

# CSE 440: Introduction to HCI

User Interface Design, Prototyping, and Evaluation

Lecture 15:  
Designing for  
Diverse Needs

Tuesday / Thursday  
12:00 to 1:20

James Fogarty  
Kailey Chan  
Dhruv Jain  
Nigini Oliveira  
Chris Seeds  
Jihoon Suh

# Project Status

## Looking Forward

3g: Presentation Due Wednesday 11/29

4b: Video Prototype Due Monday 12/4

4c: Poster Due Wednesday 12/6

Next Week Focused on Feedback

4e: Final Poster, Video, Website 12/11

## Other Assignments

Reading 5 Due Saturday 12/2

# Presentations

## Presentations Thursday / Friday

### 6 groups on Thursday

amisu, Cease, Check Yourself, MetaGrocer, MOLO, Pilltender

### 9:30 section on Friday

BackTrack, RAPID, SALT, Hermes (from 1:30)

### 10:30 section on Friday

SimPark, Speech Bubble, StudyBuddy, interview.io (from 12:30)

### Everybody attends Thursday

welcome in 9:30 and 10:30 sections on Friday

no 12:30 or 1:30 sections on Friday

### Have thoughtful questions for other groups

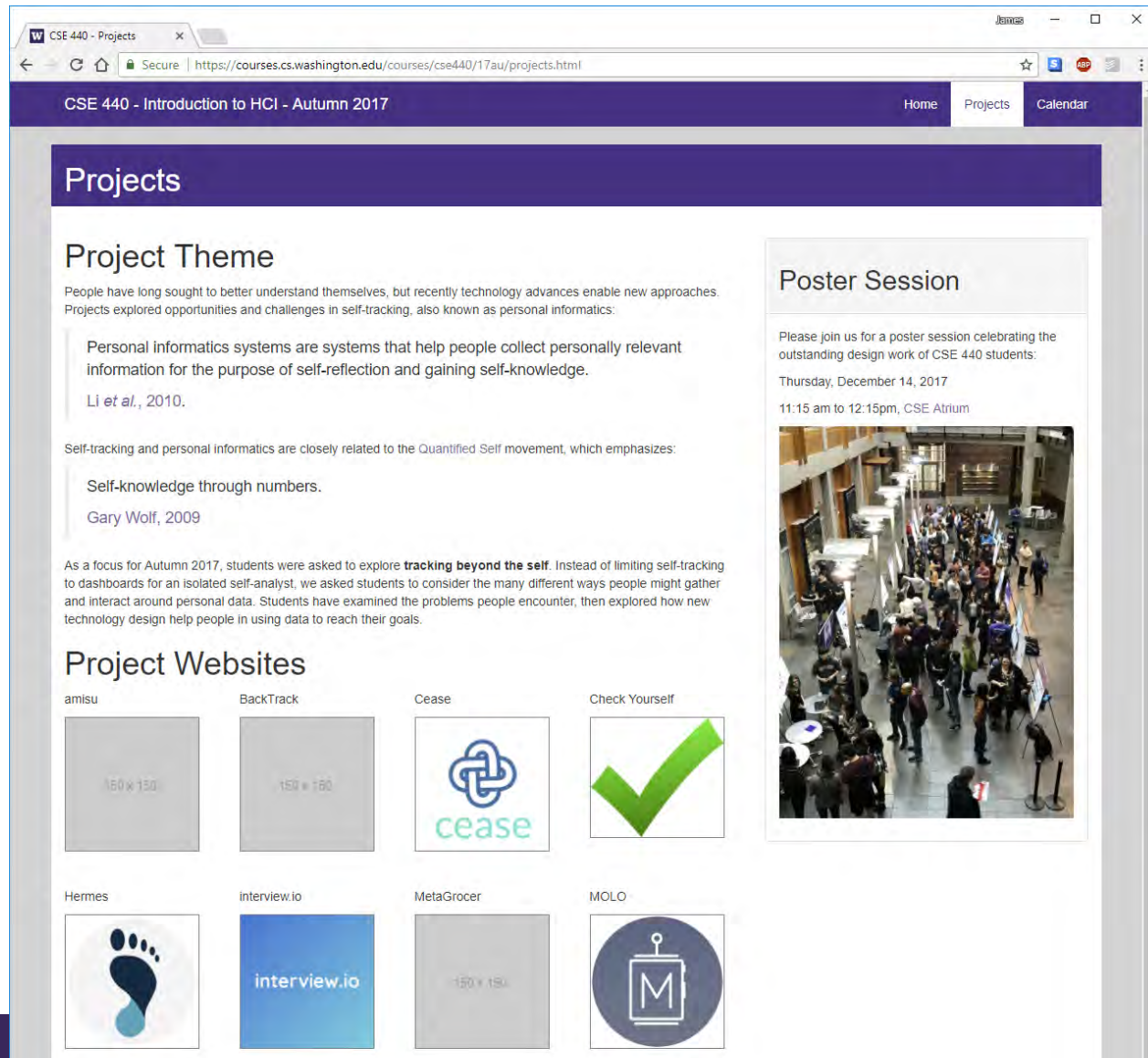
## Be sure you prepare and rehearse

Limit 7 minutes

Team responsibility for the presentations

PPT(X) or PDF, embed fonts, happy to “check”

# Fixing up Logo and Website



CSE 440 - Introduction to HCI - Autumn 2017

Home Projects Calendar

## Projects

### Project Theme

People have long sought to better understand themselves, but recently technology advances enable new approaches. Projects explored opportunities and challenges in self-tracking, also known as personal informatics.

Personal informatics systems are systems that help people collect personally relevant information for the purpose of self-reflection and gaining self-knowledge.

Li *et al.*, 2010.









Self-tracking and personal informatics are closely related to the Quantified Self movement, which emphasizes:

Self-knowledge through numbers.

Gary Wolf, 2009


As a focus for Autumn 2017, students were asked to explore **tracking beyond the self**. Instead of limiting self-tracking to dashboards for an isolated self-analyst, we asked students to consider the many different ways people might gather and interact around personal data. Students have examined the problems people encounter, then explored how new technology design help people in using data to reach their goals.

### Project Websites

amisu 	BackTrack 	Cease 	Check Yourself 
Hermes 	interview.io 	MetaGrocer 	MOLO 

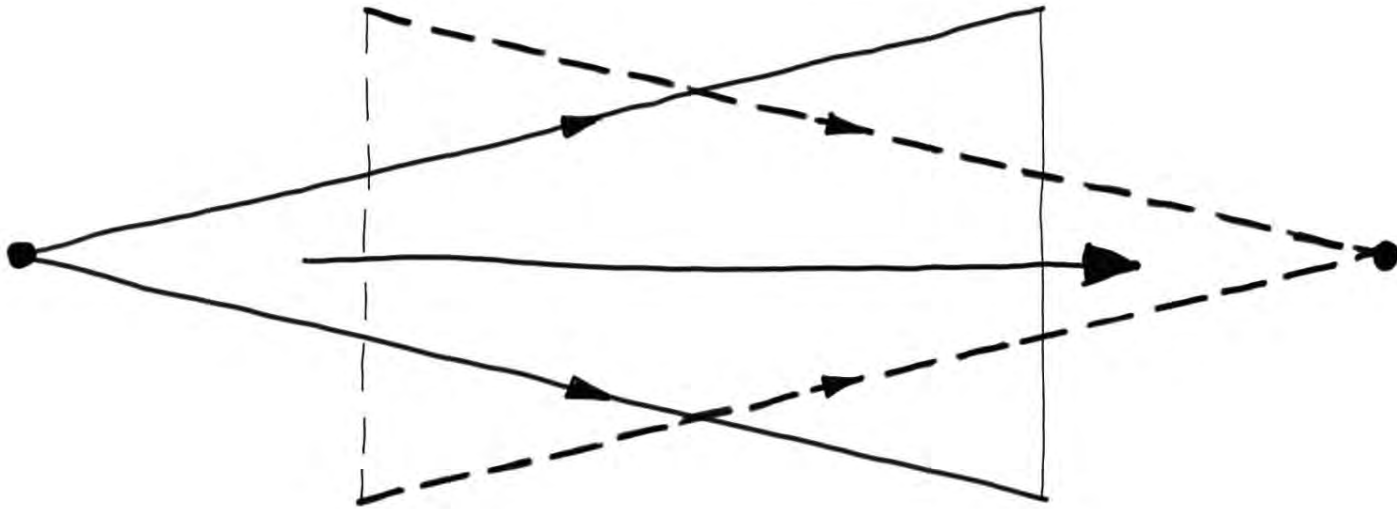
### Poster Session

Please join us for a poster session celebrating the outstanding design work of CSE 440 students:  
Thursday, December 14, 2017  
11:15 am to 12:15pm, CSE Atrium



# A Basic Tenet of Design

If you do not actually understand your design problem, then you cannot make the best design



# A Basic Tenet of Design

You are not designing for yourself

You bring a lot of background to the table

That background is your asset

But you also need to be mindful of it

You need to understand the context of your design and the people who will use it

What this means can vary widely

And may be beyond what you can or will do

For example, Julie's training for dissertation research

# A Basic Tenet of Design

Contextual Inquiry  
Terminology:  
Entering Focus

You are not designing for yourself

You bring a lot of background to the table

That background is your asset

But you also need to be mindful of it

You need to understand the context of  
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What this means can vary widely

And may be beyond what you can or will do

For example, Julie's training for dissertation research

# Pinkification

This can feel like a complicated issue

But it is not new

We will start here

Then work through more obvious problems





# Bic for Her



Finally! For years I've had to rely on pencils, or at worst, a twig and some drops of my feminine blood to write down recipes (the only thing a lady should be writing ever). I had despaired of ever being able to write down said recipes in a permanent manner, though my men-folk assured me that I "shouldn't worry yer pretty little head". But, AT LAST! Bic, the great liberator, has released a womanly pen that my gentle baby hands can use without fear of unlady-like callouses and bruises. Thank you, Bic!

<http://www.forbes.com/sites/davidvinjamuri/2012/08/30/bic-for-her-what-they-were-actually-thinking-as-told-by-a-man-who-worked-on-tampons/>

# Bic for Her



It is very, very hard to imagine that the people who made the decision to launch “Bic for Her” were the same women expected to buy them.

<http://www.forbes.com/sites/davidvinjamuri/2012/08/30/bic-for-her-what-they-were-actually-thinking-as-told-by-a-man-who-worked-on-tampons/>

# Apple HealthKit Launch



“with Health, you can monitor all of your metrics that you’re most interested in”  
Apple Software executive Craig Federighi

<http://www.theverge.com/2014/9/25/6844021/apple-promised-an-expansive-health-app-so-why-cant-i-track>

# Apple HealthKit Launch



“with Health, you can monitor all of your metrics that you’re most interested in”  
Apple Software executive Craig Federighi

“If you’re a human who menstruates,  
you’re shit out luck”

“The fact that it’s a women’s issue isn’t  
grounds for dismissal”

[http://www.theverge.com/2014/9/25/6844021/  
apple-promised-an-expansive-health-app-so-why-cant-i-track](http://www.theverge.com/2014/9/25/6844021/apple-promised-an-expansive-health-app-so-why-cant-i-track)

# Kodak, 1926



Kodak Vest Pocket Series III (1926)

Kodak launched this black camera in 1926

It was successful, but was selling more to men

Engaged Walter Dorwin Teague to design a model that would appeal to women

His solution was to release a the camera in 5 different colors, each packed in a pseudo-silk lined box, where the box and liner matched the color of the camera

# Kodak, 1926

Anybody know Teague Design?



Kodak Vest Pocket Series III (1926)

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His solution was to release a the camera in 5 different colors, each packed in a pseudo-silk lined box, where the box and liner matched the color of the camera



Walter Dowrin Teague  
Vanity Kodak (1928)



# Apple, 2001



Apple G1 iPod, October 2001

Apple launched this white iPod in 2001

It was successful, but was selling more to men

Designed a model that would appeal to women

Their solution was a smaller version of the iPod in 5 different colors



Walter Dowrin Teague  
Vanity Kodak (1928)



Jonathan Ive  
Apple iPod Mini (2004)



# Observations by Buxton

Same basic design brief

- Same use of color

- Same number and choice of colors

- Same simultaneous release of colors

Teague / Kodak example is a classic

- Known to any trained industrial designer

- Jonathan Ive is an extremely well trained designer

- Draws inspiration from the past

# How About Less Controversial

Our perception of the trustworthiness and usability of a website is dramatically shaped by a first impression of appeal

How about we examine appeal around the world

Throw in age and gender for good fun

# An Activity

Please rate the website you have just seen based on **visual appeal**.

very  
unappealing



very  
appealing

## Bars Guide

### 100 Places to Pick Up in Toronto

100 places to pick up all around Toronto. [More...](#)



#### Best Bars Near the Rogers Centre 1 Comment

Posted: May 31, 2013

By Kevin Scott

These bars around the Rogers Centre are great spots before or after the game.

[READ MORE](#)



#### Best Karaoke Bars with Private Rooms 1 Comment

Posted: March 08, 2013

By Samantha Edwards

Check out these karaoke bars with private rooms in Toronto.

[READ MORE](#)



#### Best Bars for Live Music in Toronto

Posted: September 20, 2012

By Stephen Baldwin

Here are the top venues in Toronto to enjoy some live music with your drink.

[READ MORE](#)



#### Bars with the Best Late-Night Menus

Posted: November 15, 2012

By Samantha Edwards

Here are five bars with a great late-night menu.

[READ MORE](#)



### Restaurant Finder

Search by Cuisine

Search by Neighbourhood

Search by User Rating

OR

Search by Name

[Show Me](#)

BRUNCH | TAKEOUT | STEAKHOUSES

### Event Finder

Search by Event Type

From:  To:

Search by User Rating

OR

Search by Event Name

[Show Me](#)

WHATS ON | CALENDAR

### Movie Finder

Search by Movie Title

OR

Search by Theatre

OR

Search by Neighbourhood

OR

Search by Genre

[Show Me](#)

REVIEWS | TRAILERS | COMING SOON

Please rate the website you have just seen based on **visual appeal**.

very  
unappealing

very  
appealing

# tapir design

classic design for today.



Tapir Design specialises in producing attractive, stylish websites that are accessible to all Internet users, regardless of the web browser or computer operating system that they use.

