

CSE 440: Introduction to HCI

User Interface Design, Prototyping, and Evaluation

Lecture 14:
Designing for Diverse Needs

James Fogarty

Eunice Jun

David Wang

Elisabeth Chin

Ravi Karkar



Tuesday / Thursday

10:30 to 11:50

Project Status

Looking Forward

3d: Usability Testing Review due Tonight

3e: Digital Mockup due Monday 2/27

3f: Getting the Design Right due Tuesday 2/28

3g: Presentation due Wednesday 3/1

4a: Initial Website due Monday 3/6

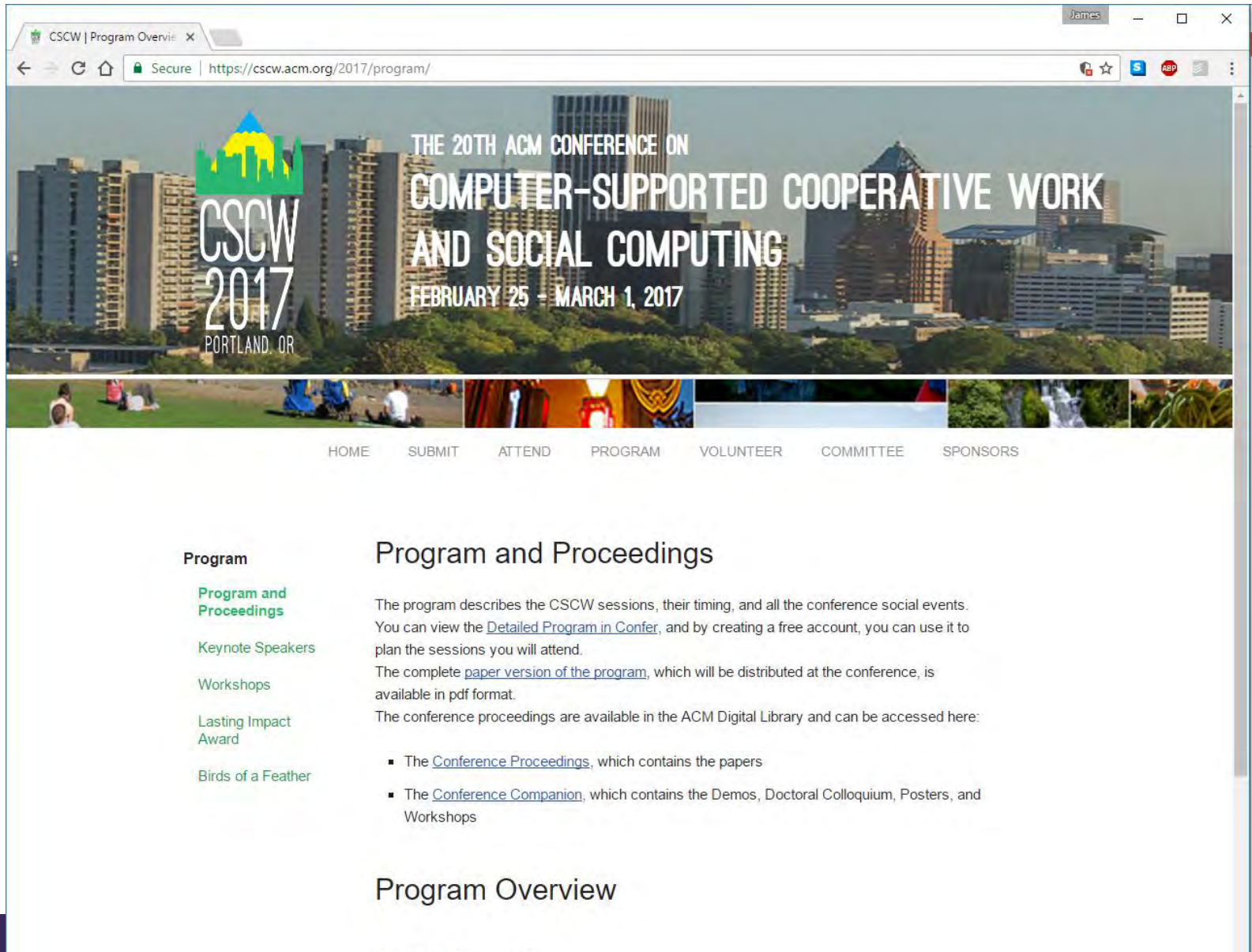
4b: Initial Video Prototype due Monday 3/6

4c: Initial Poster due Wednesday 3/8

Other Assignments

Reading 4 Due Tomorrow

CSCW 2017



The screenshot shows a web browser window with the URL <https://cscw.acm.org/2017/program/>. The page features a large banner image of a city skyline with the text: "THE 20TH ACM CONFERENCE ON COMPUTER-SUPPORTED COOPERATIVE WORK AND SOCIAL COMPUTING FEBRUARY 25 - MARCH 1, 2017". The CSCW 2017 logo is also visible. Below the banner is a navigation menu with links: HOME, SUBMIT, ATTEND, PROGRAM, VOLUNTEER, COMMITTEE, SPONSORS. The main content area is titled "Program and Proceedings" and includes a sidebar with links: Program and Proceedings, Keynote Speakers, Workshops, Lasting Impact Award, and Birds of a Feather. The main text describes the program and provides links to the Detailed Program in Confer and the paper version of the program. It also lists the conference proceedings and the conference companion.

CSCW 2017
PORTLAND, OR

THE 20TH ACM CONFERENCE ON
COMPUTER-SUPPORTED COOPERATIVE WORK
AND SOCIAL COMPUTING
FEBRUARY 25 - MARCH 1, 2017

HOME SUBMIT ATTEND PROGRAM VOLUNTEER COMMITTEE SPONSORS

Program

- [Program and Proceedings](#)
- [Keynote Speakers](#)
- [Workshops](#)
- [Lasting Impact Award](#)
- [Birds of a Feather](#)

Program and Proceedings

The program describes the CSCW sessions, their timing, and all the conference social events. You can view the [Detailed Program in Confer](#), and by creating a free account, you can use it to plan the sessions you will attend.

The complete [paper version of the program](#), which will be distributed at the conference, is available in pdf format.

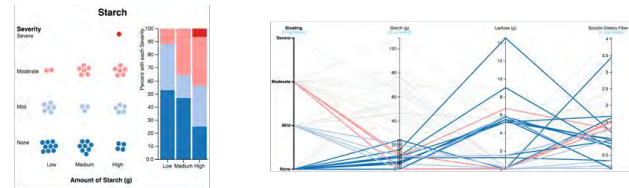
The conference proceedings are available in the ACM Digital Library and can be accessed here:

- The [Conference Proceedings](#), which contains the papers
- The [Conference Companion](#), which contains the Demos, Doctoral Colloquium, Posters, and Workshops

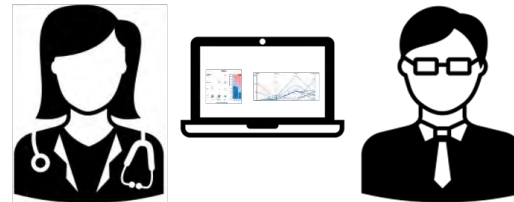
Program Overview

Supporting Patient-Provider Collaboration to Identify Individual Triggers using Food and Symptom Journals

Data Visualizations



Findings and Design Implications



Schroeder et al, CSCW 2017

<https://homes.cs.washington.edu/~jfogarty/publications/cscw2017-triggers.pdf>

From Personal Informatics to Family Informatics: Understanding Family Practices around Health Monitoring

- Families organize themselves differently
- Design to account for privacy of adults and children
- Support collaborative, multi-directional tracking



Pina et al, CSCW 2017

<https://homes.cs.washington.edu/~jfogarty/publications/cscw2017-familyinformatics.pdf>

Calendar Implications

Feb 20

Presidents Day

Exam Q&A

1:30 - 2:30 | CSE 403

Feb 21

Exam

10:30 - 11:50 | GLD 322

Feb 22

Eunice Office Hour

1:45 - 2:45

CSE 021

Feb 23

Designing for Diverse Needs

10:30 - 11:50 | GLD 322

David Office Hour

12:00 - 1:00

CSE 021

3d - Usability Testing Review
[due Night Before Section]

Feb 24

Section

10:30 - 11:20 | MGH 058

11:30 - 12:20 | MGH 058

1:30 - 2:20 | MGH 058

2:30 - 3:20 | MGH 058

Reading 4: Design Patterns
[due End of Day]

Feb 27

James Away

Eunice Away

3e - Digital Mockup

[due End of Day]

Feb 28

James Away

Eunice Away

3f - Getting the Design Right

[due End of Day]

Mar 1

James Away

Eunice Away

Ravi Office Hour

1:45 - 2:45

CSE 021

3g - Presentation
[due Night Before Class]

Mar 2

Presentations

10:30 - 11:50 | GLD 322

David Office Hour

12:00 - 1:00

CSE 021

Mar 3

Presentations

10:30 - 11:20 | MGH 058

11:30 - 12:20 | MGH 058

1:30 - 2:20 | MGH 058

Mar 6

4a - Initial Website

[due Night Before Class]

4b - Initial Video Prototype

[due Night Before Class]

Mar 7

Video Critique

Closing Thoughts

10:30 - 11:50 | GLD 322

James Office Hour

2:30 - 3:30

CSE 666

Mar 8

Eunice Office Hour

1:45 - 2:45

CSE 021

4c - Initial Poster Critique and Pitch

[due Night Before Class]

