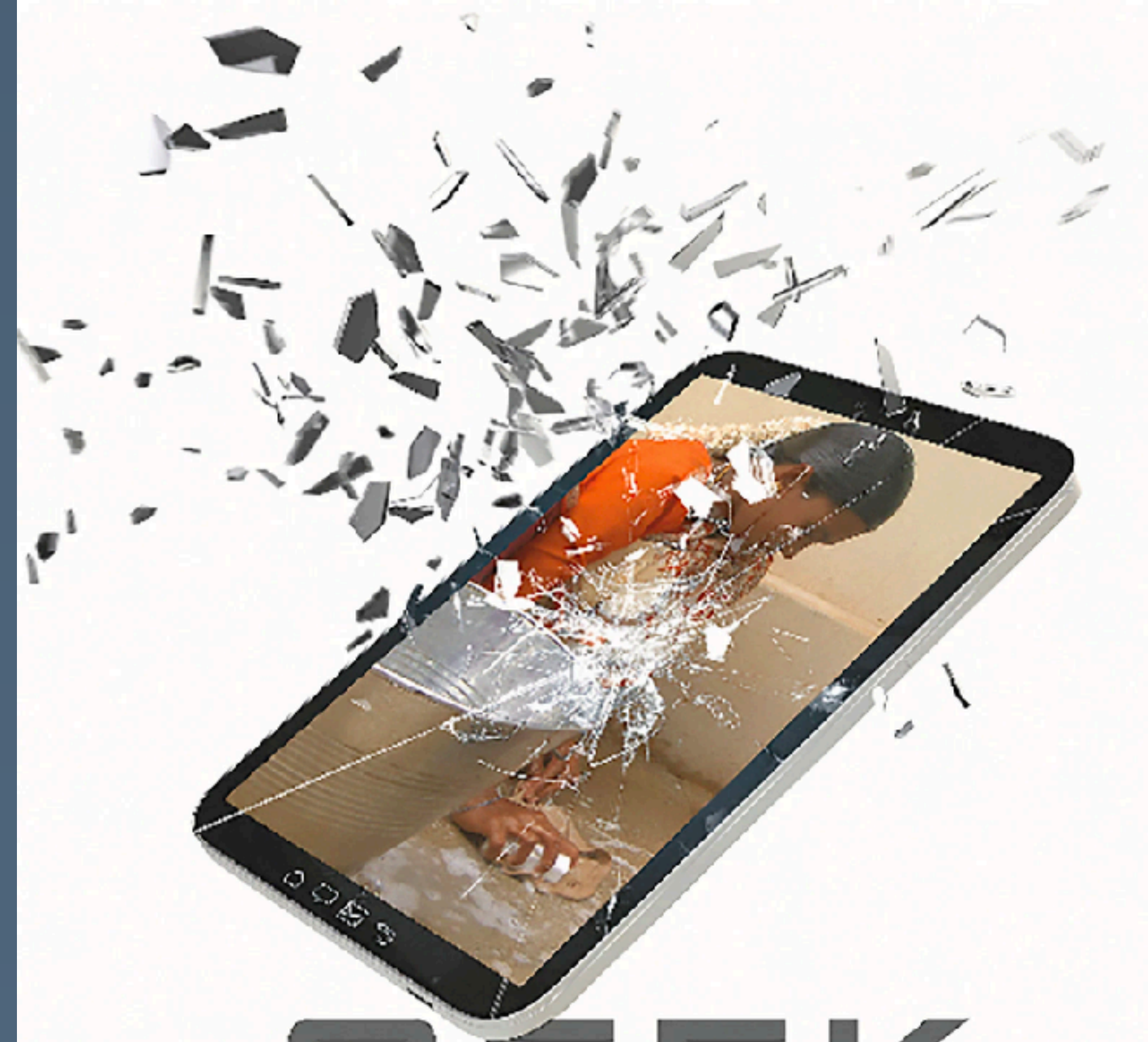
[Dillahunt, et al. 2014; 2016]

- MOOCs advertised global access, but most participants are already employed and have post-secondary degrees
- What happens to MOOC learners who cannot afford a formal education?
  - Lower rates of completion
  - Lots of optimism that this will improve employability, but little evidence that it does

# Geek Heresy

[Toyama 2015]

- After a decade designing ICT4D technologies, Kentaro Toyama argues that transformative change cannot rely on tech alone.
- A reflective book: the technologies that Toyama and his team created were most effective for high-capacity organizations, not their intended users.
- His argument: invest effort in people, not tech



## GEEK HERESY

RESCUING SOCIAL CHANGE  
FROM THE CULT OF TECHNOLOGY

KENTARO TOYAMA