[Contact the webmaster](#)

[Click here for the Tapir Blog](#) for all of your tapir news from around the globe

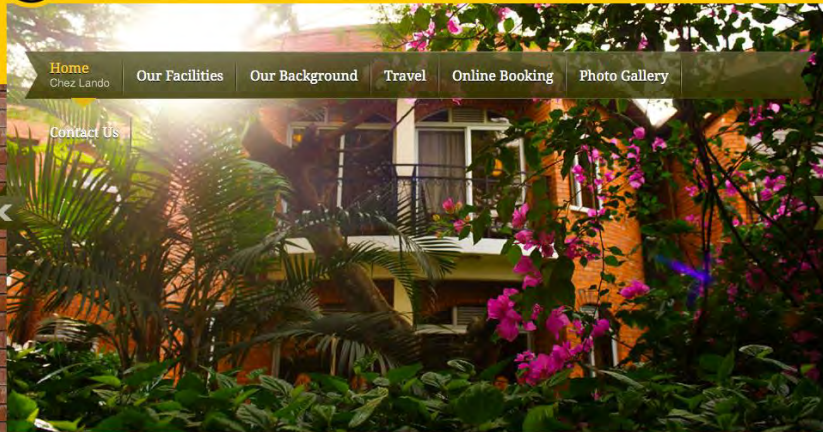
Please rate the website you have just seen based on **visual appeal**.

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[Home](#)  
Chez Lando
[Our Facilities](#)
[Our Background](#)
[Travel](#)
[Online Booking](#)
[Photo Gallery](#)

[Contact Us](#)

### Rooms & Suites!



Every room has a private patio and beautiful views of our expansive gardens. We offer 2 restaurants

[Read Article](#)

### Meetings & Events



Hotel Chez Lando has a variety of meetings & events facilities to hold your event. Hotel Chez Lando

[Read Article](#)

### Dining & Bars



On the menu are a variety of old La Fringale favorites such as pepper steak, chicken cordon bleu

[Read Article](#)

## Welcome to Hotel Chez Lando!

Hotel Chez Lando, your first window to Rwanda. At Chez Lando, we apply the tradition of Rwandan hospitality to the needs of modern travelers; we cater to the smallest detail of your stay. Our quaint garden-style hotel is located just five minutes from Kigali International Airport and is right on the way to the heart of town.

Sixteen years after the Genocide, Hotel Chez Lando is opening its new Barbecue, new Restaurant with Terrace and new Meeting Hall where comfort and light meet blossoming flowers. The architecture of the new additions blends with its environment; stylish and modern, it is matching the new face of Rwanda.

### \*\*\* Special Offers\*\*\*

-We offer a free breakfast, airport shuttle & Wi-Fi must mention the arrival time, flight name & number in your booking (special request part in case of online booking) I/Visa & Master Card Accepted.

Please rate the website you have just seen based on **visual appeal**.

very  
unappealing

very  
appealing



THE PEOPLE'S BANK  
Banki yacu. Hafi yacu.

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Enter keyword here...

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[BUSINESS BANKING](#)

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**KEEP TRACK OF YOUR ACCOUNT ON THE GO.**  
WITH SMS & EMAIL ALERTS

You want to acquire your first drive?

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Carry your bank with you 24/7

[Learn More](#) →

Simple things that make life easier.

**SENDIZI CASH**

**LATEST NEWS**

On the 18th of June, 2013 Banque Populaire du Rwanda scooped an Award as the Best Agri Business...

Banque Populaire du Rwanda on Friday of the 26th April, 2013, held a commemoration ceremony to...



Banque Populaire du Rwanda

Tariff Guide

**EXCHANGE RATES**

Currency	Selling	Buying
USD	696.824572	679.824572
EURO	984.813009	925.006257
GBP	1161.400411	1132.103058
CAD	619.531308	603.393408
CHF	777.24316	757.423256

Please rate the website you have just seen based on **visual appeal**.

very  
unappealing

very  
appealing



# Popular Rwandan Website

THE PEOPLE'S BANK  
Banki yacu. Hafi yacu.

About BPR Contact Us Client Feedback

Enter keyword here...

RETAIL BANKING BUSINESS BANKING RURAL BANKING SERVICES ABOUT BPR CONTACT US

**KEEP TRACK OF YOUR ACCOUNT ON THE GO.**  
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You want to acquire your first drive?  
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2068991  
total participants



### Trust us; you will love this test!

Take this test to see how well you can spot (un)trustworthy websites. This experiment takes around 12 minutes.

Participate now!



### How fast is your memory?

See how quickly you can retrieve information you have just memorized. This experiment takes around 10 minutes.

Participate now!



### What is your website aesthetic?

Compare your visual preferences to people around the world. This experiment takes around 10 minutes.

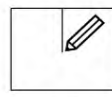
Participate now!



### Test your social intelligence!

Test how well you can read emotions of others just by looking at their eyes. This experiment takes around 10 minutes.

Participate now!



### Are you more Eastern or Western?

In this test, you will learn whether you are more sensitive to a focal object (as most Americans) or more attuned to the context (as many Japanese). This experiment takes around 8 minutes.

Participate now!



### Looking for more studies?

We have joined forces with [TestMyBrain](#) and [GamesWithWords!](#) Learn about your brain, test your language sense, and participate in other studies on [LessWeird.org](#).

## News From The Wild

April 25, 2014

During the summer, we launched an experiment to examine graph prediction tendencies amongst different cultures, particularly the contrast be...

[Read more](#)

March 20, 2014

How do you feel about Naver.

[Read more](#)

## Why Participate?

LabintheWild provides you with personalized feedback, letting you compare yourself to people of other countries.

By participating, you contribute to research on people's similarities and differences around the world when interacting with technology.

## Join the Wilderness



Enter your email to find out about new studies and breakthrough results:

Notify me!

# Large Scale Data Collection

The screenshot shows the LabinTheWild website interface. At the top, there are navigation links for 'Our Experiments', 'About Us', and 'Blog', along with a language selector set to 'English'. The main header features the 'LABINTHEWILD' logo and a statistics box indicating '2068991 total participants'. Below this, a grid of experiment cards is displayed. The card 'What is your website aesthetic?' is circled in red. Each card includes a title, a brief description, and a 'Participate now!' button. At the bottom of the page, there are sections for 'News From The Wild' (with dates April 25, 2014 and March 20, 2014), 'Why Participate?' (explaining the benefits of personalized feedback and research contribution), and 'Join the Wilderness' (with social media icons and an email subscription form).

2.4 million ratings  
39,975 participants  
430 websites

# Visual Feature Analysis



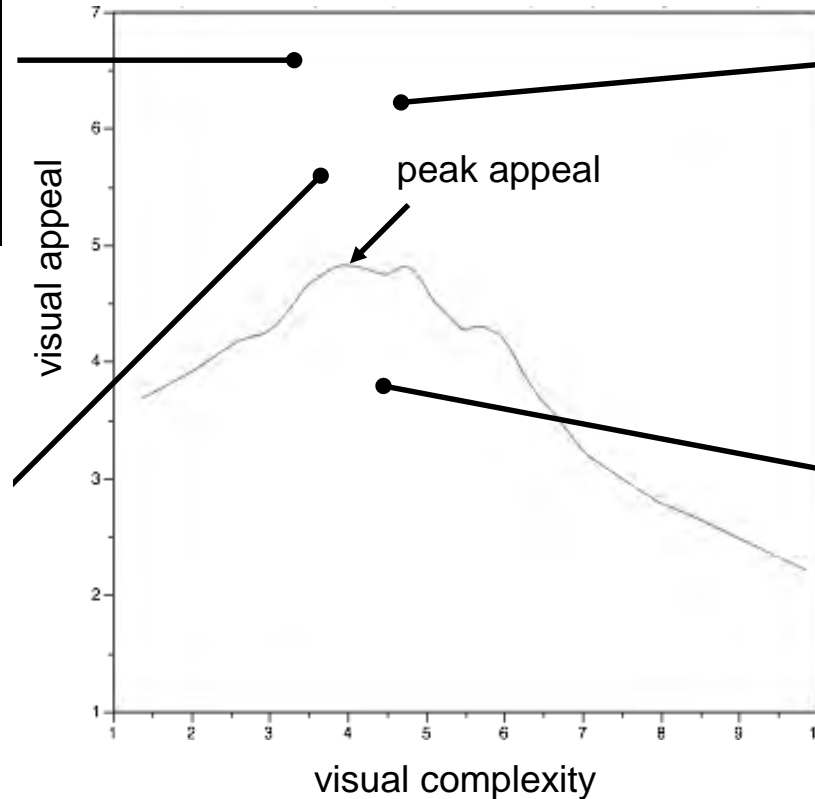
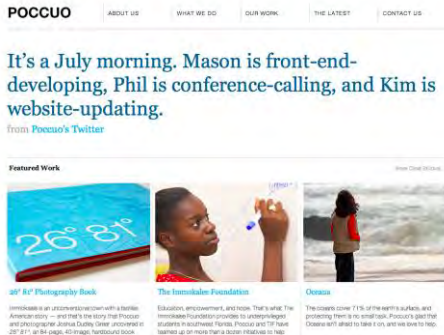
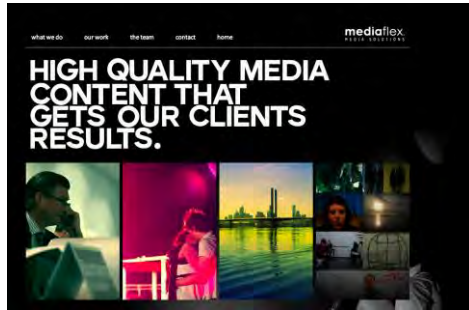
2.4 million ratings  
39,975 participants  
430 websites

39 image metrics  
describing website  
perceived **colorfulness**  
and **complexity**