Mar 9

Section

10:30 - 11:50 | GLD 322

David Office Hour

12:00 - 1:00

CSE 021

Mar 10

Section

10:30 - 11:20 | MGH 058

11:30 - 12:20 | MGH 058

1:30 - 2:20 | MGH 058

2:30 - 3:20 | MGH 058

4d - Communication Critique
[done In Class]

4e - Final Poster, Video, Website
[due End of Day]

Presentations and Reminder

Presentations on Thursday 3/2 and Friday 3/3

7 groups will present on Thursday

entire 2:30 section (no 2:30 section Friday)

1 group from each other section

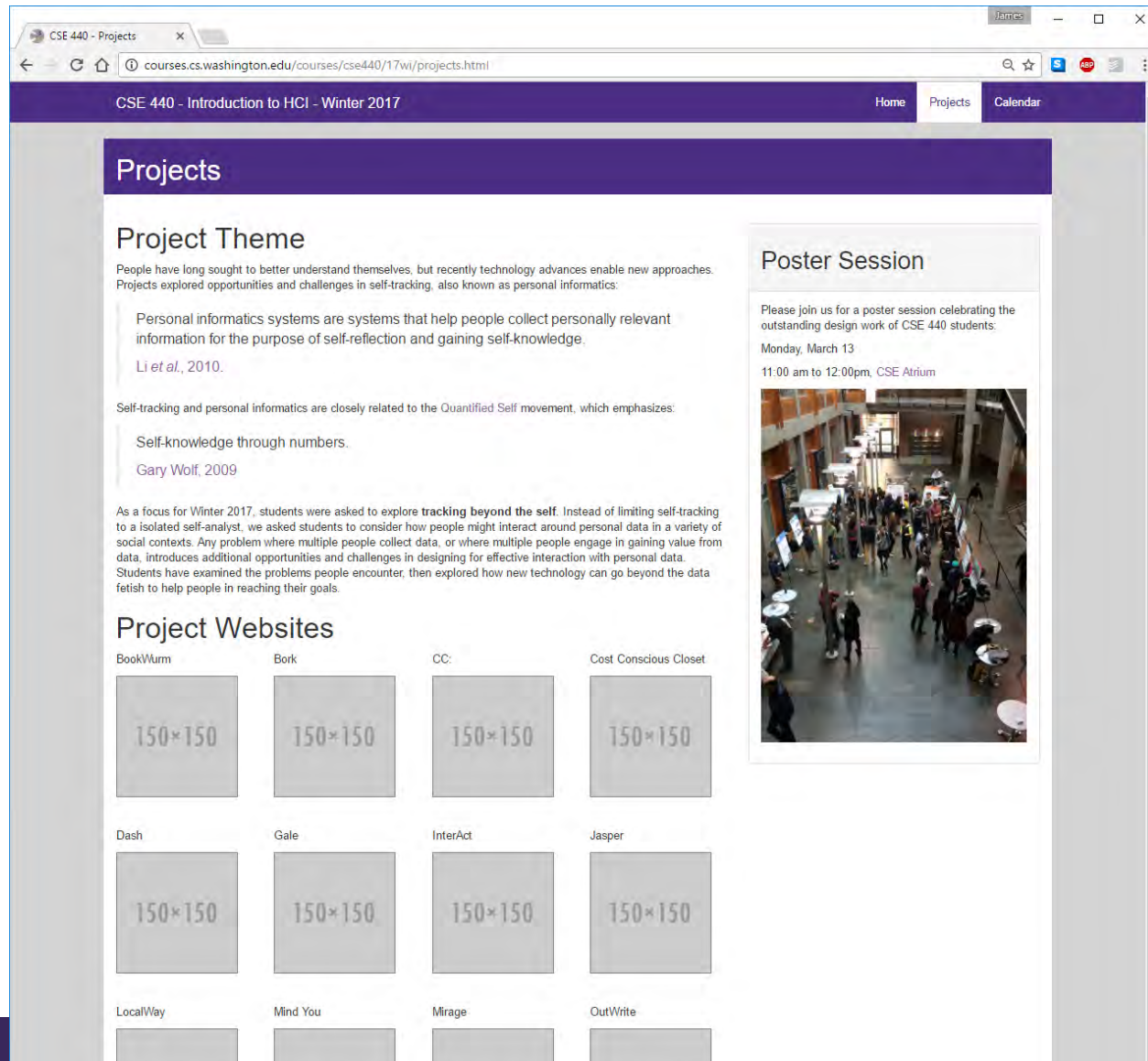
Have thoughtful questions for other groups

Be sure you prepare and rehearse

Team responsibility for the presentations

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

Start Publishing Logo and Website



CSE 440 - Introduction to HCI - Winter 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 Winter 2017, students were asked to explore **tracking beyond the self**. Instead of limiting self-tracking to a isolated self-analyst, we asked students to consider how people might interact around personal data in a variety of social contexts. Any problem where multiple people collect data, or where multiple people engage in gaining value from data, introduces additional opportunities and challenges in designing for effective interaction with personal data. Students have examined the problems people encounter, then explored how new technology can go beyond the data fetish to help people in reaching their goals.

Project Websites


BookWurm	Bork	CC:	Cost Conscious Closet
150×150	150×150	150×150	150×150
Dash	Gale	InterAct	Jasper
150×150	150×150	150×150	150×150
LocalWay	Mind You	Mirage	OutWrite

Poster Session

Please join us for a poster session celebrating the outstanding design work of CSE 440 students.

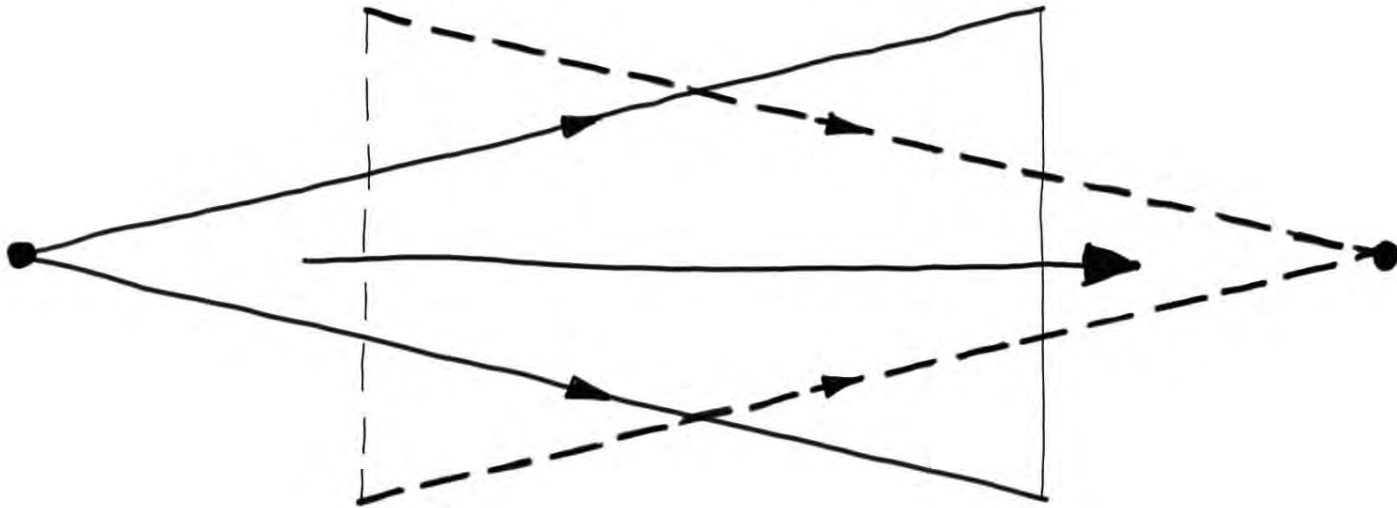
Monday, March 13

11:00 am to 12:00pm, 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

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
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

Pinkification

This is a really 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>

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)

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

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.

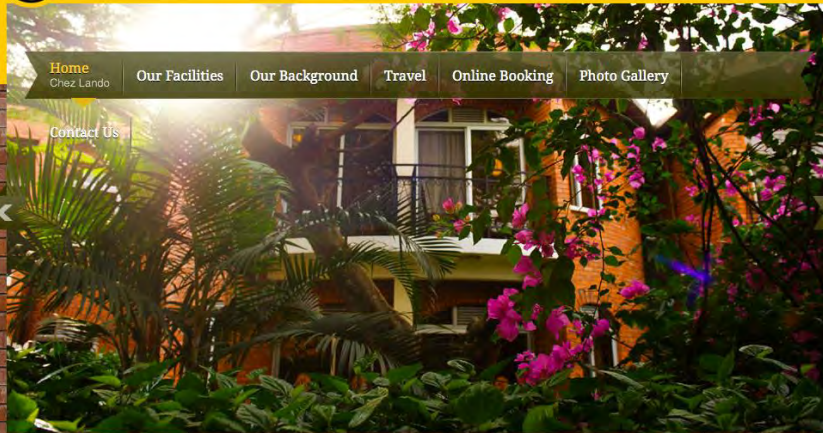
[Contact the webmaster](#)

[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**.

very
unappealing

very
appealing



[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.

[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.
WITH SMS & EMAIL ALERTS

You want to acquire your first drive?

[Learn More](#)

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.
WITH SMS & EMAIL ALERTS

You want to acquire your first drive?
[Learn More](#)

Carry your bank with you 24/7
[Learn More](#)

Simple things that make life easier.
SENDiZICASH

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



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.