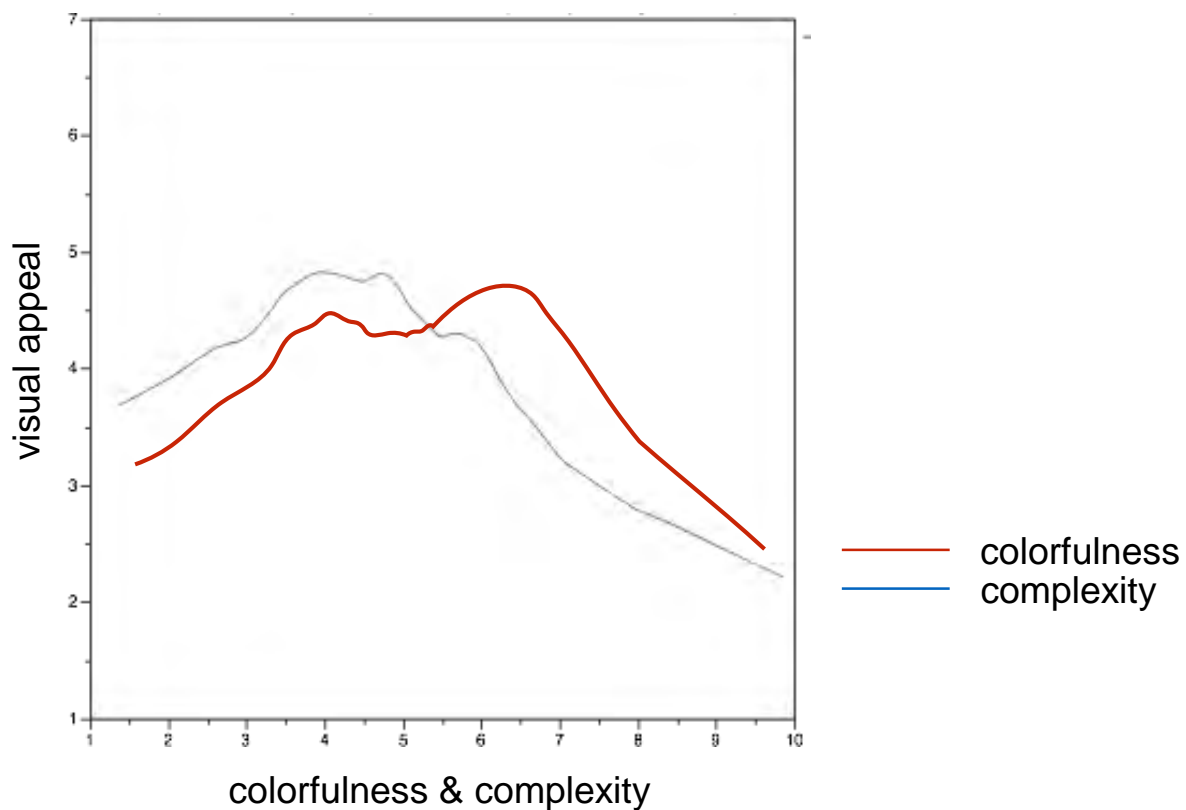
Age, country,  
gender, education



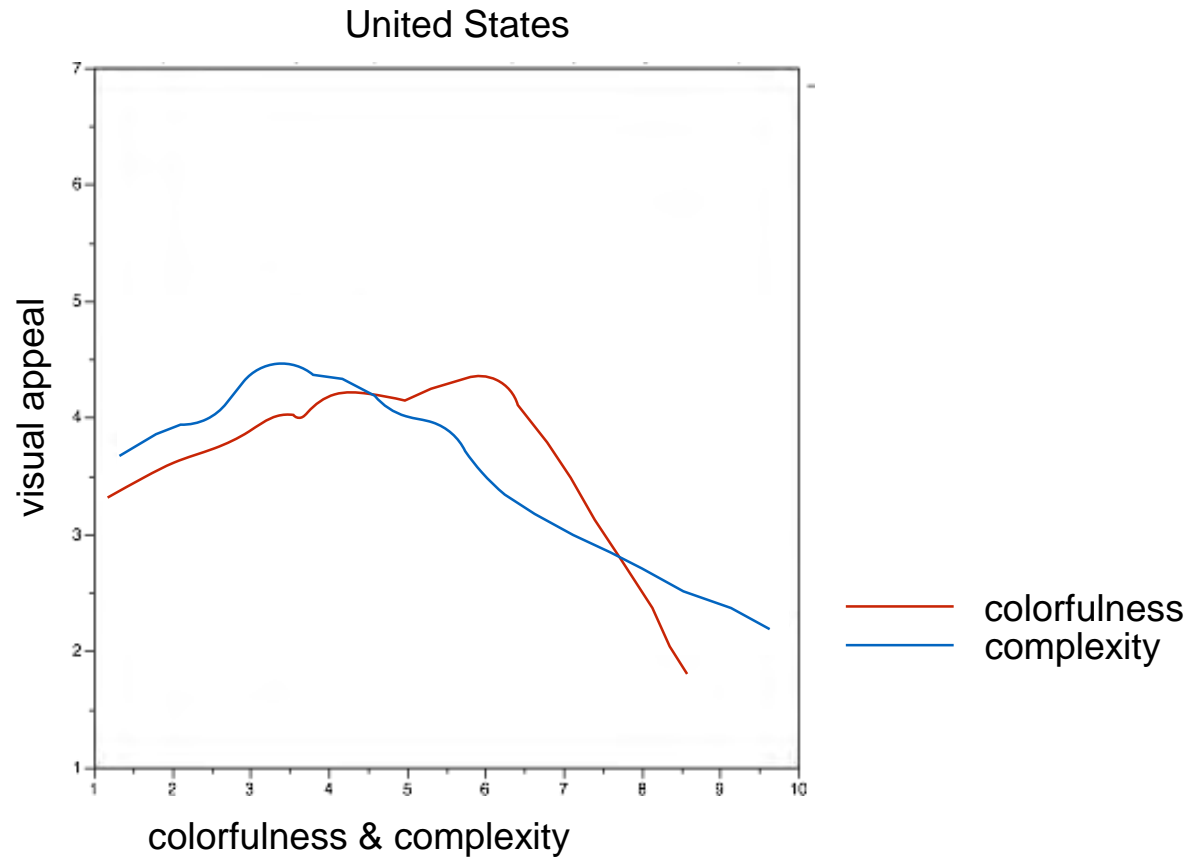
# Plotting Appeal by Complexity



# Plotting Appeal by Colorfulness



# United States



# Other Countries

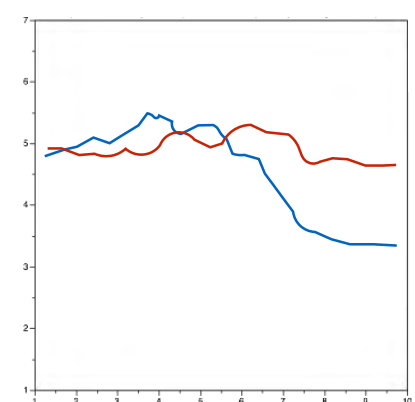
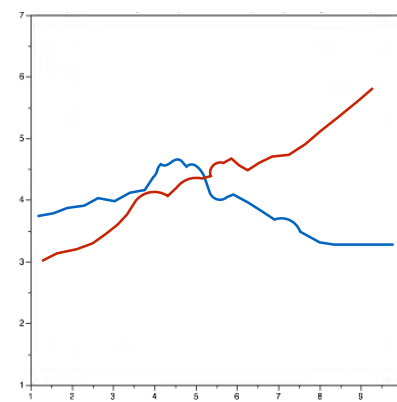
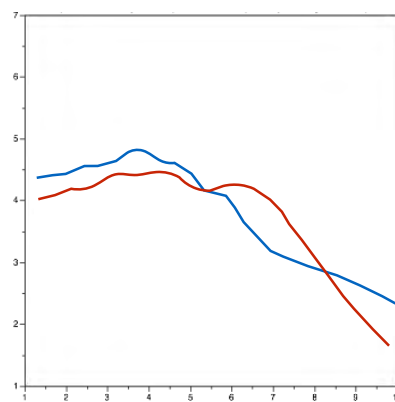
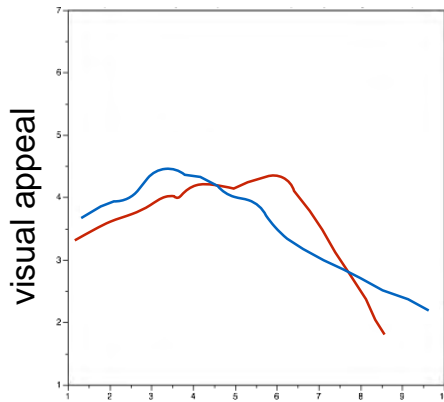
— colorfulness  
— complexity

United States

Germany

Macedonia

Hong Kong



colorfulness & complexity

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\$5.99	\$34.99	\$69.99
<ul style="list-style-type: none"> <li>1x Unlimited Storage</li> <li>1x Unlimited Bandwidth</li> <li>1x Unlimited Domains</li> <li>1x 24/7 Tech Support</li> <li>1x 99.9% Uptime</li> </ul>	<ul style="list-style-type: none"> <li>1x 45 GB SSD Storage</li> <li>1x 2 GB RAM</li> <li>1x 100 GB Bandwidth</li> <li>1x 2 GB CPU Processor</li> <li>1x 100% Uptime</li> </ul>	<ul style="list-style-type: none"> <li>1x 20 GB Storage</li> <li>1x 2 GB RAM</li> <li>1x 1000 GB Bandwidth</li> <li>1x 2.4 GHz Processor</li> <li>1x 100% Uptime</li> </ul>
<a href="#">Go Back &amp; Proceed</a>	<a href="#">Go Back &amp; Proceed</a>	<a href="#">Go Back &amp; Proceed</a>

POCUO

ABOUT US WHAT WE DO OUR WORK THE JARVIS CONTACT US

## It's a July morning. Mason is front-end-developing, Phil is conference-calling, and Kim is website-updating.

From POCUO's Twitter

### Featured Work

**UP Ki Photography Site**

POCUO is an environmental non-profit with a focus on conservation... and that's the story that POCUO wanted to tell. We built a website that is both beautiful and functional.

**The Sustainable Practitioner**

POCUO is an environmental non-profit... and that's the story that POCUO wanted to tell. We built a website that is both beautiful and functional.

**JARVIS**

The Jarvis Group is a leading provider of... and that's the story that POCUO wanted to tell. We built a website that is both beautiful and functional.

**HostRocket**

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Prices with everything you need to get your business up and online in 15 minutes or less.

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<a href="#">Go Back &amp; Proceed</a>	<a href="#">Go Back &amp; Proceed</a>	<a href="#">Go Back &amp; Proceed</a>

**LIZARD POINT**

### BROWSER-BASED ACTIVITIES FOR FUN AND LEARNING

- Test your geography knowledge - available any time!
- Online math practice and specialized word search
- Buy it now! Like Lizard Point - great for birthday money!

### JEWELRY CREATIONS BY LIZARD POINT

- Visit Jewelry Creations by Lizard Point if you're looking for custom jewelry and more from our collection of hand, gold, sterling silver, gem

**POCUO**

ABOUT US | WHAT WE DO | OUR WORK | THE JARVIS | CONTACT US

## It's a July morning. Mason is front-end-developing, Phil is conference-calling, and Kim is website-updating.

From POCUO's Twitter

### Featured Work

**UP K1 Photography Site**

POCUO is an environmental non-profit focused on conservation and protecting the world's most precious natural resources. POCUO's website is a beautiful blend of nature photography, environmental education, and a user-friendly interface.

**The Vancouver Foundation**

POCUO is proud to be the official website for the Vancouver Foundation, a non-profit organization dedicated to improving the lives of Vancouver residents through social and environmental programs.

**JARVIS**

The Jarvis Group is a leading provider of environmental and sustainability solutions. POCUO is proud to be the official website for Jarvis, providing a user-friendly interface for their clients and partners.

Home | About | Design | Contact

**tapir design**

classic design for today.

Since I began specializing in producing effective, visual websites that are accessible to all, I have been fortunate to be able to deliver a complete operating system that...





**LIZARD POINT**

**BROWSER-BASED ACTIVITIES FOR FUN AND LEARNING**

- Teach your geospatial concepts / concepts using activities
- Utilize data practice and generated worksheets
- Buy it with the Lizard Point - print-out printable manual

**JEWELRY CREATIONS BY LIZARD POINT**

- With jewelry creations by Lizard Point of jewel-creating, personalized jewelry items that are produced at home, glass, sterling silver, gold



The time's most beautiful, quickest and advanced website tool is DoodleKit... Right now, DoodleKit is the strongest available online website builder...

Kenneth Bernheim - **PC WORLD**

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OPEN DAY SATURDAY AUGUST

Home Research Study

**Top stories**

- UC student awarded Governor's Scholarship**  
Henry Lee, an undergraduate student at UC Berkeley, has been awarded the Governor's Scholarship, one of the highest honors in the state.
- UC students study with Assembly**  
Assembly members, including Assembly Speaker John Hertz, will spend the next few days at the University of California's San Diego campus.
- Stanford, Berkeley, UC Berkeley, UCSD**  
The UC system is a leading provider of education in the state.

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**BUCKHEAD RESTAURANT GUIDE...Click to View Website**

NEW! Atlanta's Top Restaurants

Search by Cuisine Type

Search by Restaurant Name or by Cuisine Type

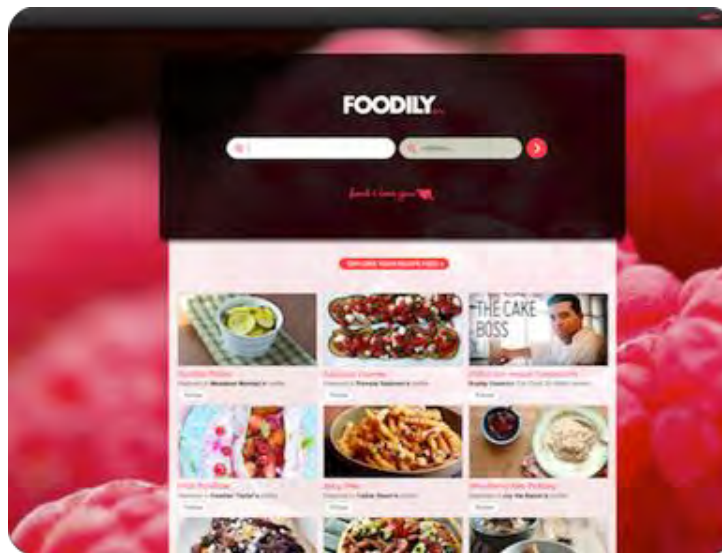




> 50  
years



< 20  
years





female



male



# Abandoning “One Best Design”

People have different preferences

We can study these preferences

We can even predict these preferences

A design that emphasizes one preference will generally disadvantage some other preference

Not always, because software is malleable

How should we think about differences

One powerful viewpoint is social justice

# Accessibility is the Law

National Federation of the Blind vs. Target, 2006

Americans with Disabilities Act, 1990

Requires accessibility in employment, public entities and public transportation, public accommodations and commercial facilities

Rehabilitation Act, 1973

Section 508, 1998

Mandates federal procurement of accessible electronic and information technologies

# Universal Design vs. Assistive Technology





# Personal Texting by Deaf People



Teletypewriter (TTY)  
used by deaf people  
in their homes circa 1970



1990s TTY with  
built-in acoustic modem



SMS texting

# People with Disabilities

1 billion people worldwide

15% of the population

50 million people in US

Including yourself if you  
are fortunate to live to  
develop disabilities



# A Social Justice Problem

1 billion people worldwide

15% of the population

50 million people in US

Including yourself if you  
are fortunate to live to  
develop disabilities

16% of people in the US

10% of workforce

5% of STEM workforce

1% of PhDs in STEM

# Current State of Devices



Slide Rule, Kane et al, ASSETS 2008

Apple VoiceOver

# Current State of Devices



Slide Rule, Kane et al, ASSETS 2008

Apple VoiceOver

# Implementing Accessibility Support

Every major platform has metadata hooks you implement to support accessibility services

e.g., image alt text, element content description

Every major platform has other guidelines

e.g., H1 use, element visual contrast

If you do not implement this,  
you are denying access to many people

And probably breaking the relevant laws

# Equal Access to Information

Is this access equal?

# Equal Access to Information

Is this access equal?

Some dimensions to consider

Cost

Speed

Accuracy

Ease

It simply being possible is not enough



# A Closer Look at Text Entry



# A Closer Look at Text Entry

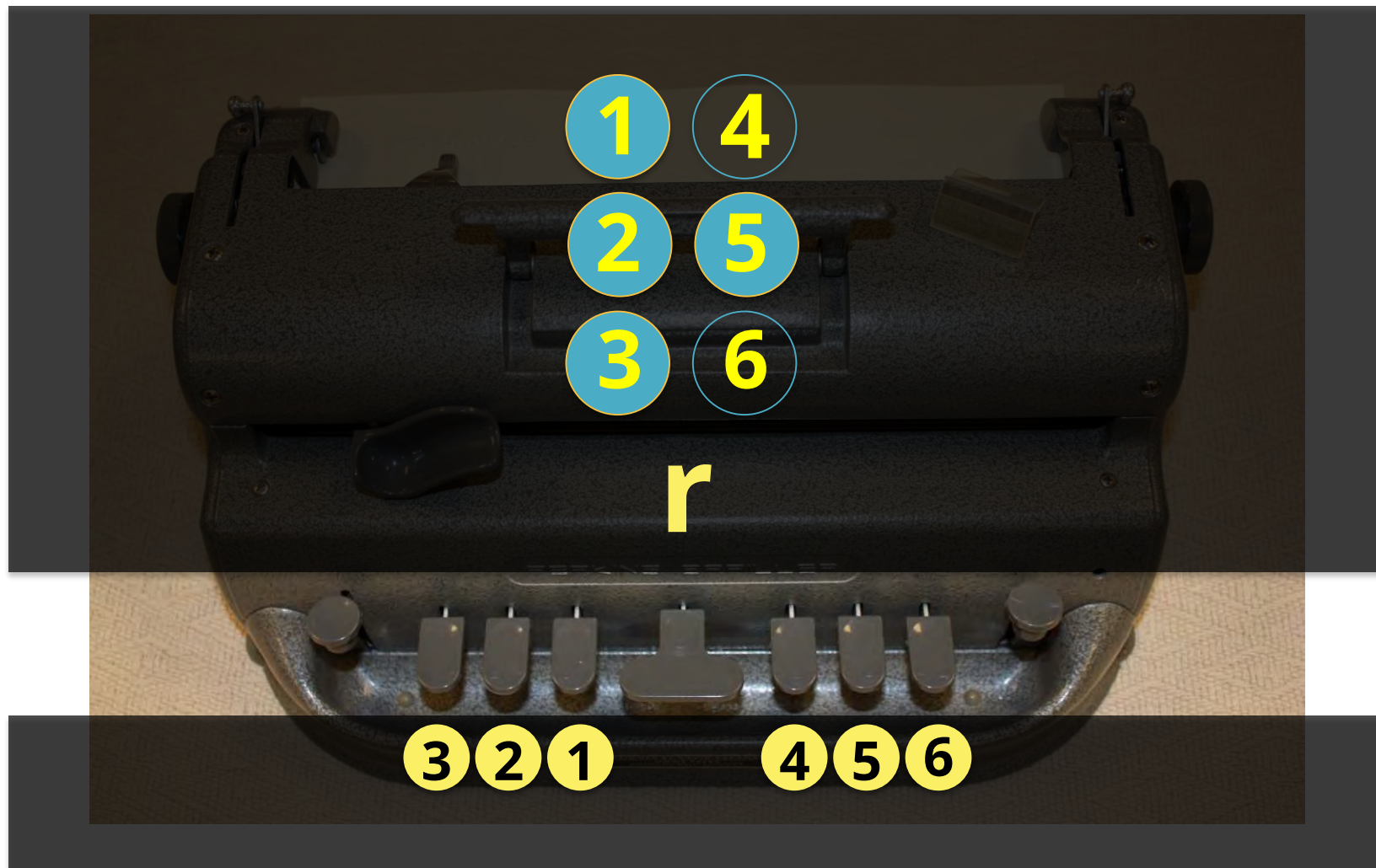




# Contrast with Braille Input



# Contrast with Braille Input



# Ability-Based Design

States that all interfaces make assumptions about the abilities needed to use them

Any one-size-fits-all design is therefore inaccessible to many people

Instead of asking people to struggle to adapt, asks that interfaces adapt or be adaptable to match the abilities of each person

# Perkinput





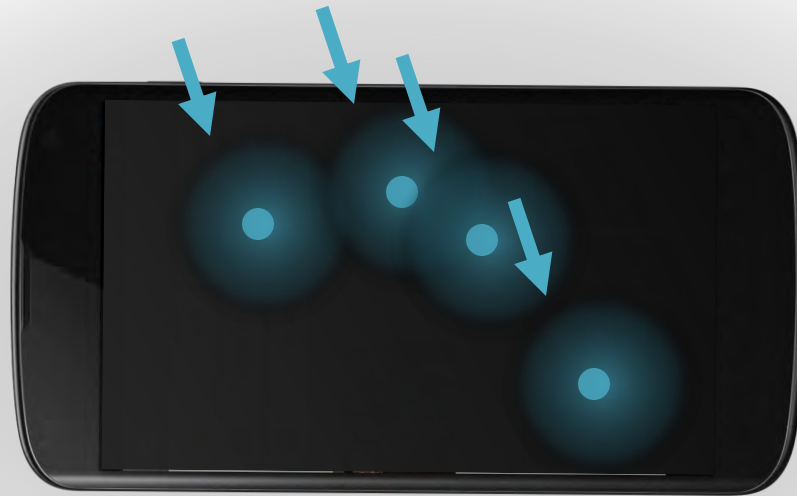
# Perkinput



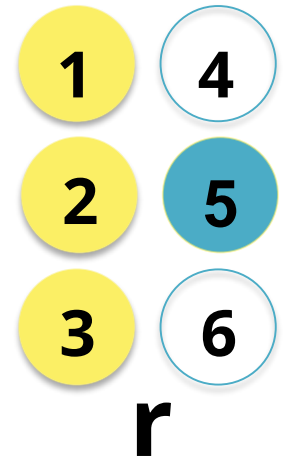
# Perkinput



# Perkinput



# Perkinput



# Perkinput

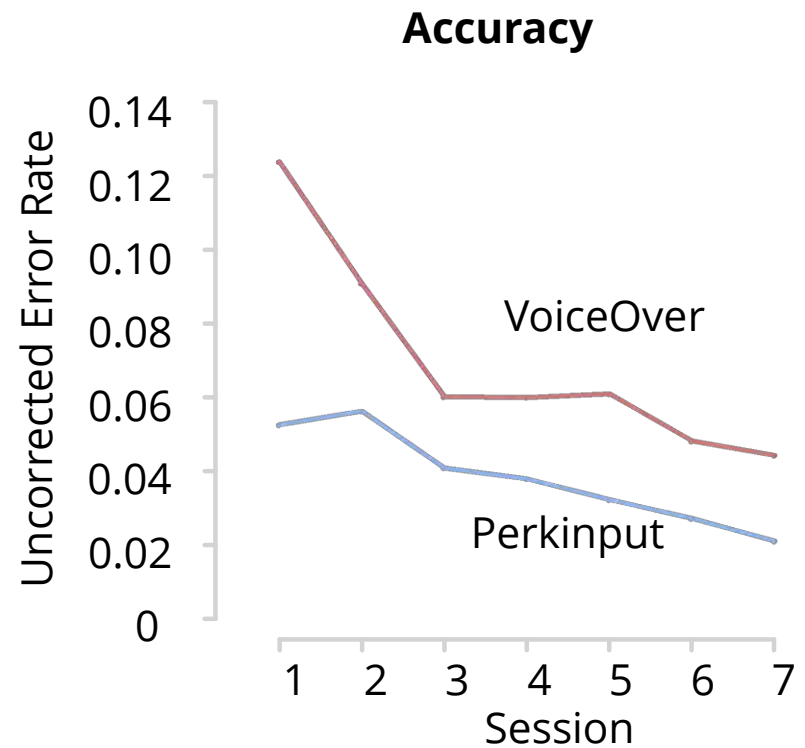
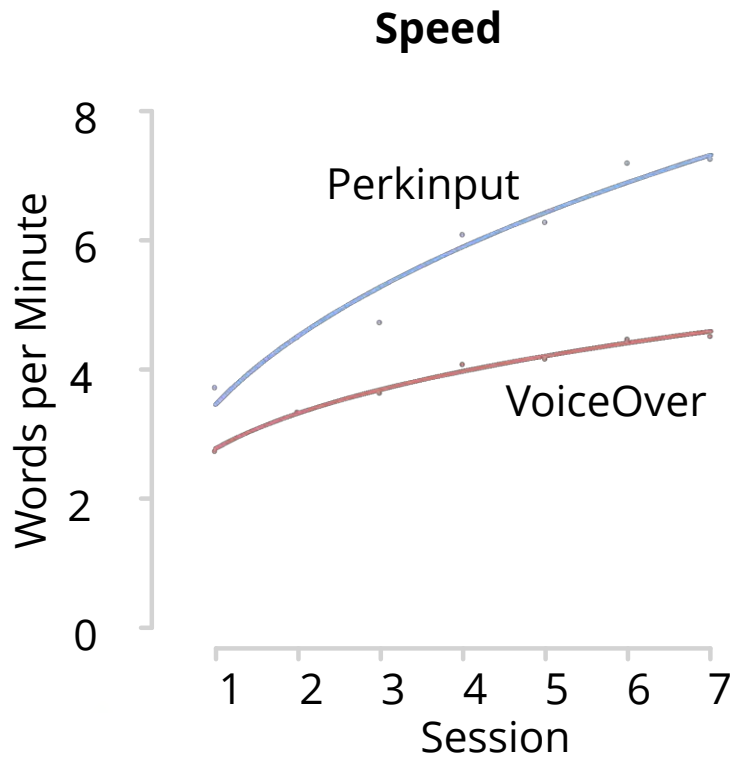