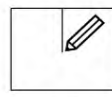
Participate now!



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.

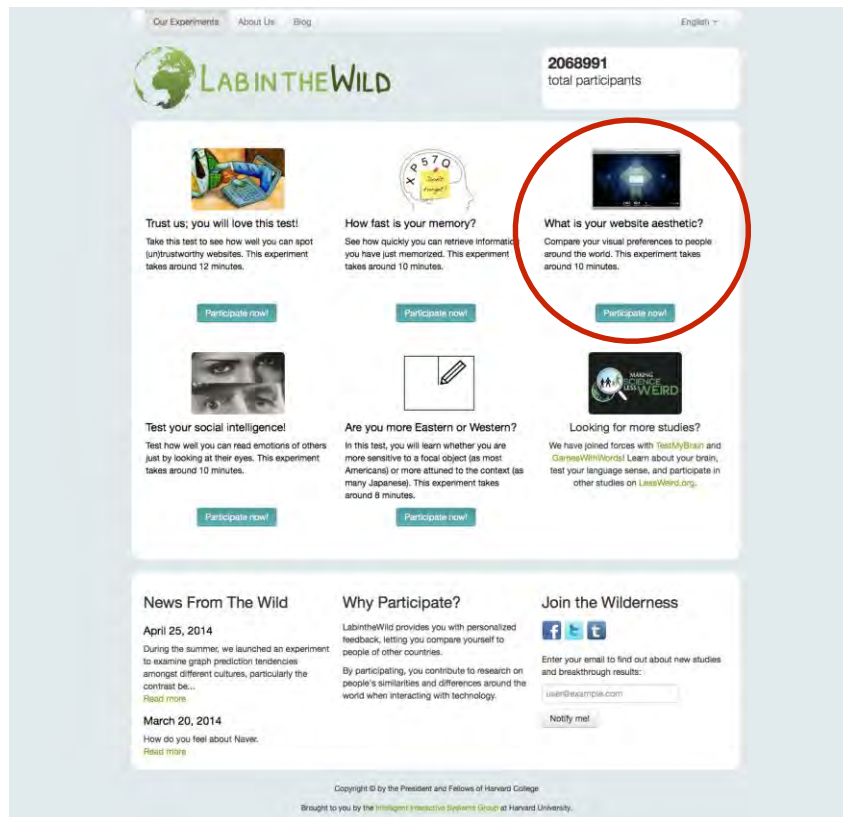
Join the Wilderness



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

Notify me!

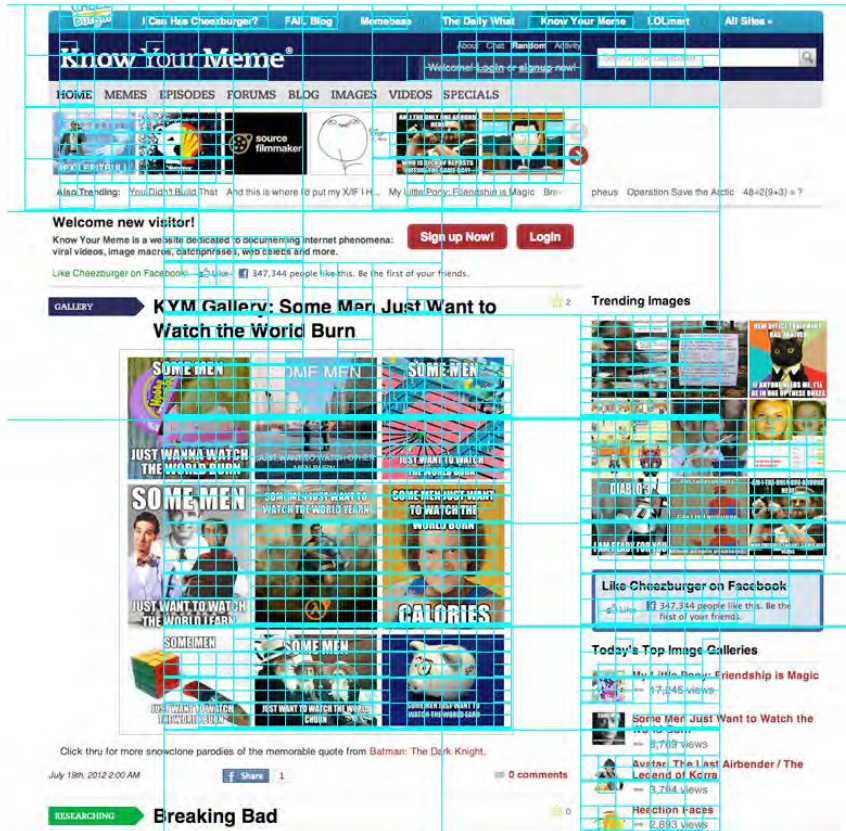
Large Scale Data Collection



The screenshot shows the LabintheWild website interface. At the top, it displays "Our Experiments", "About Us", and "Blog" in the navigation bar, and "English" in the top right. The main header features the "LABINTHEWILD" logo with a globe icon and a box indicating "2068991 total participants". Below this, there are six experiment cards, each with a title, a brief description, and a "Participate now!" button. The card titled "What is your website aesthetic?" is circled in red. At the bottom of the page, there are three sections: "News From The Wild" with dates and descriptions of recent experiments, "Why Participate?" explaining the benefits of joining, and "Join the Wilderness" with social media icons and an email sign-up form.

2.4 million ratings
39,975 participants
430 websites

Visual Feature Analysis

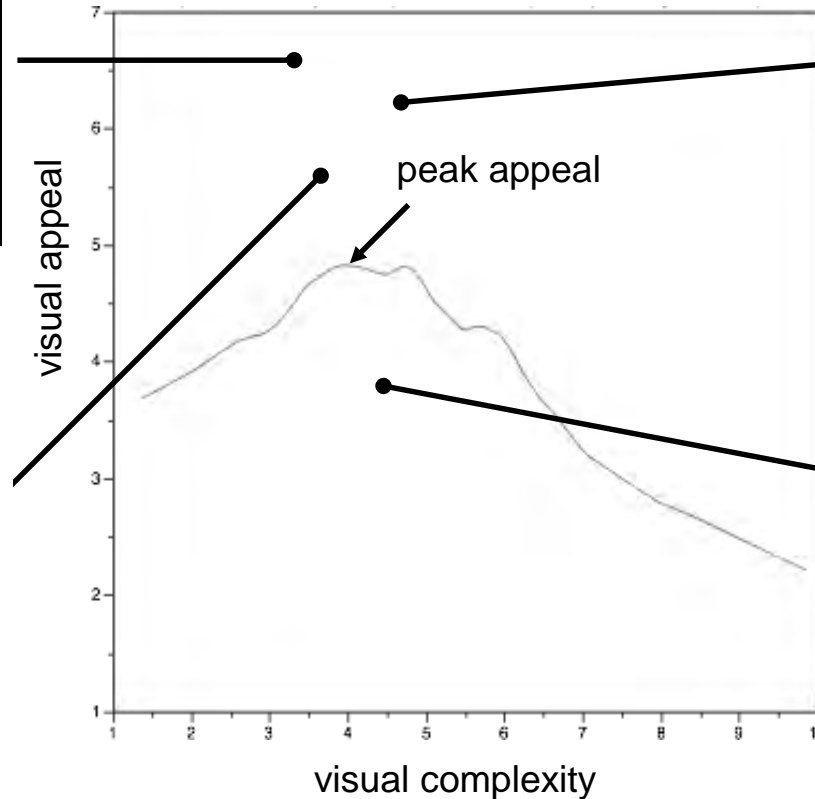
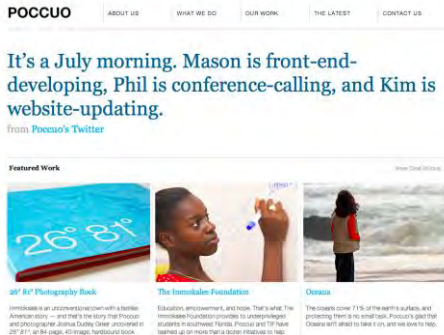
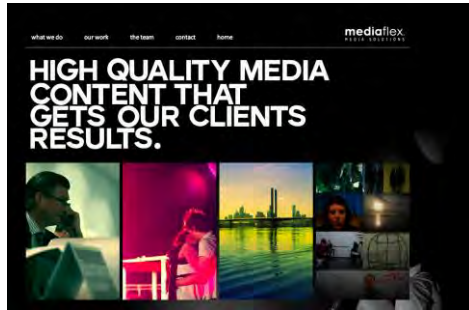