# Perkinput

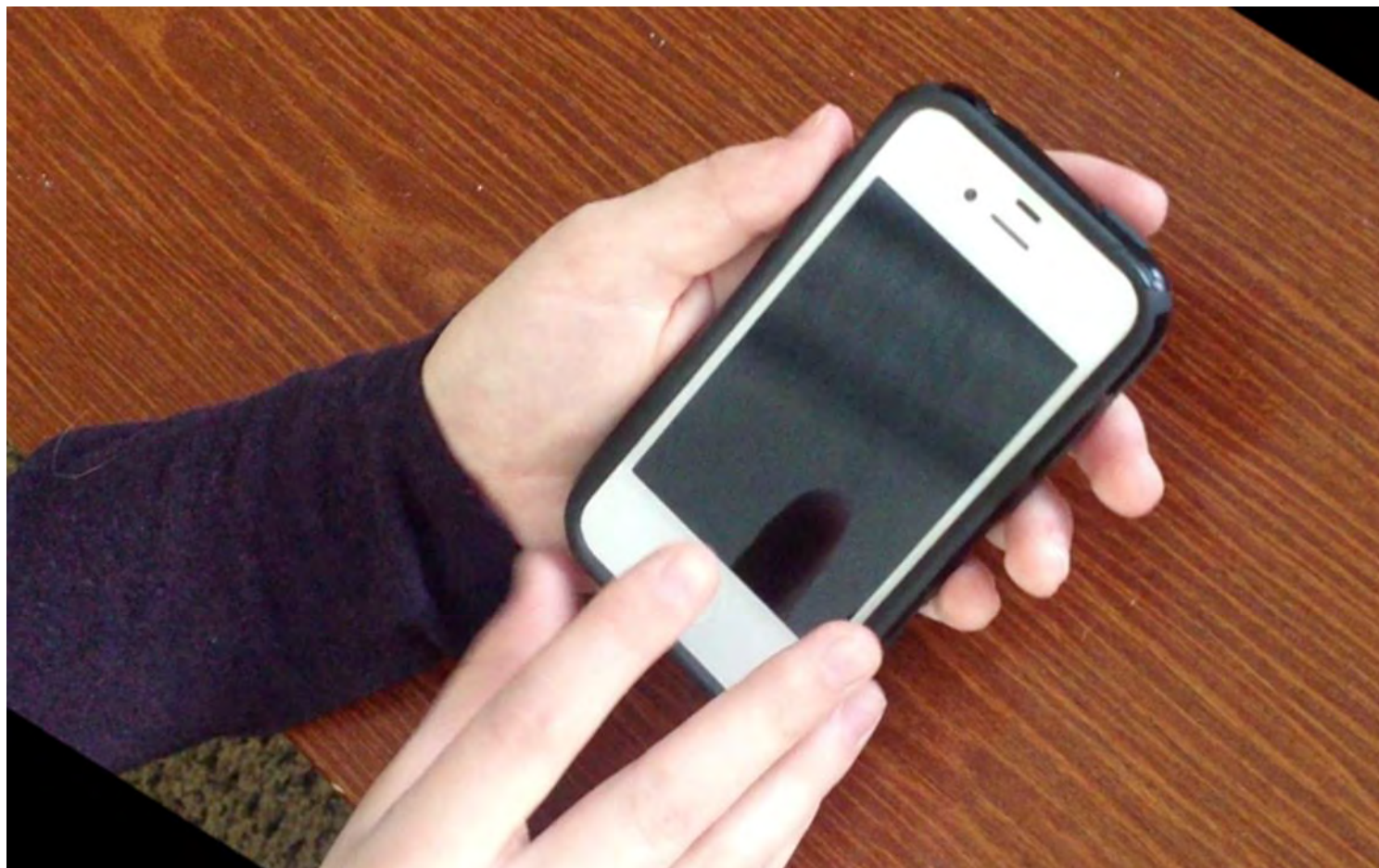




# Speed and Accuracy



# Another Problem



# Another Problem



# PassChords

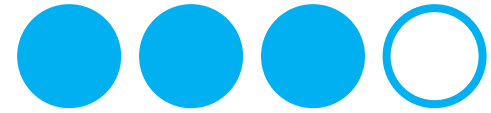


# PassChords



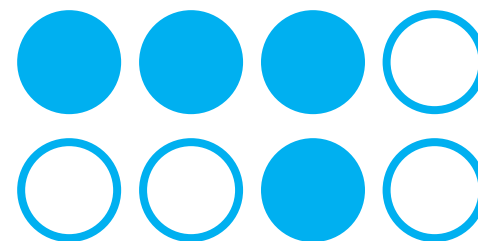


# PassChords

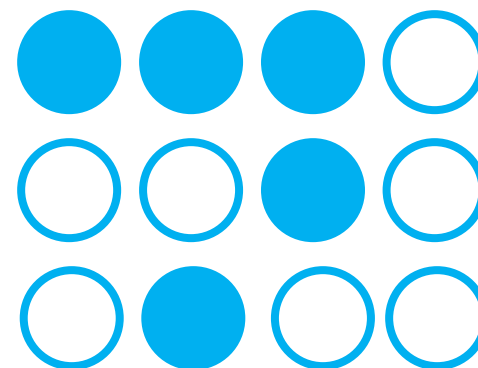




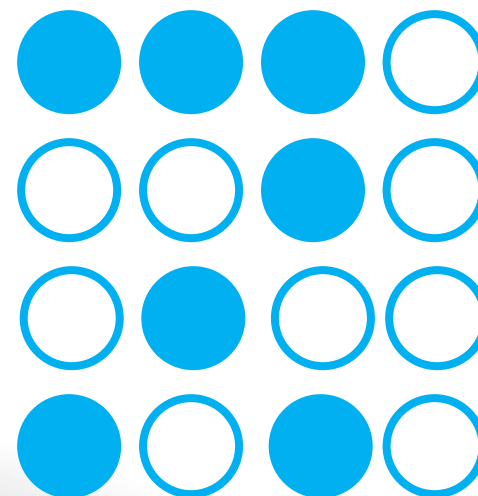
# PassChords



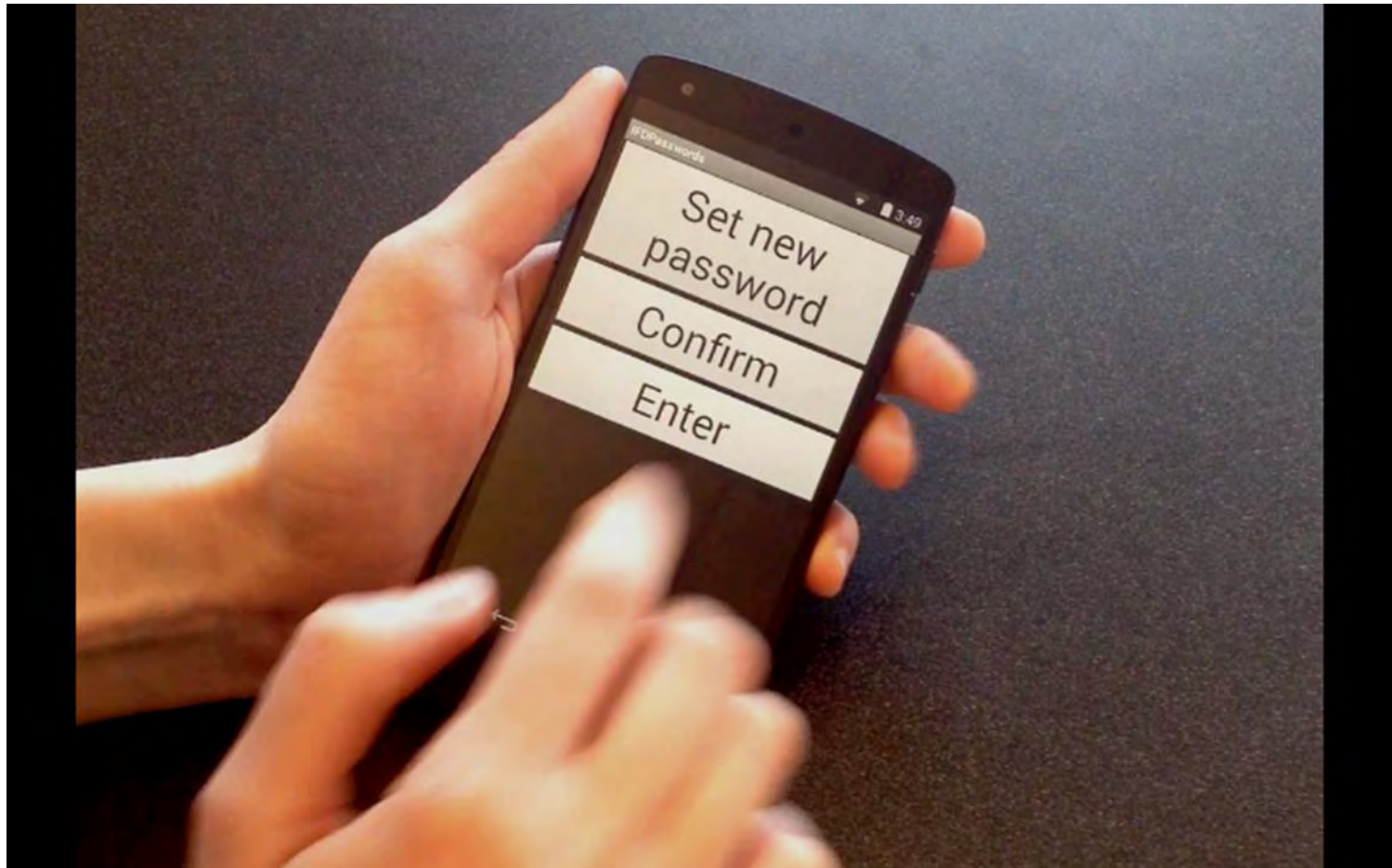
# PassChords



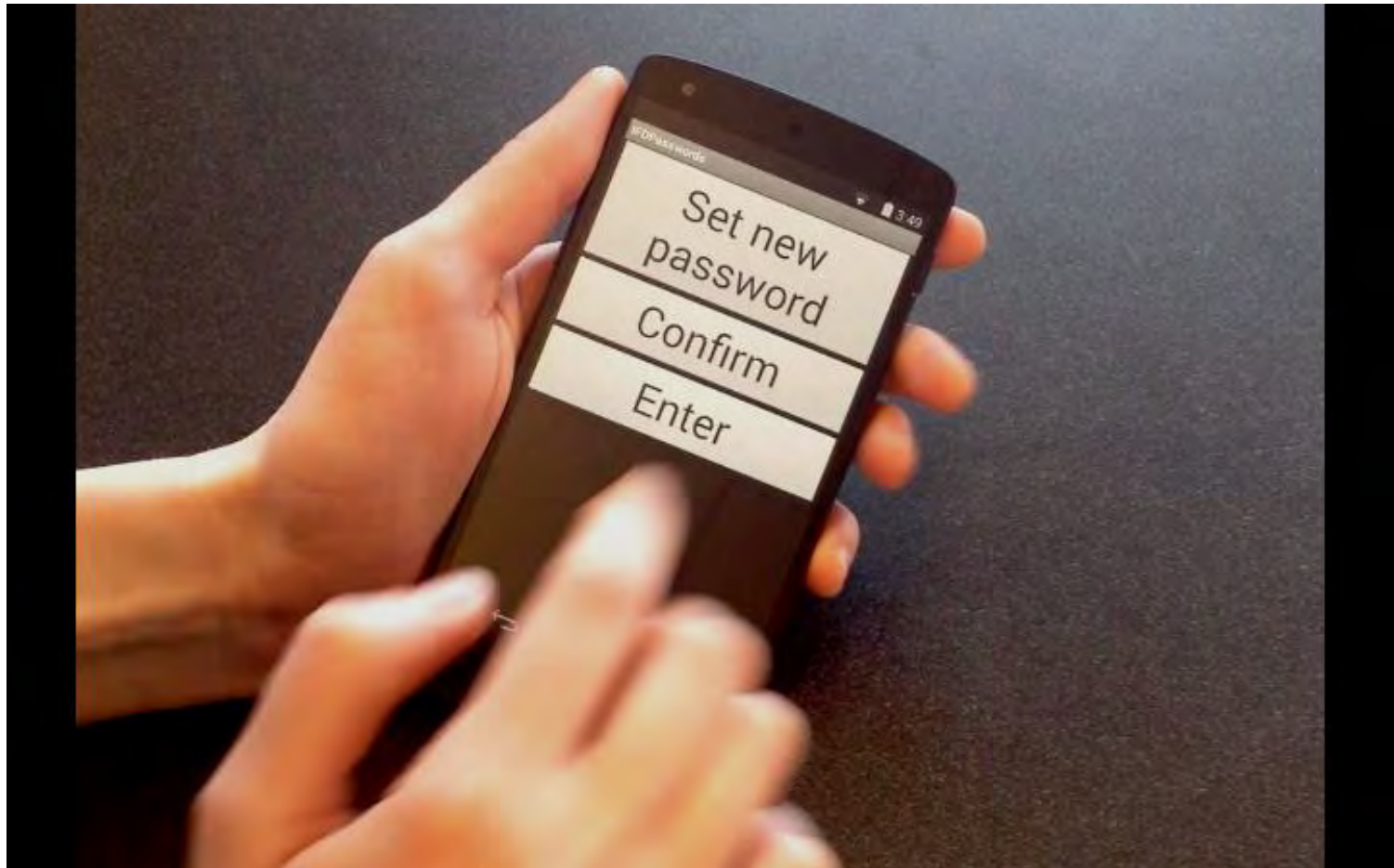
# PassChords



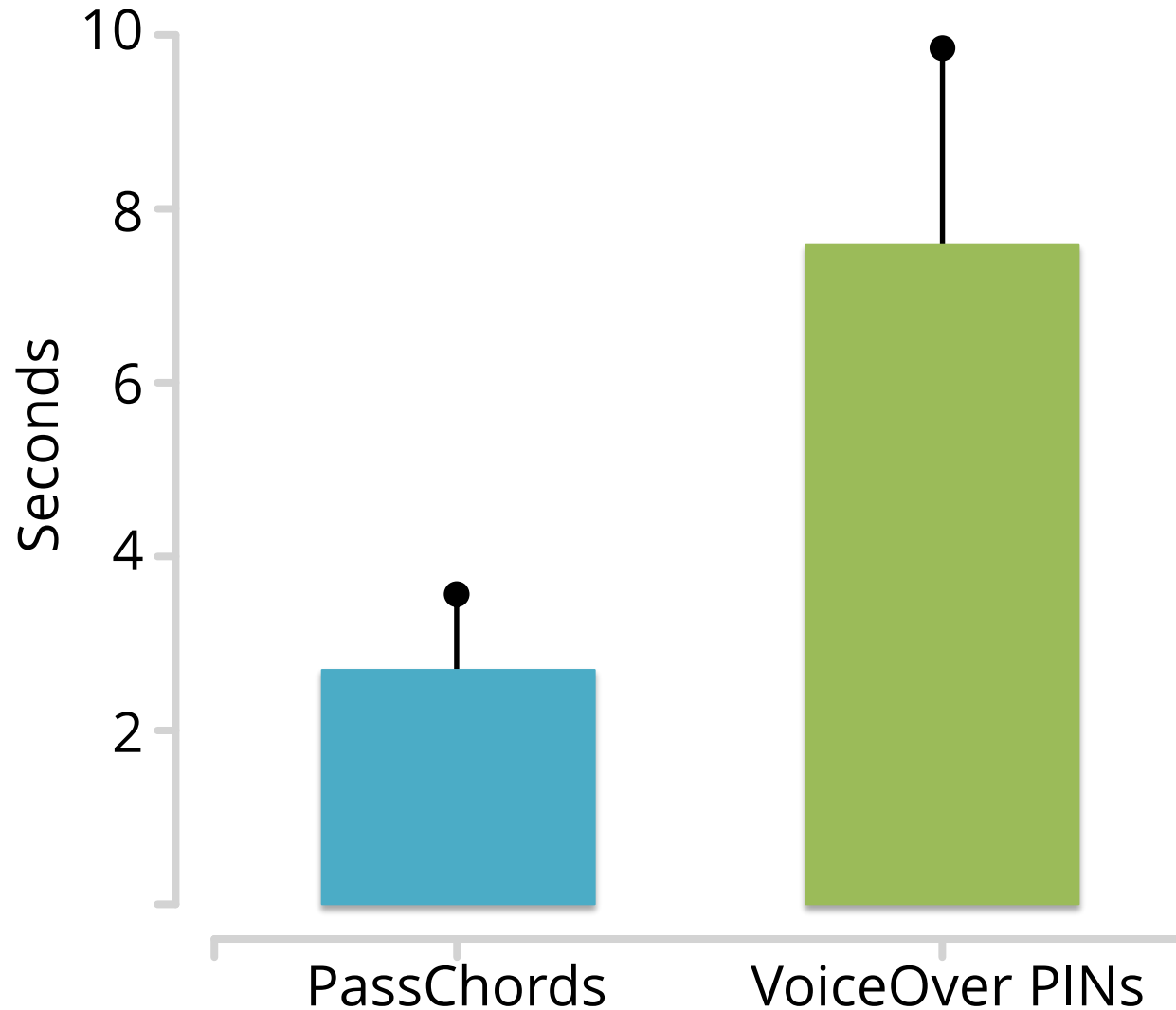
# PassChords



# PassChords

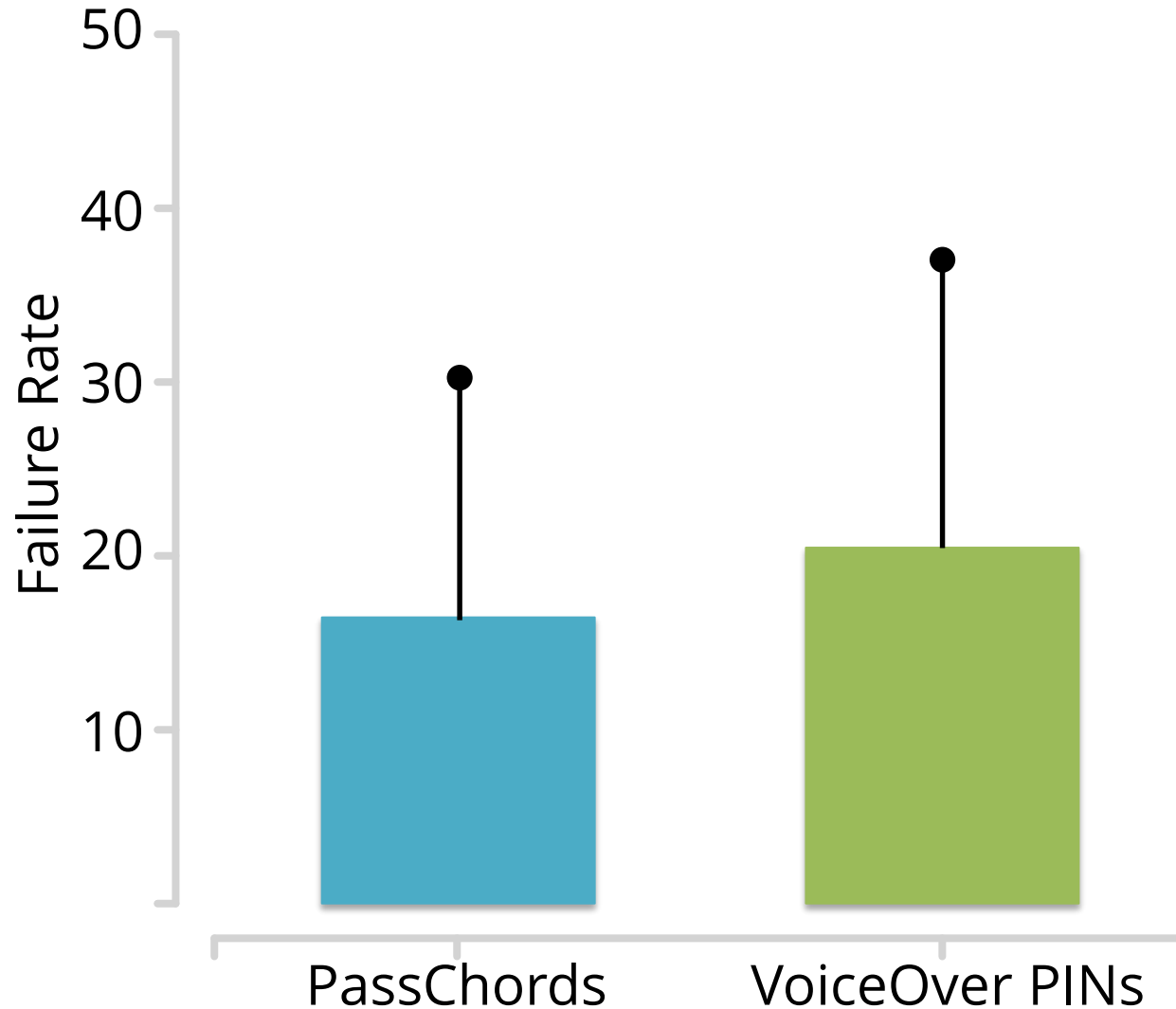


# Time to Authenticate





# Accuracy



# What About Security?

# What About Security?

One measure is Entropy

The minimum number of bits needed to encode the set of all possible passwords

4-digit PINS: 13.3 bits

# What About Security?

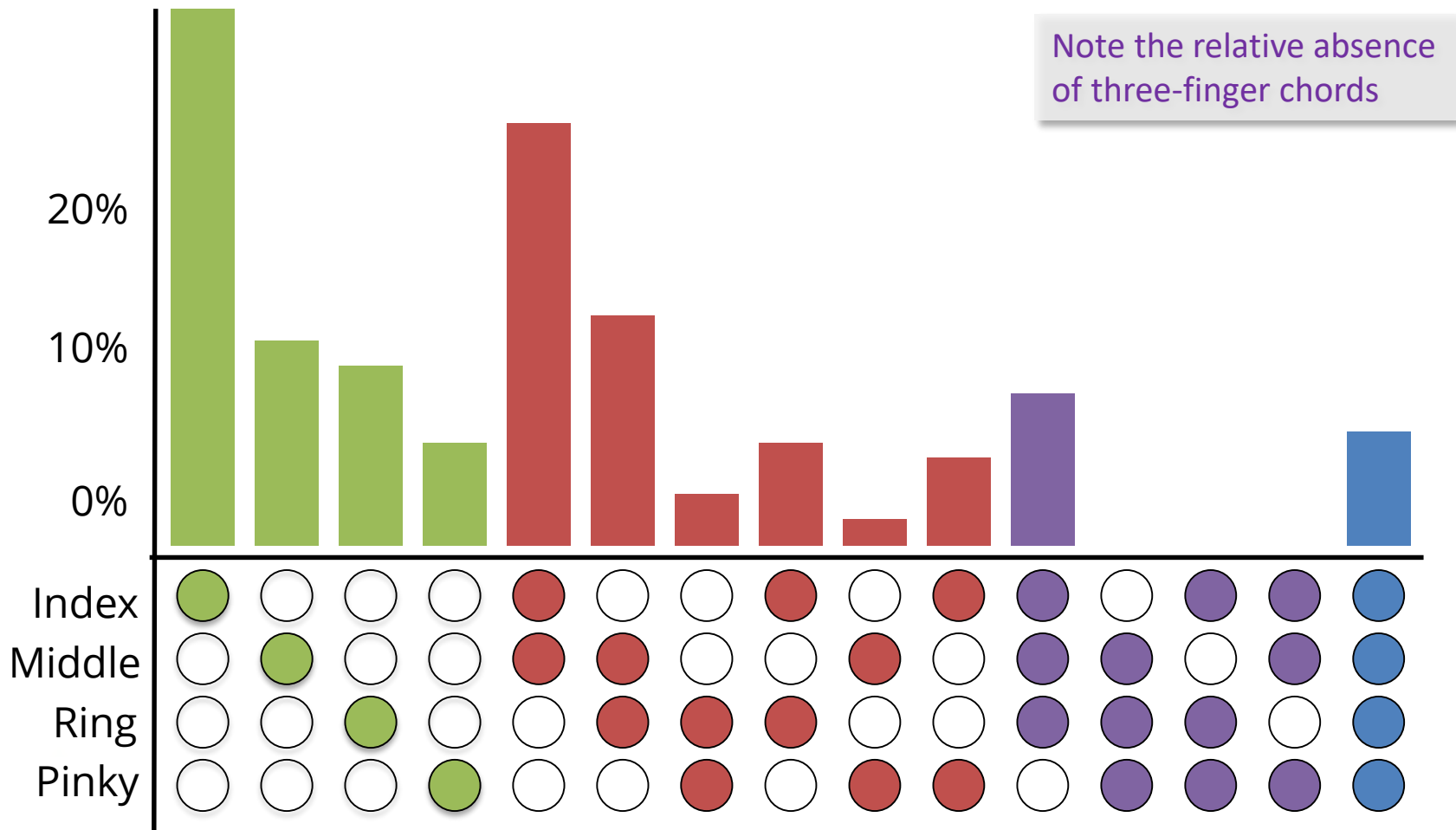
A better measure is Guessing Entropy

The minimum number of bits needed to encode the number of guesses given distribution