2.4 million ratings
39,975 participants
430 websites

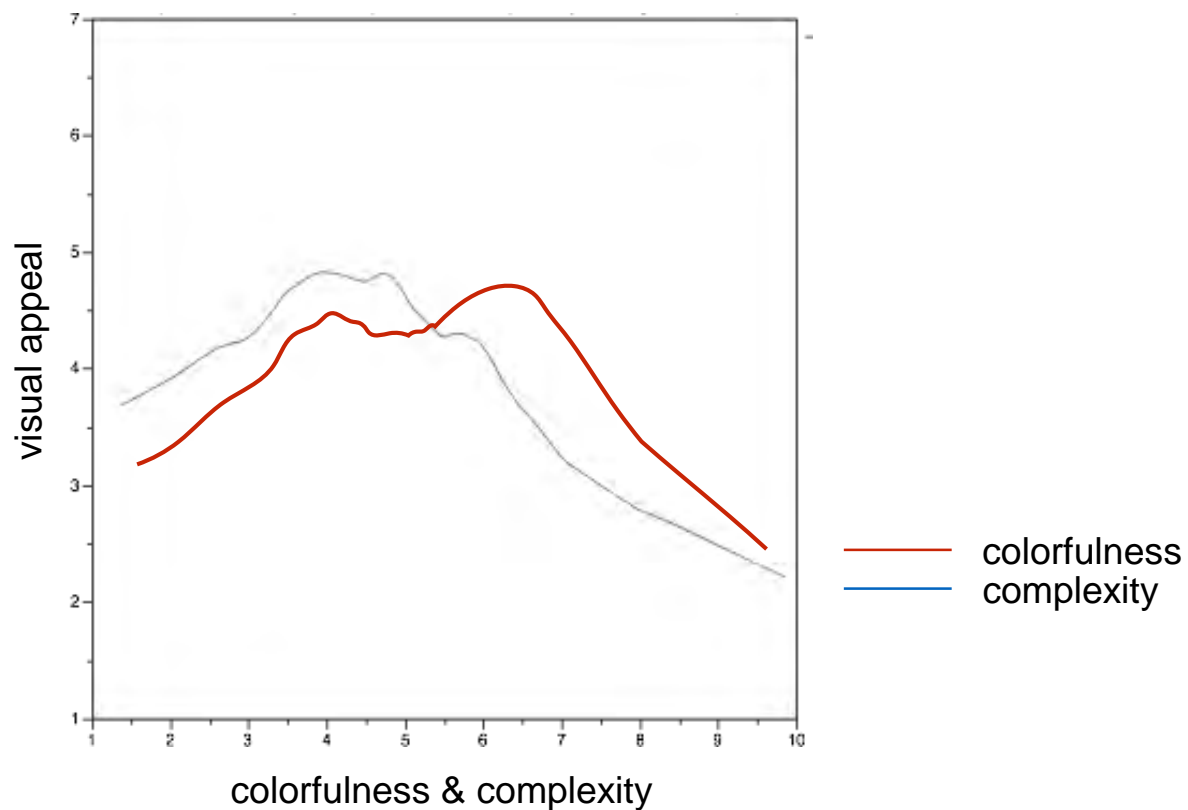
39 image metrics
describing website
perceived **colorfulness**
and **complexity**

Age, country,
gender, education

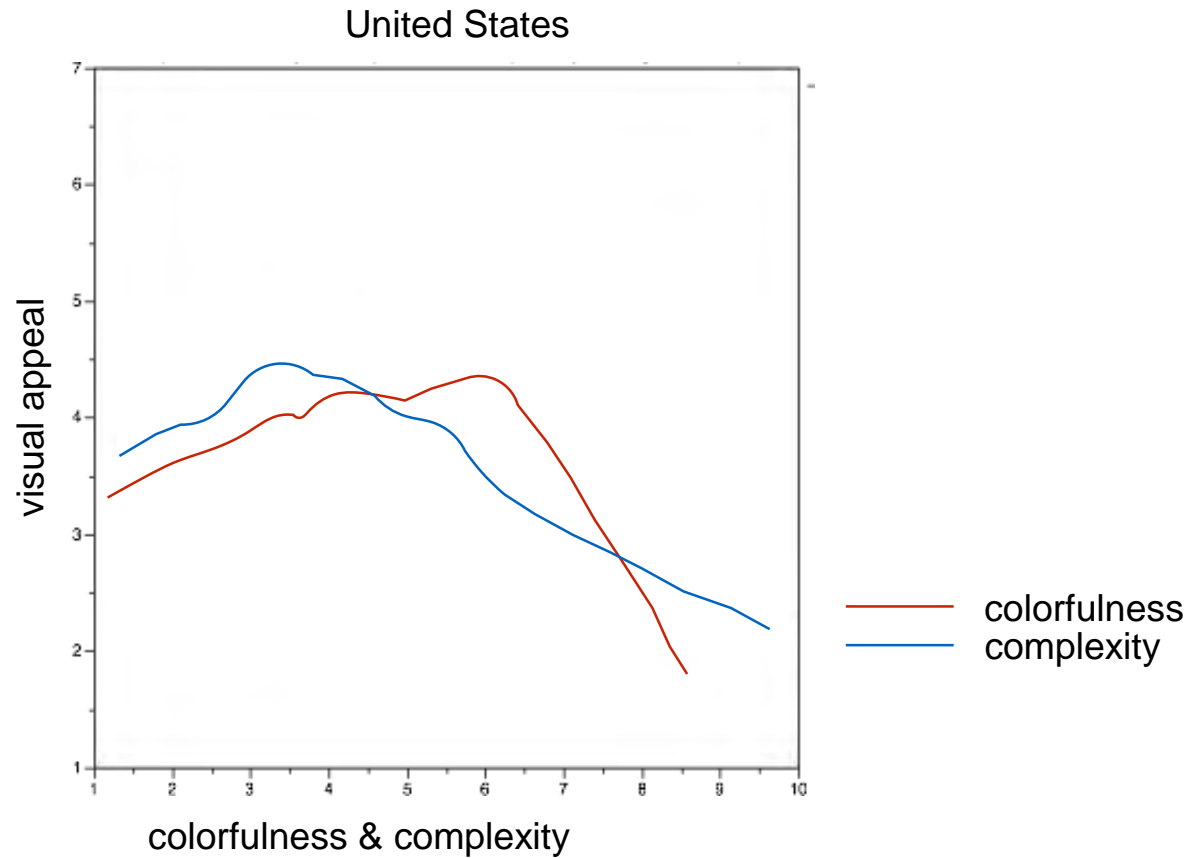
Plotting Appeal by Complexity



Plotting Appeal by Colorfulness



United States



Other Countries

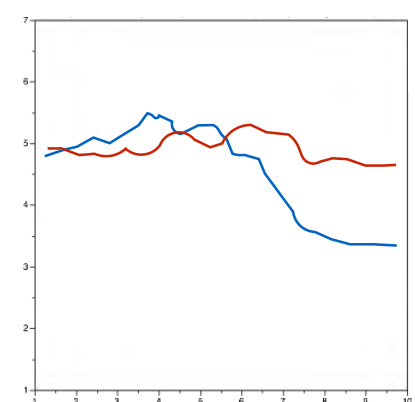
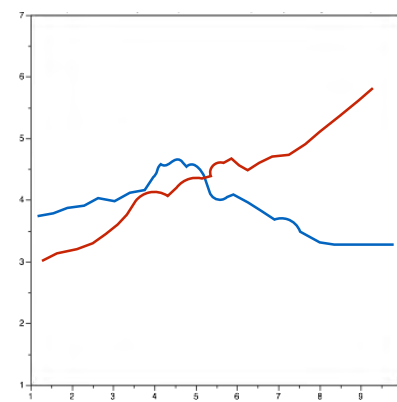
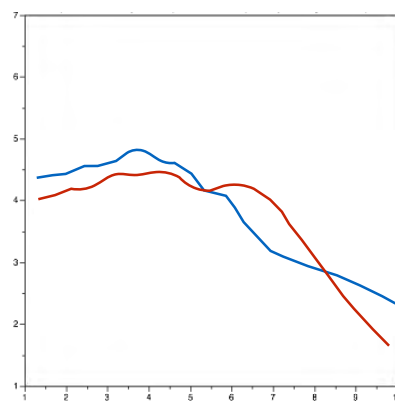
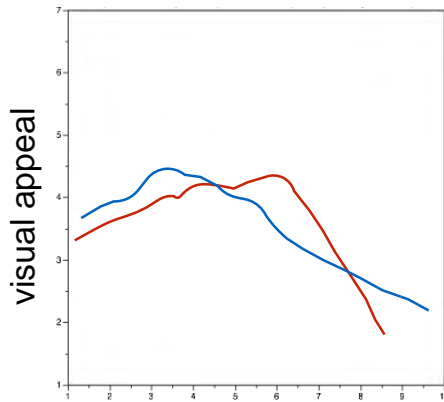
— colorfulness
— complexity

United States

Germany

Macedonia

Hong Kong



colorfulness & complexity

HostRocket

1.866.519.7079

The Ultimate Hosting Plan

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

6 MONTHS FREE
\$5.99/mo.

[LEARN MORE](#)

Website Hosting	Reseller Cloud Hosting	Dedicated Hosting
\$5.99	\$34.99	\$69.99
<ul style="list-style-type: none"> 1x Unlimited Storage 1x Unlimited Bandwidth 1x Unlimited Domains 1x 24/7 Tech Support 1x 99.9% Uptime 	<ul style="list-style-type: none"> 1x 45 GB SSD Storage 1x 2 GB RAM 1x 100 GB Bandwidth 1x 2 GB CPU Processor 1x 100% Uptime 	<ul style="list-style-type: none"> 1x 20 GB Storage 1x 2 GB RAM 1x 100 GB Bandwidth 1x 2 GB CPU Processor 1x 100% Uptime
Go Back & Proceed	Go Back & Proceed	Go Back & Proceed

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

26° 81°

[POCUO's Photography Site](#)

[The Jarvian Foundation](#)

[Jarvis](#)

POCUO is an environmental non-profit with a focus on conservation and protecting the world's rarest species. We are currently looking for a web developer to help us create a new website for our 2014-15 season. For more information, please contact us at info@jarvis.org.

POCUO is an environmental non-profit with a focus on conservation and protecting the world's rarest species. We are currently looking for a web developer to help us create a new website for our 2014-15 season. For more information, please contact us at info@jarvis.org.

The Jarvian Foundation is a non-profit organization that focuses on conservation and protecting the world's rarest species. We are currently looking for a web developer to help us create a new website for our 2014-15 season. For more information, please contact us at info@jarvis.org.

HostRocket

1.866.519.7079

The Ultimate Hosting Plan

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

8 MONTHS FREE

\$5.99/mo.

LEARN MORE

Website Hosting	Reseller Cloud Hosting	Dedicated Hosting
\$5.99	\$34.99	\$69.99
<ul style="list-style-type: none"> 1 Unlimited Storage 1 Unlimited Bandwidth 1 Unlimited Domains 24x7 Tech Support 1 Free SSL Certificate 	<ul style="list-style-type: none"> 45 GB SSD Storage 2 GB RAM 1,000 GB Bandwidth 2.5 TB Backup 2 Free Domains 	<ul style="list-style-type: none"> 20 GB Storage 2 GB RAM 1,000 GB Bandwidth 2.5 TB Backup 2 Free Domains
24/7 & 24/7	24/7 & 24/7	24/7 & 24/7

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! The Lizard Point - your fun learning ally.

JEWELRY CREATIONS BY LIZARD POINT

- Visit Jewelry Creations by Lizard Point if you're looking for something special to wear from our collection of hand-crafted, personalized jewelry.

POCUO

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

26° 81°

POCUO Photography Blog

The Executive Producer

LOANER

tapir design

classic design for today.

Some things just can't be produced effectively, especially when you're committed to an e-Marketing solution. At tapir design, we've created a complete operating system that...



LIZARD POINT

BROWSER-BASED ACTIVITIES FOR FUN AND LEARNING

- Teach your geospatial concepts - classroom long distance!
- Utilize student practice and generated worksheets
- Buy it with the LIZARD Planner - print-out printable manual!

JEWELRY CREATIONS BY LIZARD POINT

- With jewelry creations by Lizard Point of award-winning, 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...

See Plans and Pricing

Free Website Builder • Hosted • Domains • No Coding • No Contracts

Home
Plans & Pricing
Examples
Features
Blog
Forums
Contact Us

You'll Be Amazed By What You Can Build!

- Completely **FREE PLAN** Available - No Time Limits!
- No Coding Required - Easy To Use Website Creator Design Tools

OPEN THE DOOR TO YOUR FUTURE
OPEN DAY SATURDAY AUGUST

Home Research Study

Top stories

- UC student awarded Governor Schwarzenegger Scholarship**
Henry Chen, Administration & Support Services, has been named a recipient of the 2011 Governor Schwarzenegger Scholarship.
- UC students stay safe with Bismillah**
Recently graduated student Harrison Park Clark shared with us how he stayed safe and healthy at the University of California's campus during his time at the University of California.
- Student at Scripps Institution of Oceanography**
A student at Scripps Institution of Oceanography, UC San Diego, has been named a recipient of the 2011 Scripps Institution of Oceanography Student Award.

2011 ANNUAL SYMPOSIUM PROGRAM
Apply Here

Accept your offer here!

Browse Courses & Units

UC SCHOOLS

BE CONCILIATION ACTION PLAN

Home About Design Contact

tapir design
classic design for today.

tapir design specializes in providing effective, stylish websites that are accessible to all. We focus on the usability of the web, removal of computer operating system that



Find over 12,000 Restaurants on our website!