4-digit PINS: 12.7 bits

Not all PINS are equally likely

# Finger Pattern Frequency



# What About Security?

A better measure is Guessing Entropy

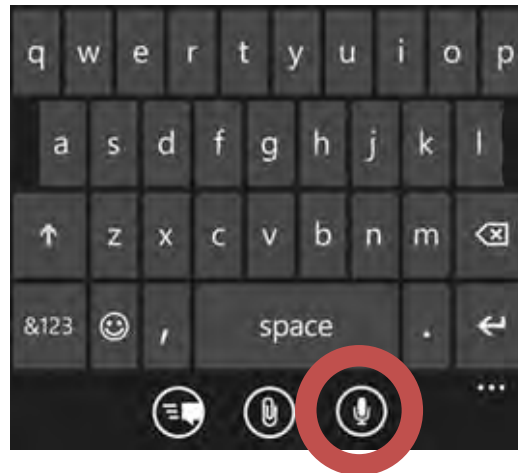
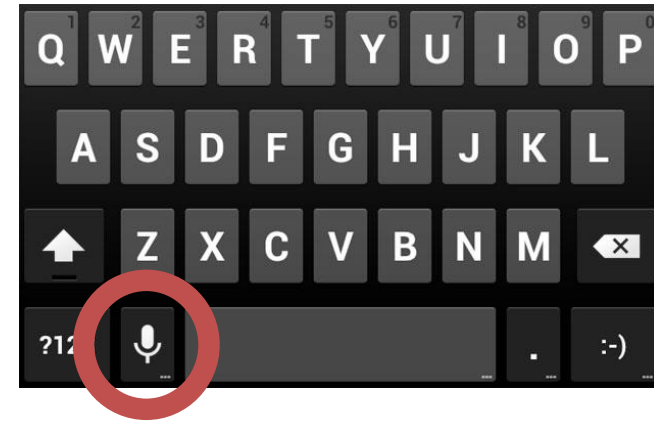
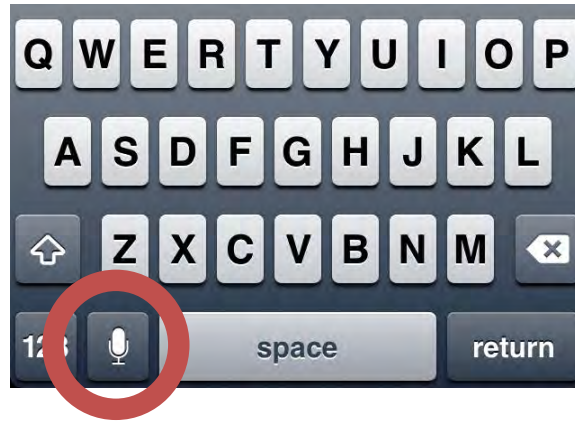
The minimum number of bits needed to encode the number of guesses given distribution

4-digit PINS: 12.7 bits

4-tap PassChords: 12.6 bits



# Speech Input



# Reviewing Errors and Edits

**When** of my hobbies is hiking.  
I really **enjoyed** getting away...

The triangle **consist** of a **2 mile** hike  
to the beach, **I three-mile** hike along  
the beach, and a **2 mile** hike back.

It is a very common hike, but **I knew**  
to the **northwestern if you** like I  
need to do it.

# Serial Access in Reviewing Transcript

**When**

# Serial Access in Reviewing Transcript

of

# Serial Access in Reviewing Transcript

my

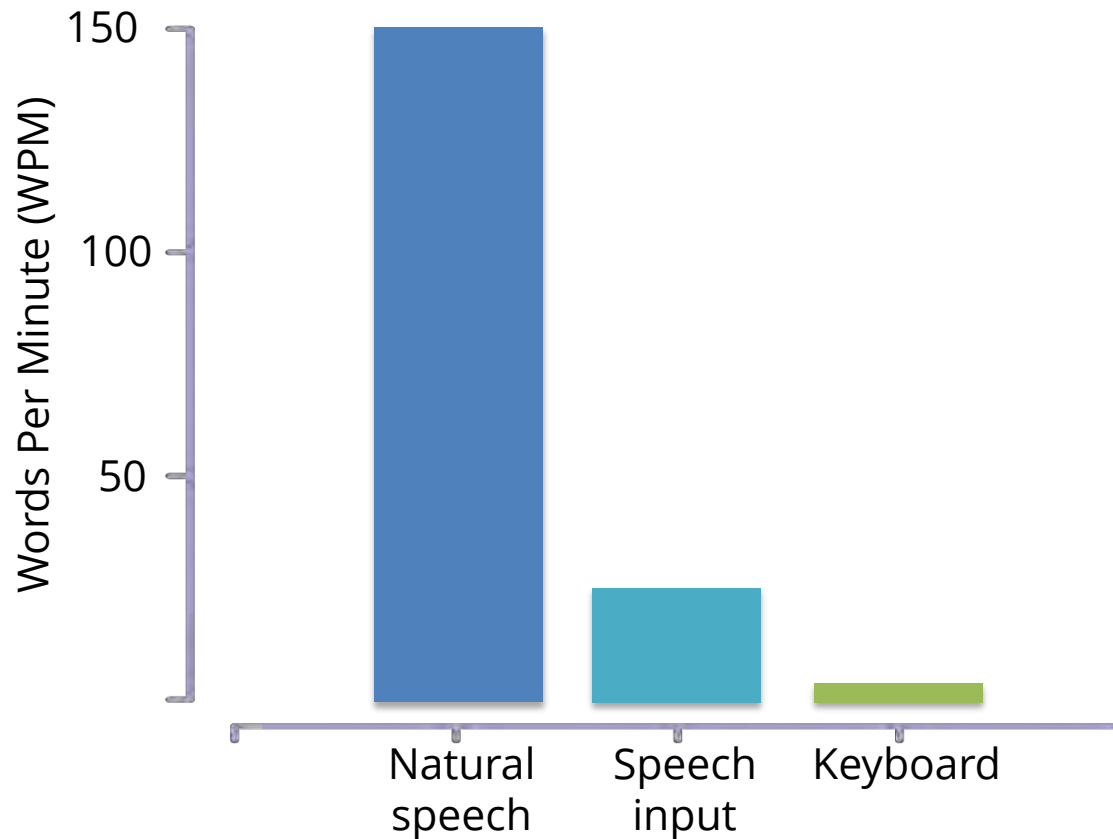
# Serial Access in Reviewing Transcript

hobbies

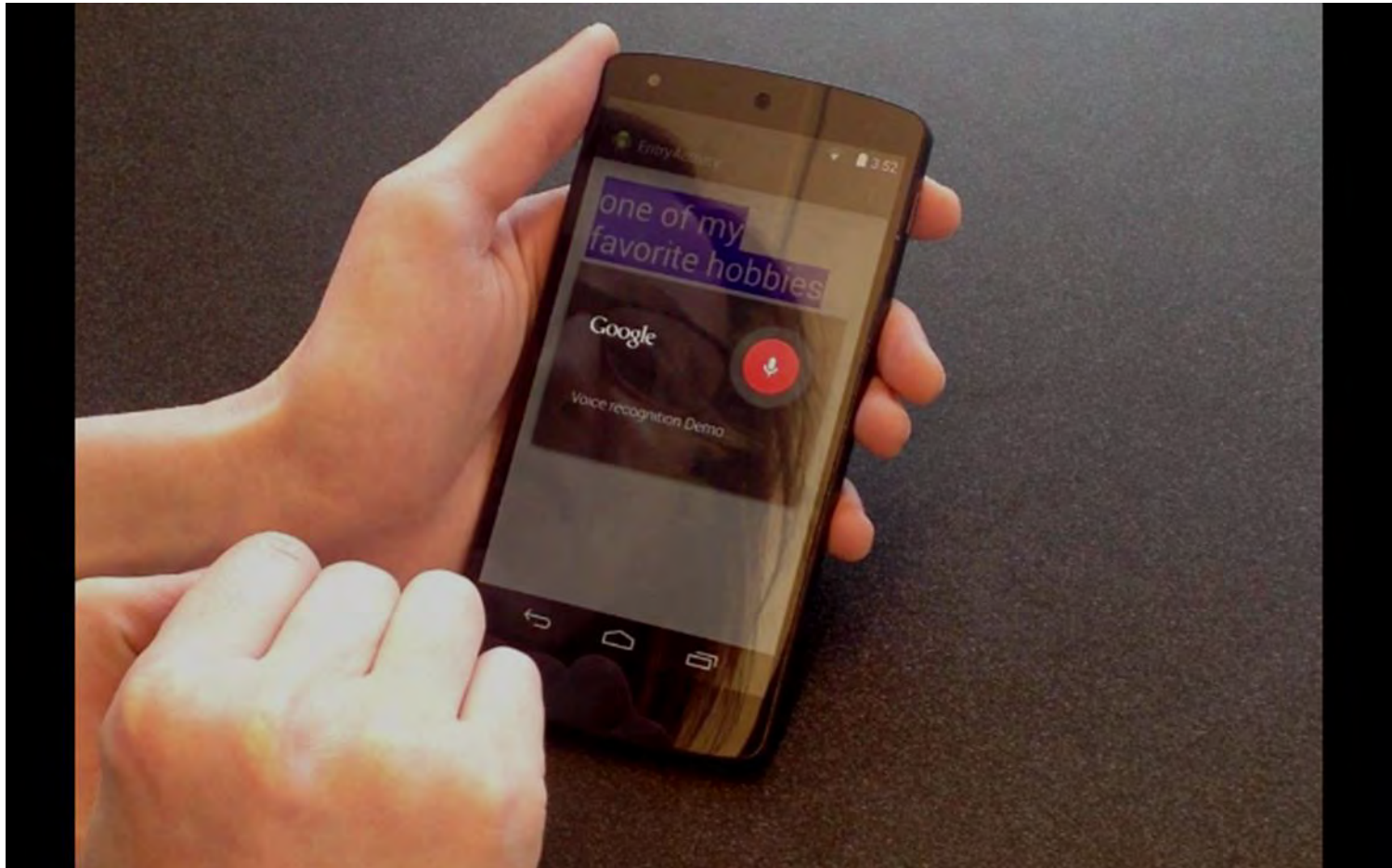


# Reviews and Edits

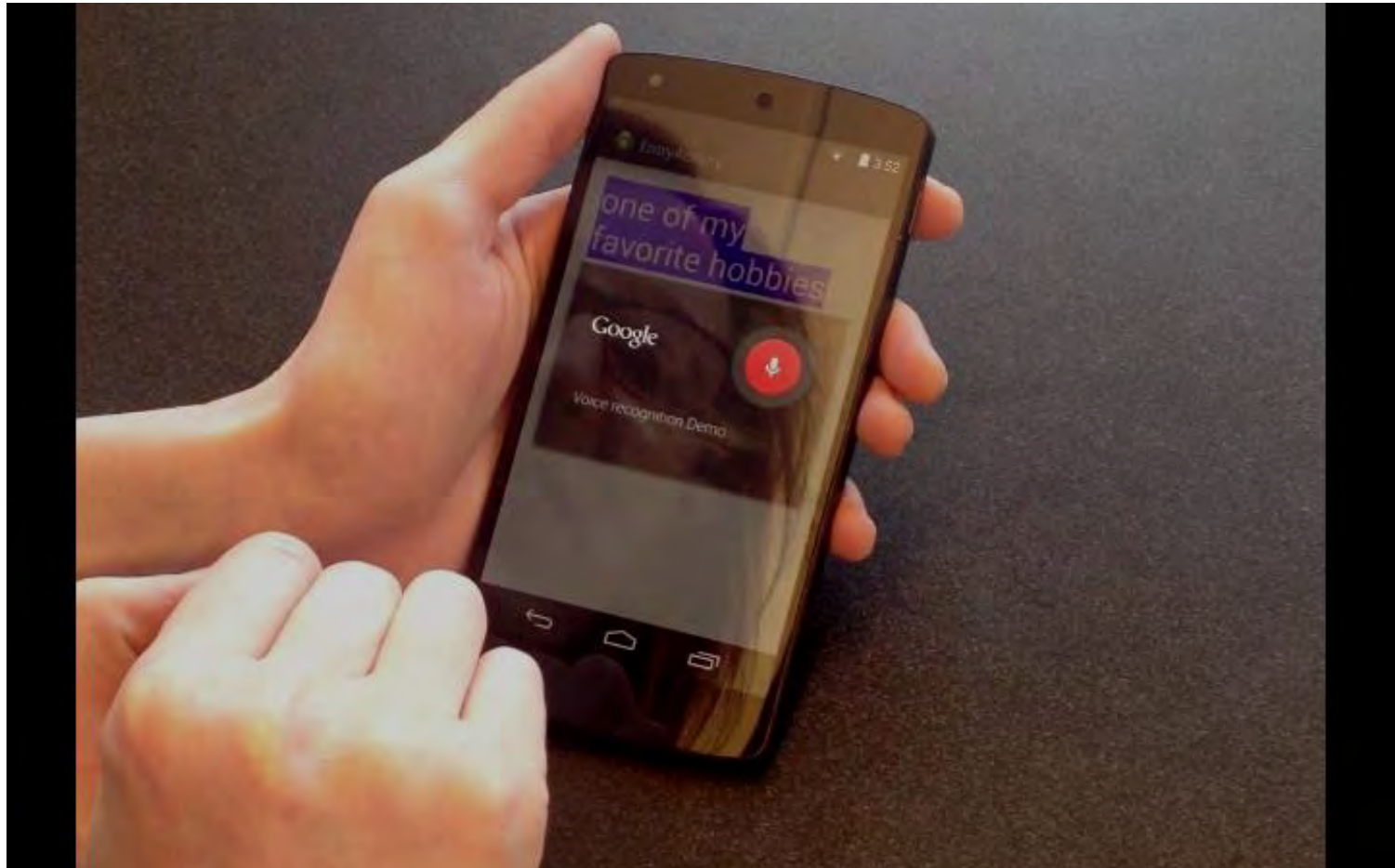
80% of composition time in review and edits