BUCKHEAD RESTAURANT GUIDE...Click to View Website

NEW! Atlanta's Top Restaurants

Search by Cuisine Type

Search by Restaurant Name or by Cuisine Type

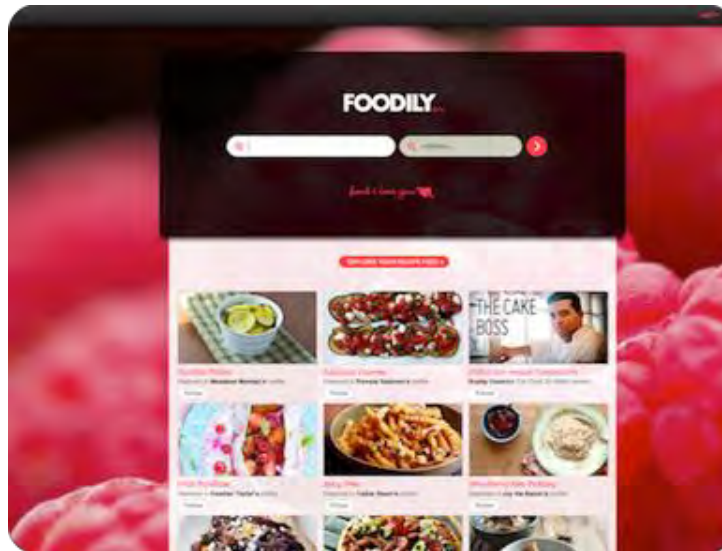




> 50
years



< 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

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

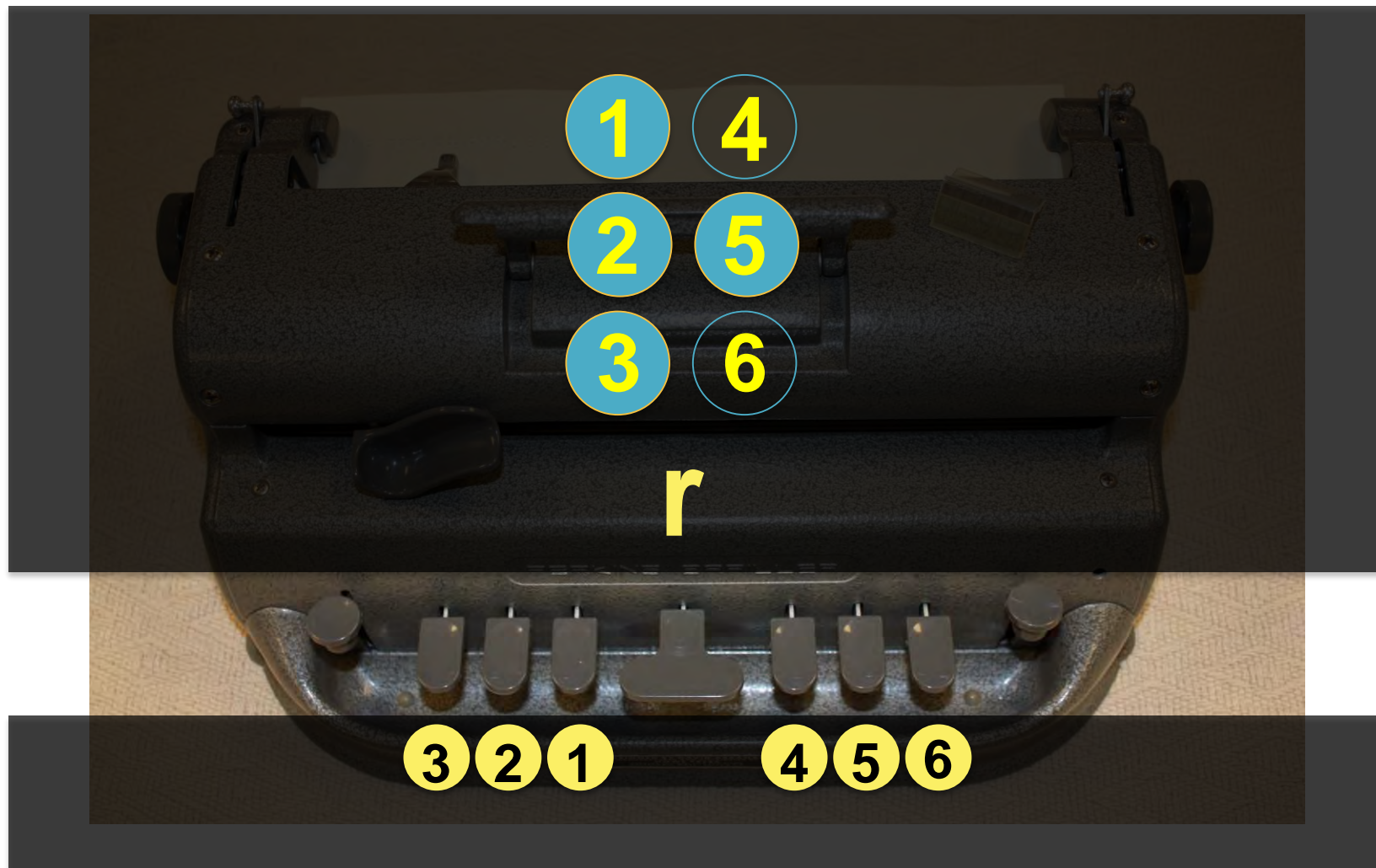
A Closer Look at Text Entry



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



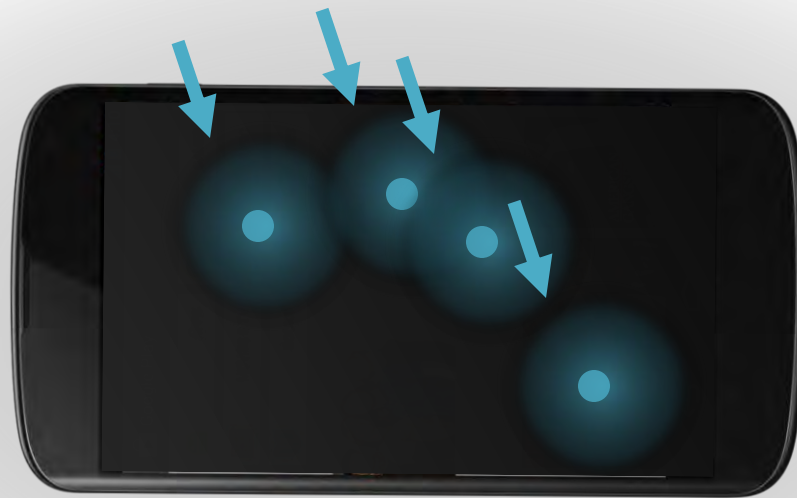
Perkinput



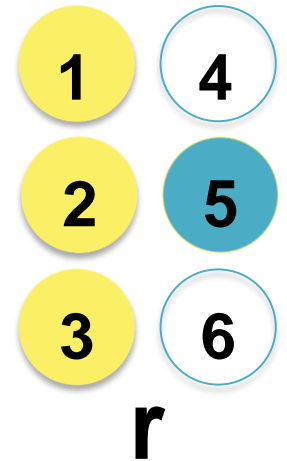
Perkinput



Perkinput



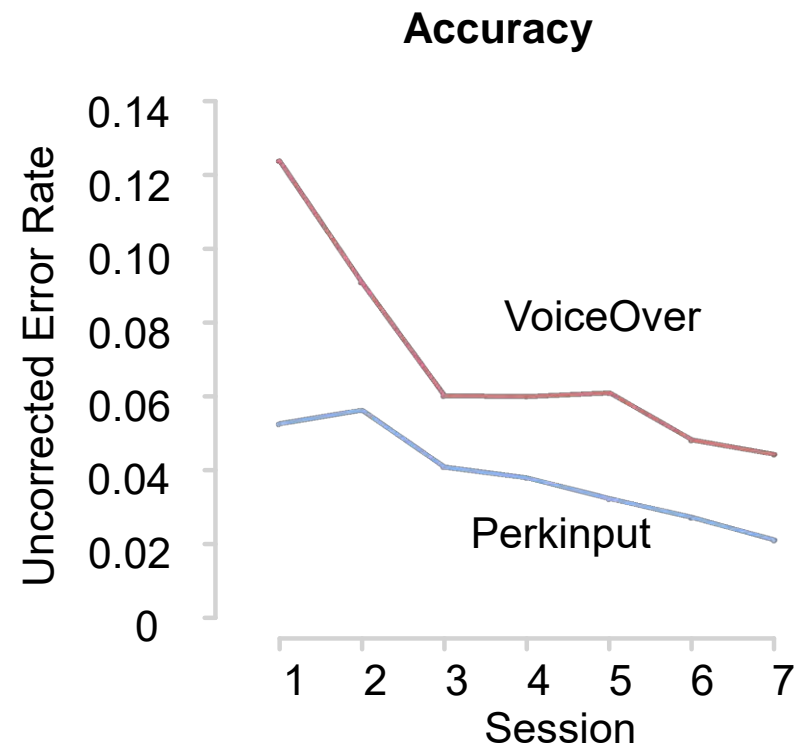
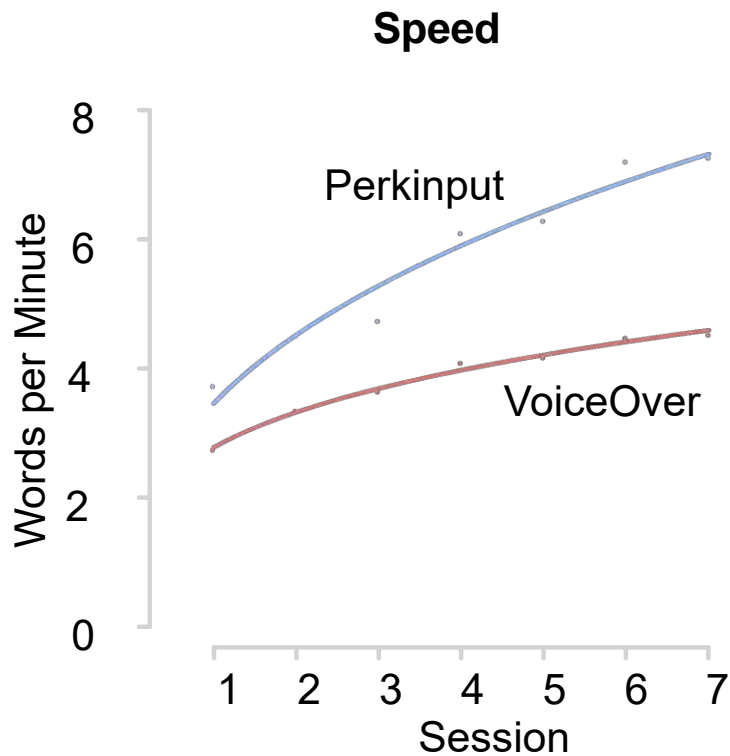
Perkinput



Perkinput



Speed and Accuracy



Another Problem



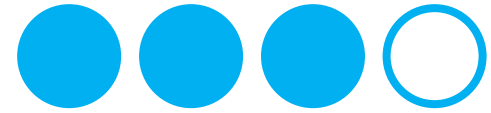
PassChords



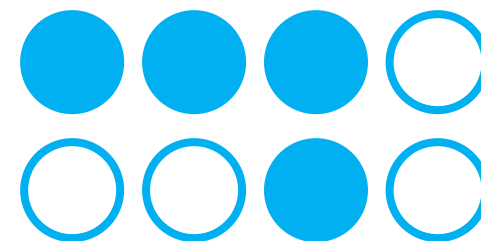
PassChords



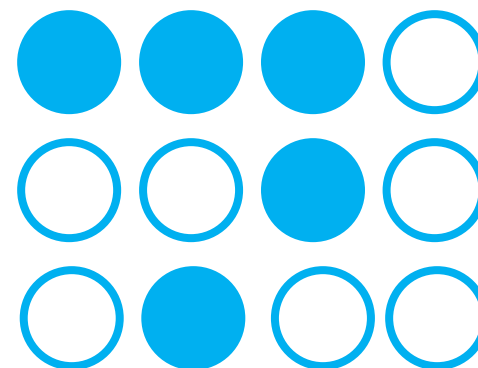
PassChords



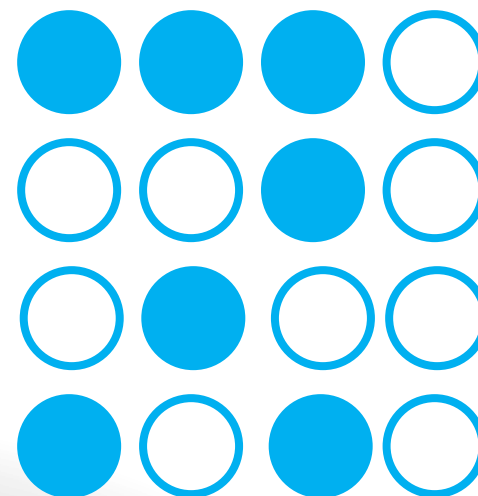
PassChords



PassChords



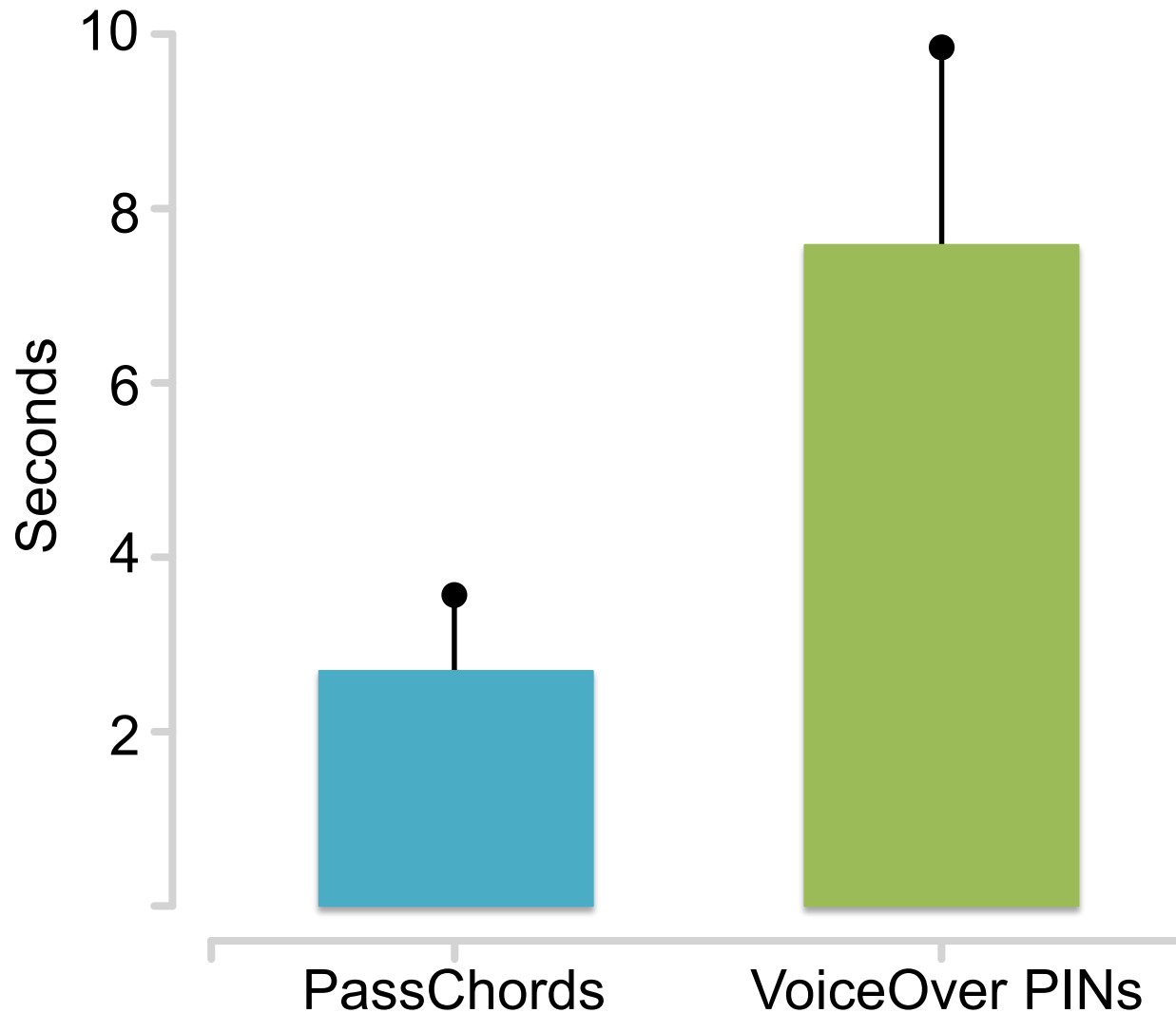
PassChords



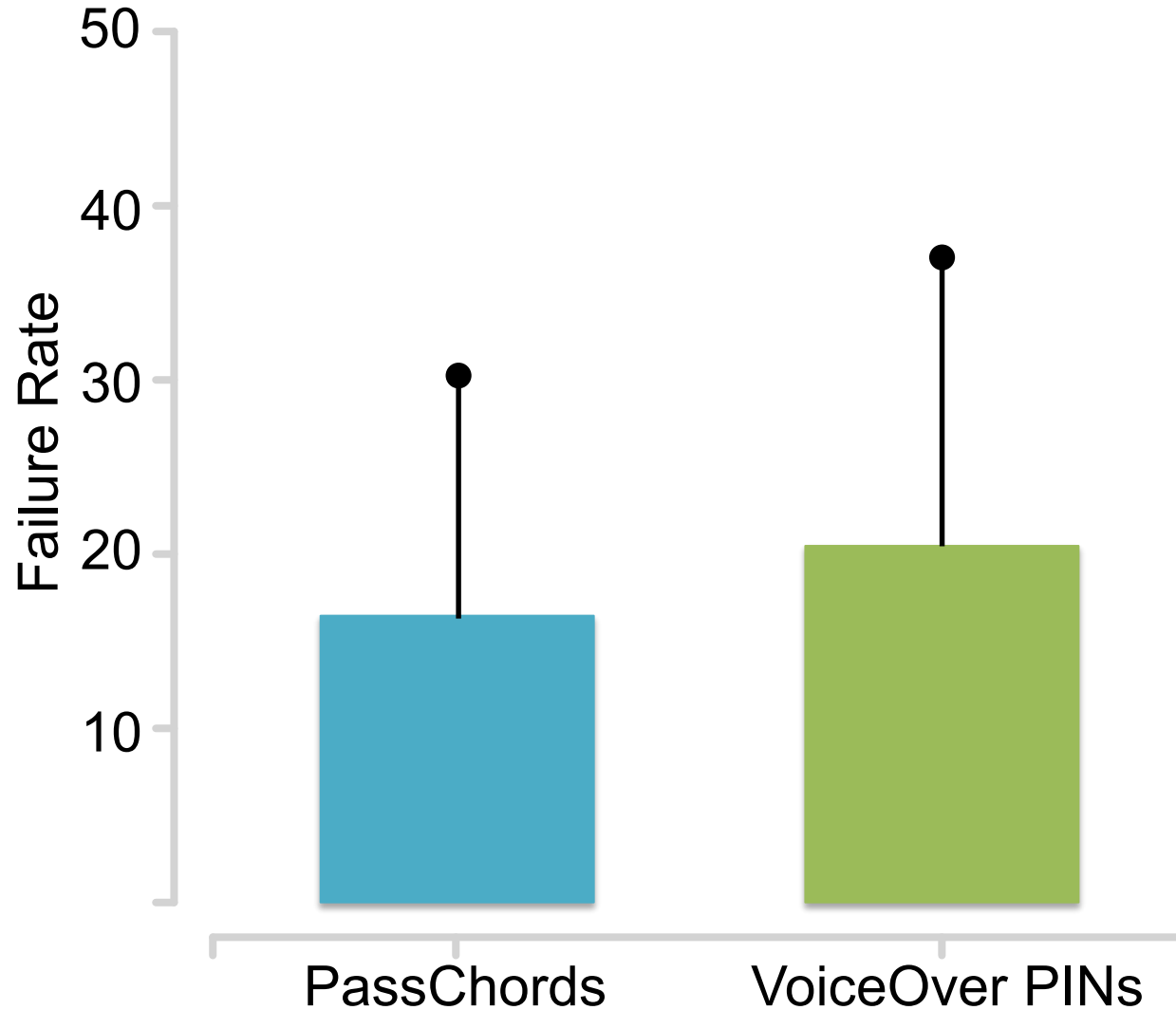
PassChords



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

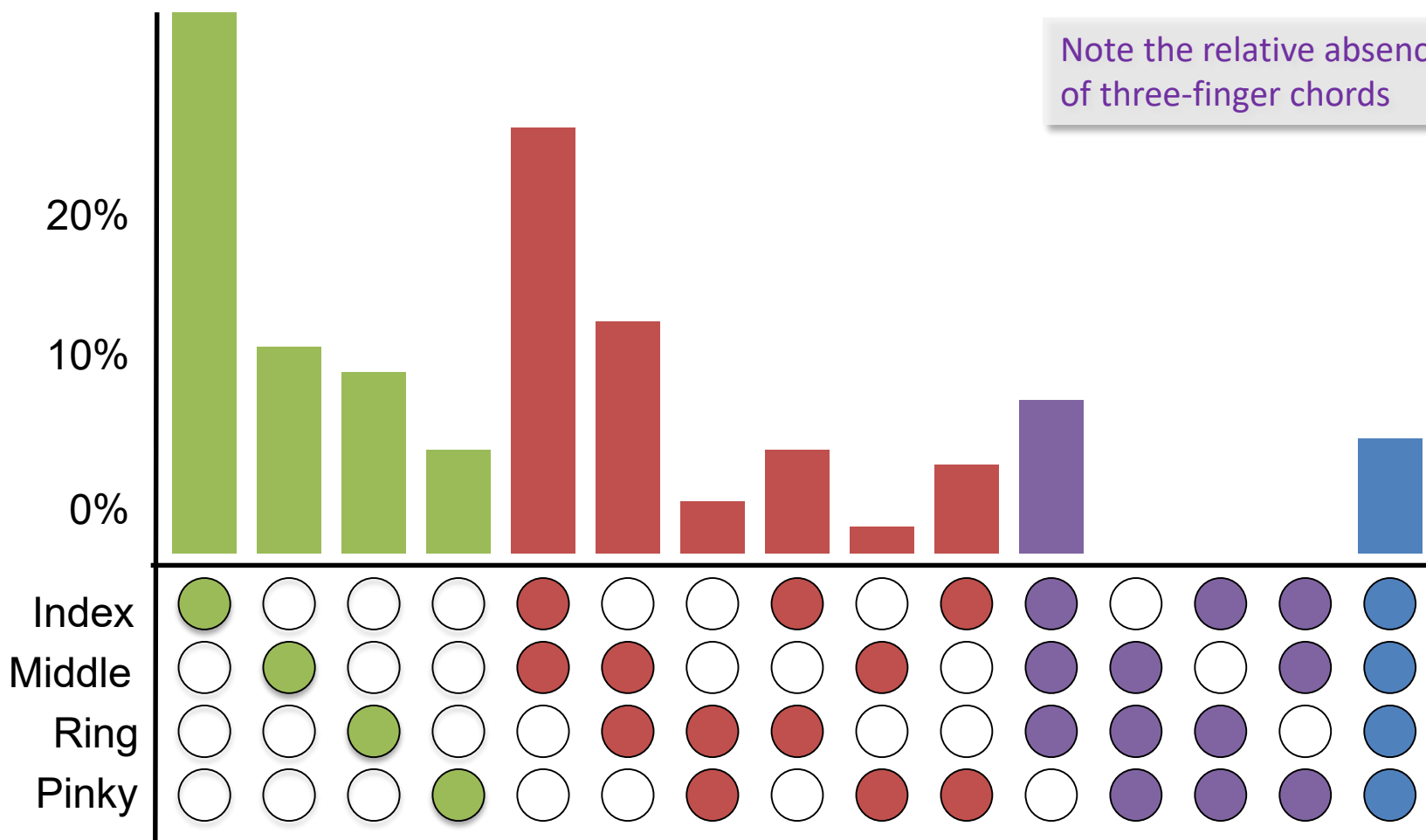
The minimum number of bits needed to encode the number of guesses given distribution

4-digit PINS: 12.7 bits

Not all PINS are equally likely

Finger Pattern Frequency

Note the relative absence of three-finger chords



What About Security?