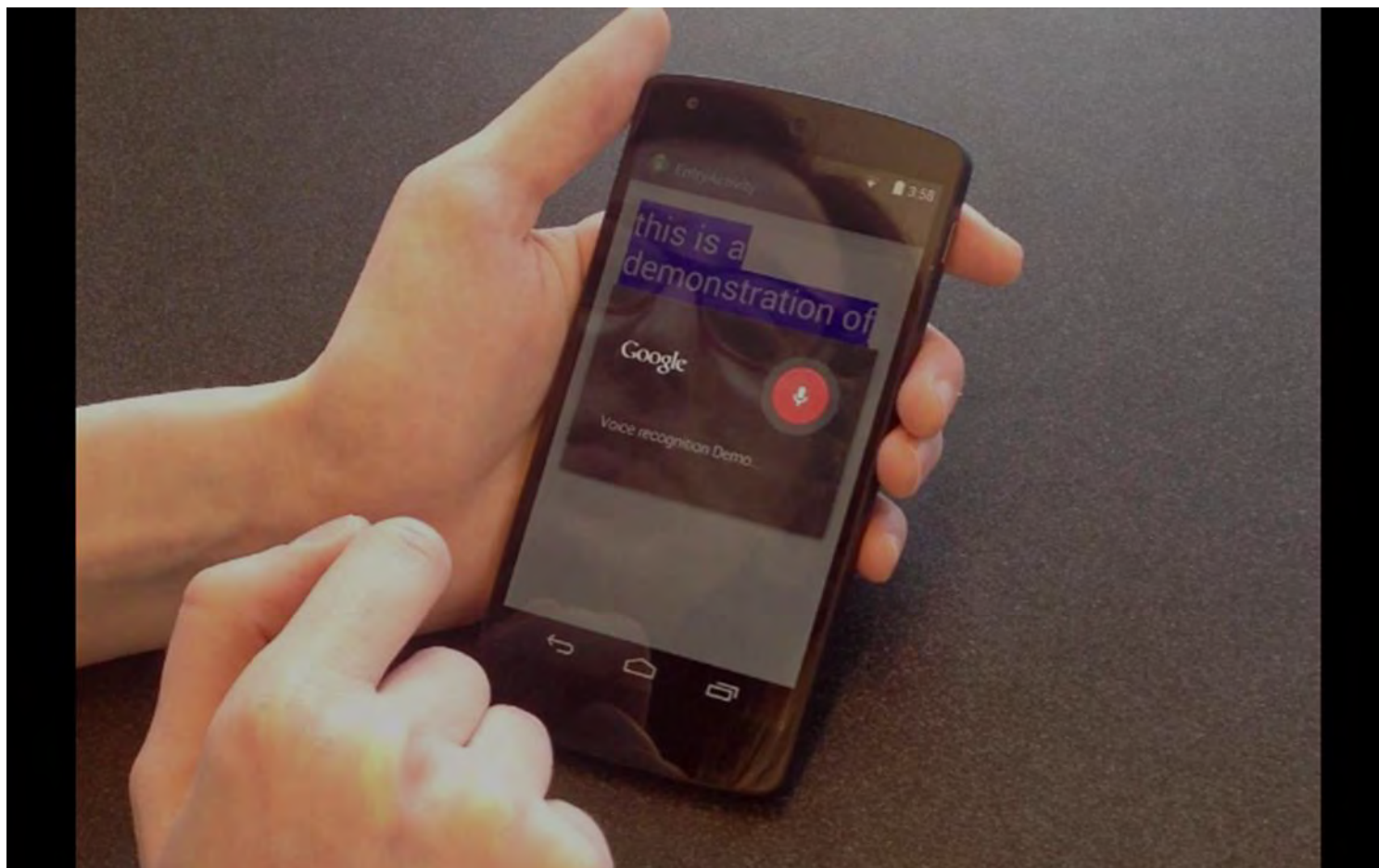
# Spifi



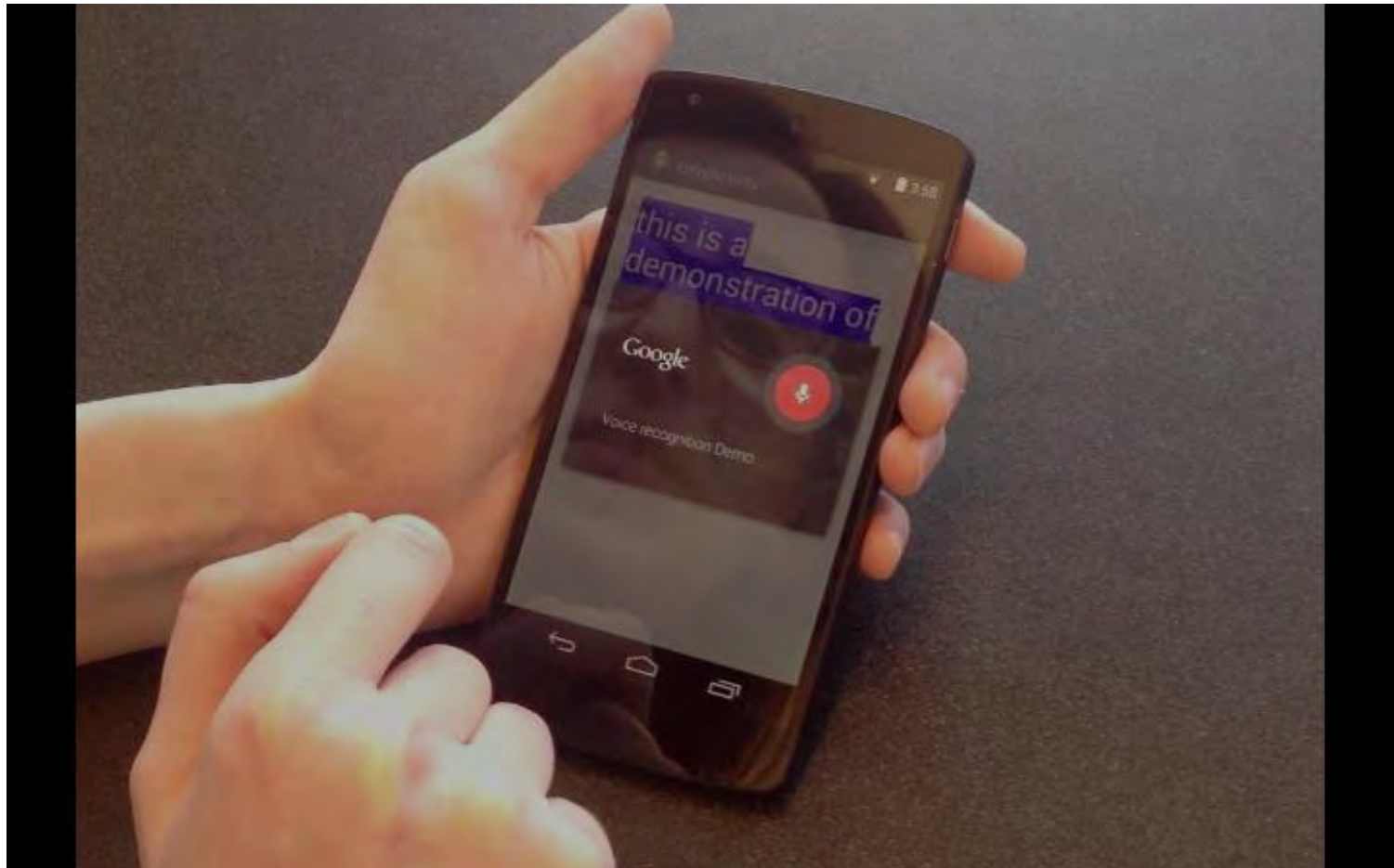
# Spifi



# Spifi

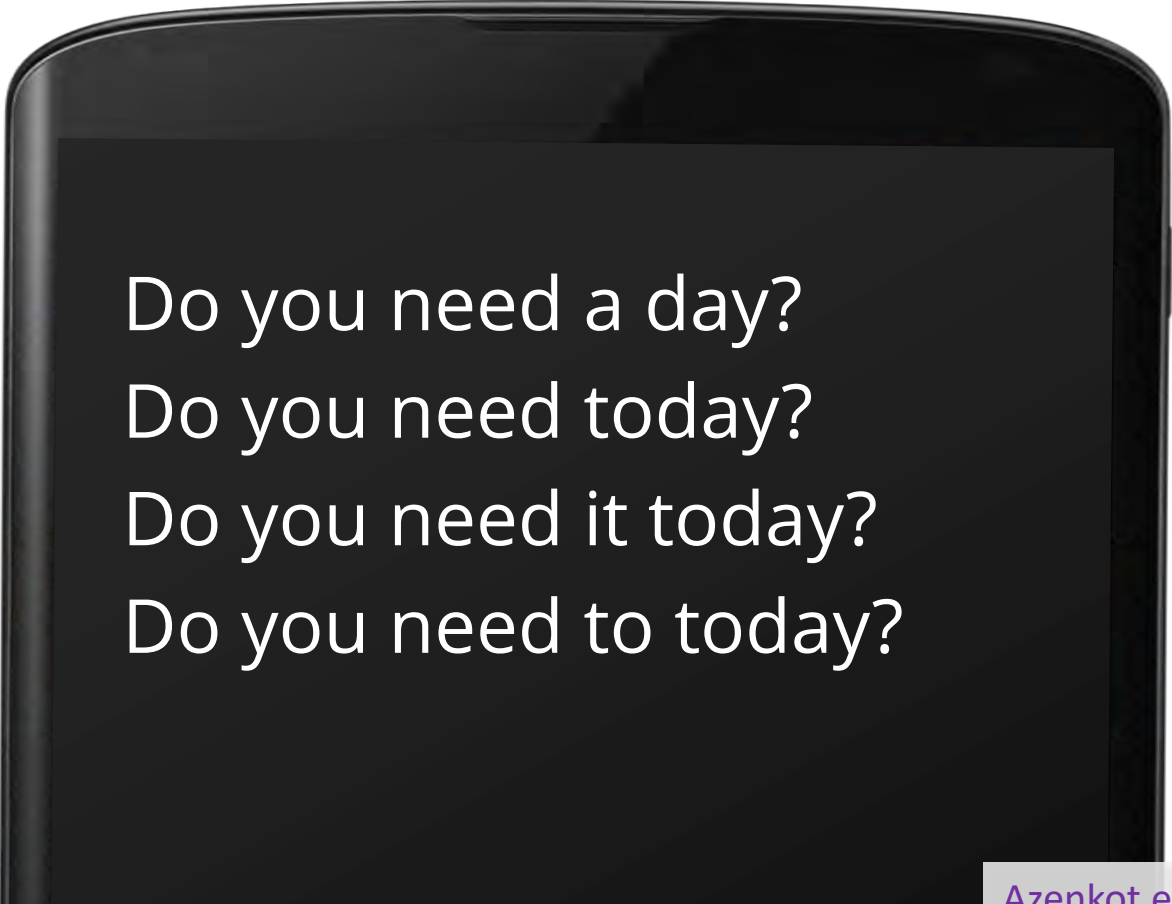


# Spifi





# Recognize Speech as N-best List



Do you need a day?  
Do you need today?  
Do you need it today?  
Do you need to today?



# Find Uncertain Words

Do you need **a day?**

Do you need **today?**

Do you need **it today?**

Do you need **to today?**

---

Do you need **\*\* \*\*\*\*\***

# Split Into Phrases and Align Alternatives

Do you need

**a day?**

**today?**

**it today?**

**to today?**

# Accessibility is More than Text Entry

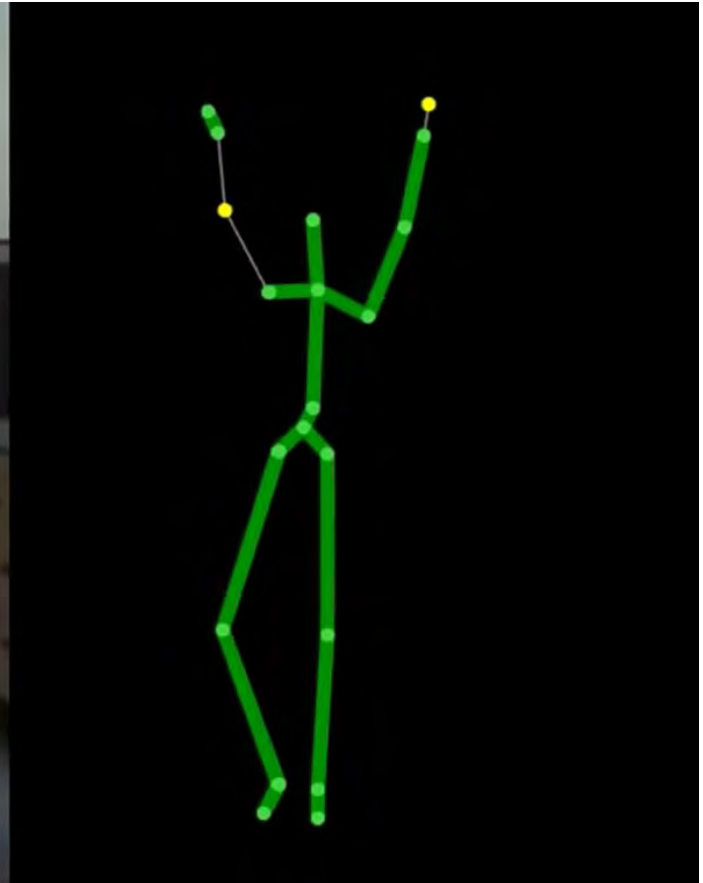


“Sometimes you don’t follow along as well unless [you are] one on one.”

# Accessibility is More than Text Entry



# Accessibility is More than Text Entry



# Accessibility is More than Text Entry



## OneBusAway

Home

Tools

Research

Contact Us

Settings

### NW MARKET ST & BALLARD AVE NW

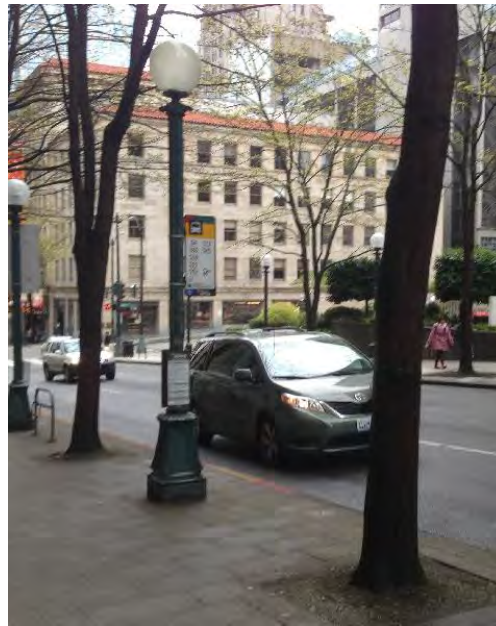
Stop # 18120 - E bound

route	destination	minutes
18	<u>DOWNTOWN SEATTLE</u> 03:54 - departed 2 mins late	-3
44	<u>UNIVERSITY OF WASHINGTON MEDICAL CENTER</u> 03:55 - scheduled departure	-3
17	<u>DOWNTOWN SEATTLE</u> 03:57 - departed 6 mins late	NOW
75	<u>BALLARD</u> 04:06 - 2 min delay	8
44	<u>UNIVERSITY OF WASHINGTON MEDICAL CENTER</u> 04:07 - on time	9
18	<u>DOWNTOWN SEATTLE</u> 04:13 - on time	15
44	<u>UNIVERSITY OF WASHINGTON MEDICAL CENTER</u> 04:19 - on time	21
17	<u>DOWNTOWN SEATTLE</u> 04:20 - on time	22
44	<u>UNIVERSITY OF WASHINGTON MEDICAL CENTER WALLINGFORD</u> 04:37 - 3 mins early	35

Last Update: 03:57 PM

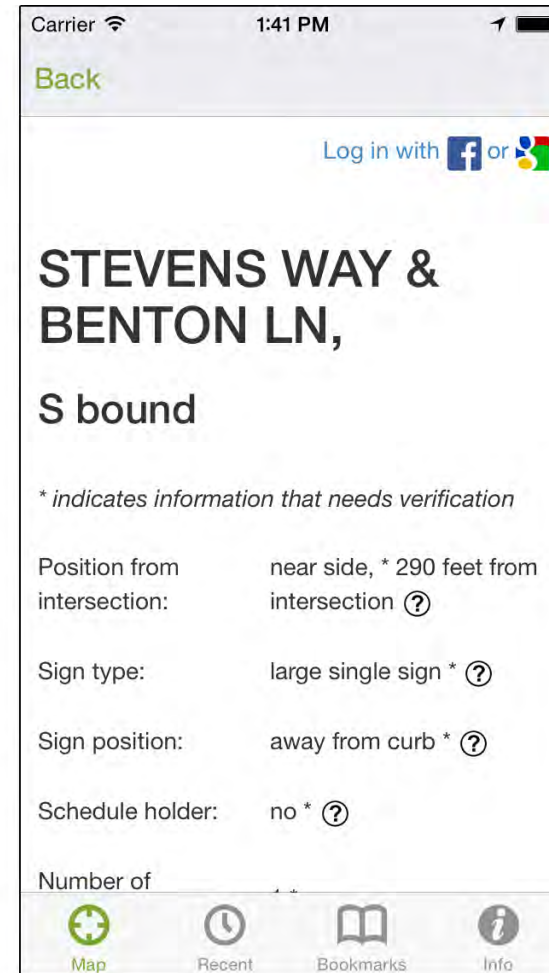
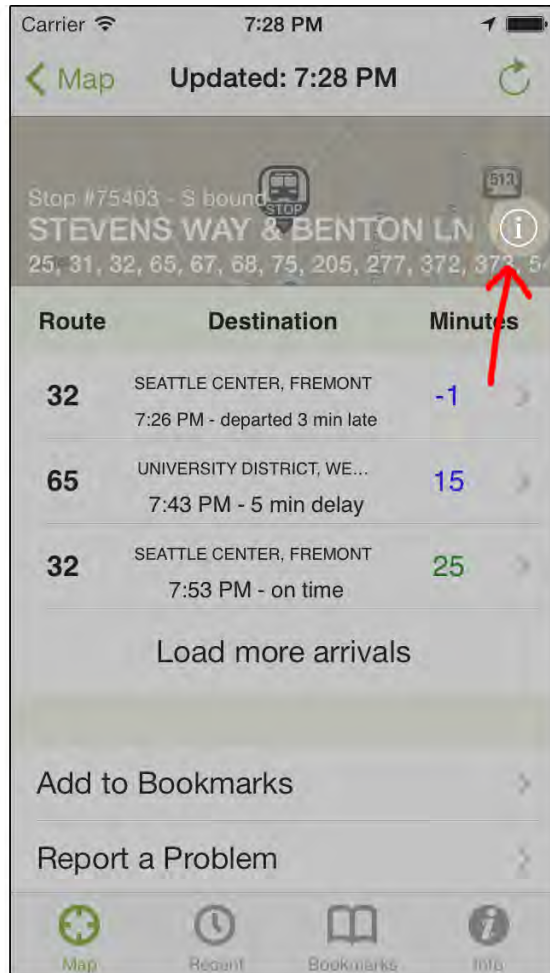


# Accessibility is More than Text Entry



How do you find a bus stop?

# Accessibility is More than Text Entry



# What is Disability?

The old model is medical, focused on the individual with a mindset of “fixing” an impairment

Current model understands disability is imposed by society and design not accounting for diversity

“Disability is thus not just a health problem.

...the interaction between features of a person’s body and features of the society in which he or she lives.

Overcoming the difficulties...requires interventions to remove environmental and social barriers.”

# What is Disability?

## Impairment

a problem in body function or structure

## Activity Limitation

a difficulty encountered by a person  
in executing a task or action

## Participation Restriction

a problem experienced by a person  
in involvement in life situations

# Apple HealthKit Launch



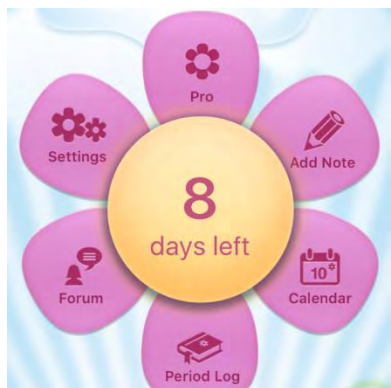
“with Health, you can monitor all of your metrics that you’re most interested in”  
Apple Software executive Craig Federighi

“If you’re a human who menstruates,  
you’re shit out luck”

“The fact that it’s a women’s issue isn’t  
grounds for dismissal”

[http://www.theverge.com/2014/9/25/6844021/  
apple-promised-an-expansive-health-app-so-why-cant-i-track](http://www.theverge.com/2014/9/25/6844021/apple-promised-an-expansive-health-app-so-why-cant-i-track)

# Pinkification and Menstruation



Period Diary



P. Tracker Lite

Other apps already exist for tracking menstrual cycles

Most employ feminine, pink, flowery aesthetics

If you only focus on the pink, you can also miss important design needs



# Pinkification and Menstruation



Period Diary



P. Tracker Lite

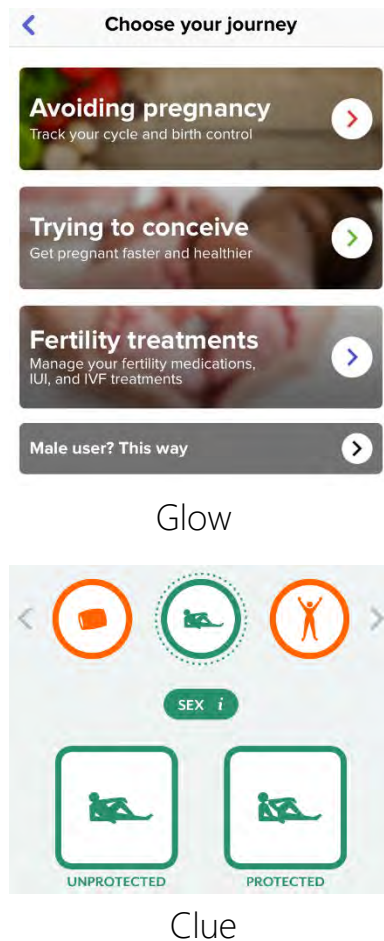
“they have tried to make it ‘feminine’ by adding flowers... It makes me feel like you are trying to ‘dumb it down’ for me. Why can’t keeping track of my menstruation be a professional and organized task?”

“a lot of them just felt kind of condescending or like they were designed by dudes who were designing what they thought a woman would like.”

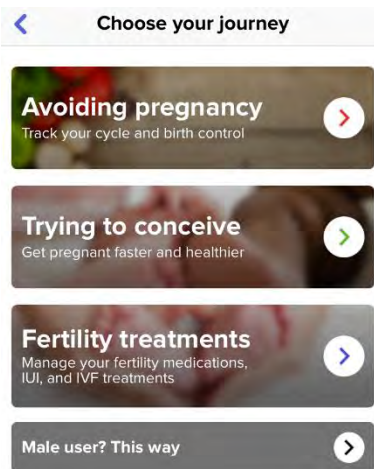
# Diverse Needs and Menstruation

Designs implicitly assumed gender or sexual orientation

Assumptions can be subtle, like in iconography or how text is phrased



# Diverse Needs and Menstruation



Glow

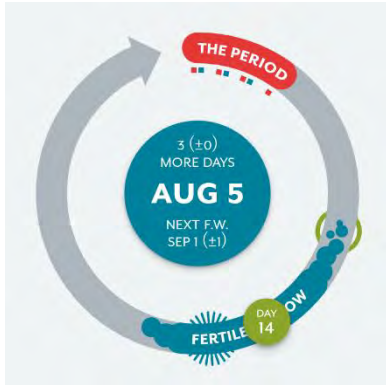


Clue

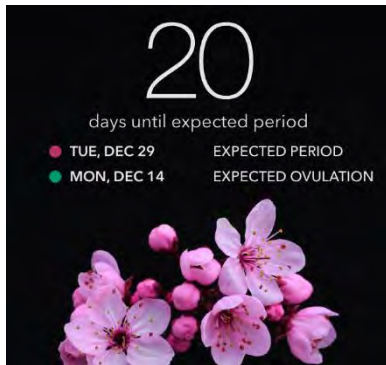
“it’s hard to find tools that work for me!  
[Clue] uses gender neutral language...  
it’s also not focused on pregnancy, which  
I’m not interested in at all.”

“sex options assume sex with a man, and  
reminder of ovulation cycle both remind  
me I am not a ‘normal’ woman  
whenever I use the app... but it’s not  
overly pink so I deal.”

# Diverse Needs and Menstruation



Clue

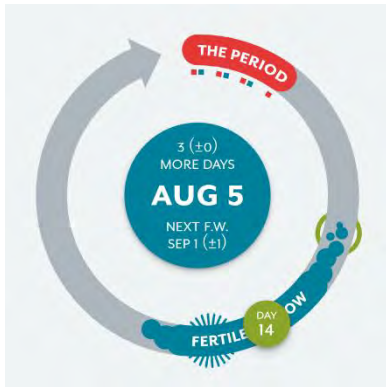


Life

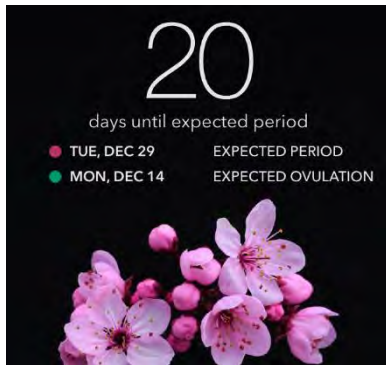
Designs often highlight ovulation information alongside the period

Such content aligns with some people's needs for tracking while de-emphasizing or ignoring the needs of others

# Diverse Needs and Menstruation



Clue

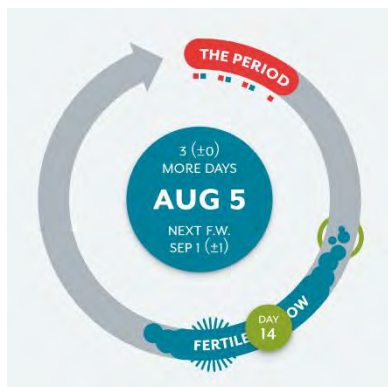


Life

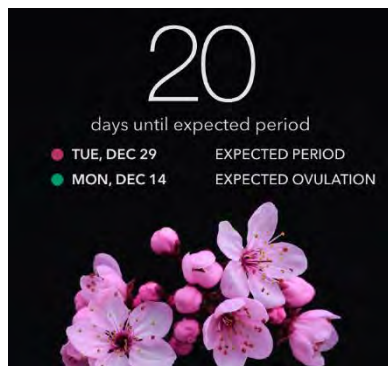
“when I was younger I used to just remember. When I started trying for a baby, it became important to know my fertile times.”

“I would like it if they made a kid’s version because idc [I don’t care] about fertile!! I’m too young!!”

# Diverse Needs and Menstruation



Clue



Life

“my app shows predicted ovulation. I wish it didn't. We dealt with infertility and extensive treatments for 6 years. I am no longer trying to get pregnant and I don't like the reminder of TTC [trying to conceive] or the tiny glimmer of hope that maybe by magic this will be the month when a miracle happens.”

“a constant reminder of trying to conceive and not succeeding”

# Back to Bic for Her



It is very, very hard to imagine that the people who made the decision to launch “Bic for Her” were the same women expected to buy them.

<http://www.forbes.com/sites/davidvinjamuri/2012/08/30/bic-for-her-what-they-were-actually-thinking-as-told-by-a-man-who-worked-on-tampons/>



# Back to Bic for Her



It is very, very hard to imagine that the people who made the decision to launch “Bic for Her” were the same women expected to buy them.

There are lots of ways to make an awful mistake, but some of the worst could be avoided if consumer companies were staffed by actual consumers. Entrepreneurs rarely make this kind of mistake because they tend to start businesses to solve their own problem. That’s why they rarely look as silly as Bic does right now.

<http://www.forbes.com/sites/davidvinjamuri/2012/08/30/bic-for-her-what-they-were-actually-thinking-as-told-by-a-man-who-worked-on-tampons/>

# A Social Justice Problem

1 billion people worldwide

15% of the population

50 million people in US

Including yourself if you  
are fortunate to live to  
develop disabilities

16% of people in the US

10% of workforce

5% of STEM workforce

1% of PhDs in STEM

“Entrepreneurs ... tend to  
start businesses to solve  
their own problem”

Diverse participation is  
critical in effective design

# A Basic Tenet of Design

You are not designing for yourself

You need to understand the context of your design and the people who will use it

We need diversity in who is doing design

As a field, our work suffers because of this failing

# Grades and Exam

Grades will publish in Canvas shortly

Can review exam during my office hours today from 2:00 to 3:30 in CSE 632, or email to arrange appointment

# CSE 440: Introduction to HCI

User Interface Design, Prototyping, and Evaluation

Lecture 15:  
Designing for  
Diverse Needs

Tuesday / Thursday  
12:00 to 1:20

James Fogarty  
Kailey Chan  
Dhruv Jain  
Nigini Oliveira  
Chris Seeds  
Jihoon Suh