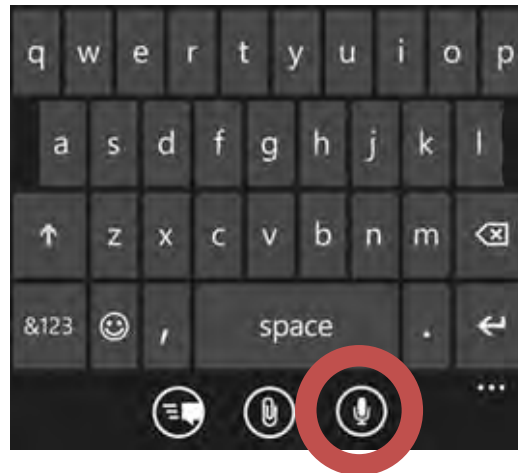
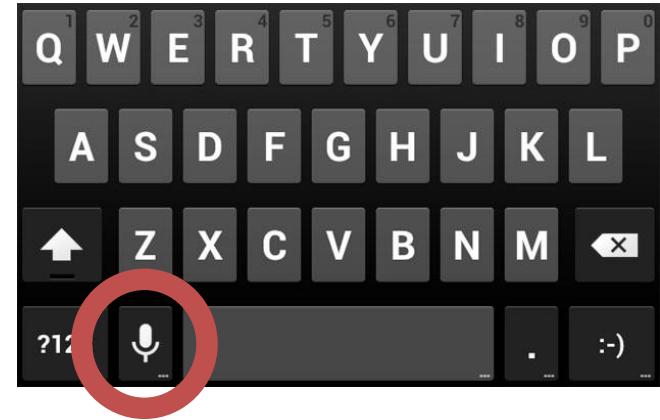
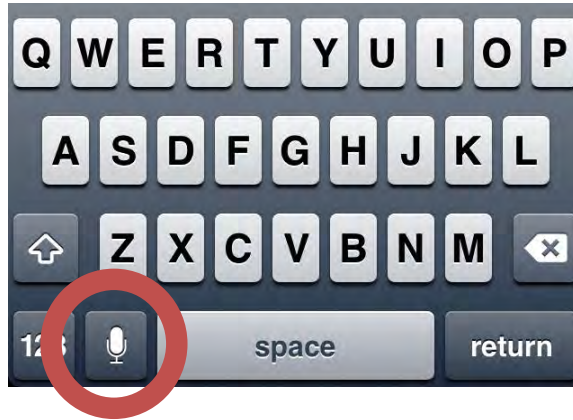
A better measure is Guessing Entropy

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

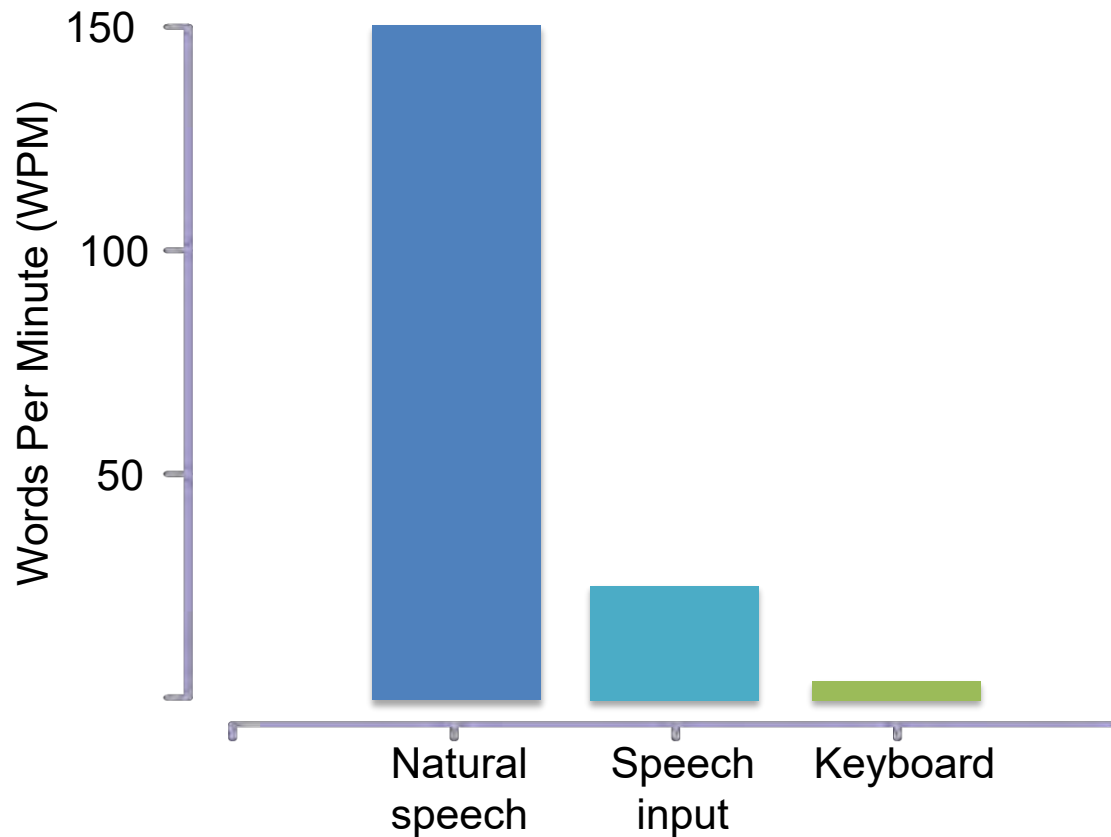
my

Serial Access in Reviewing Transcript

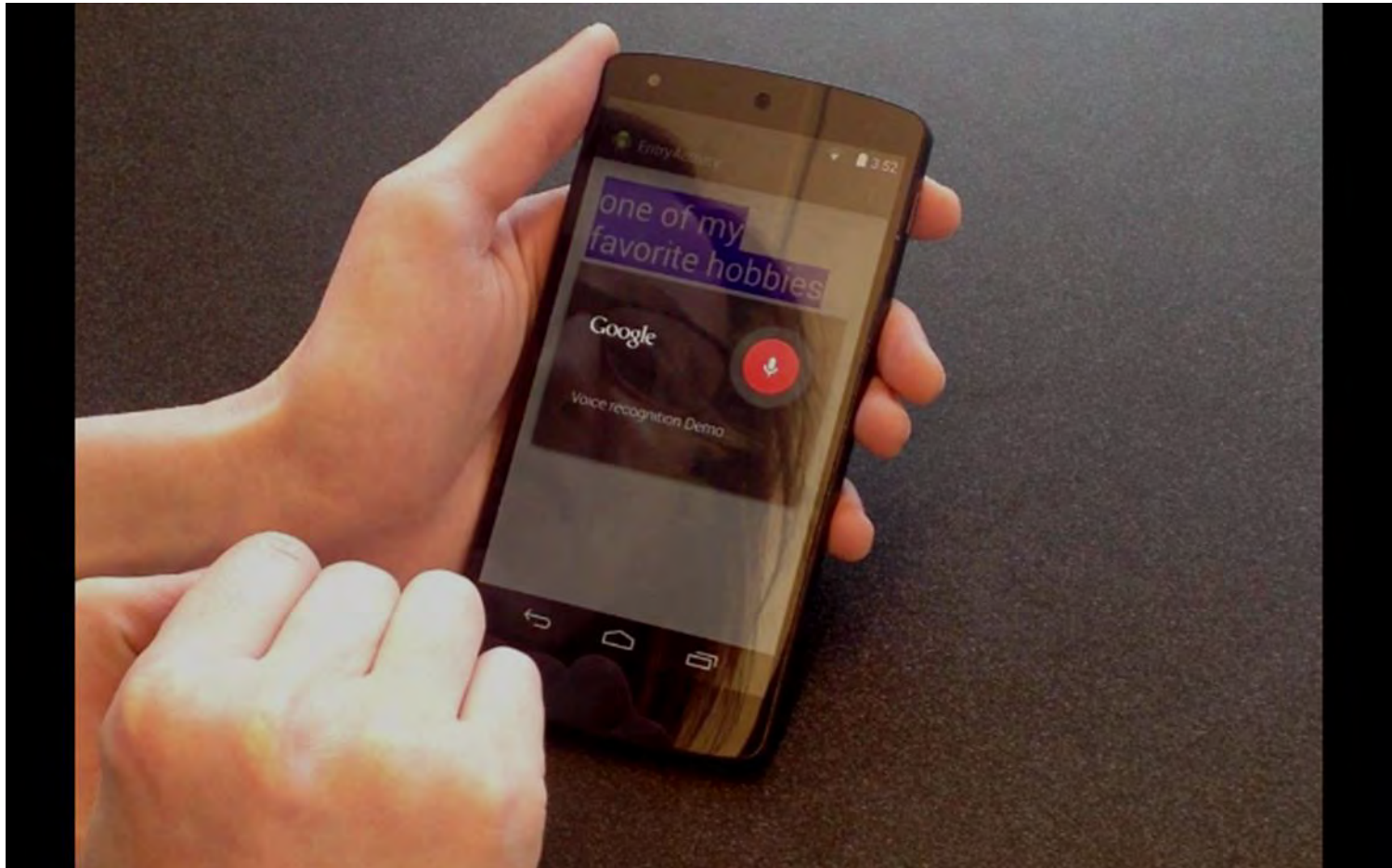
hobbies

Reviews and Edits

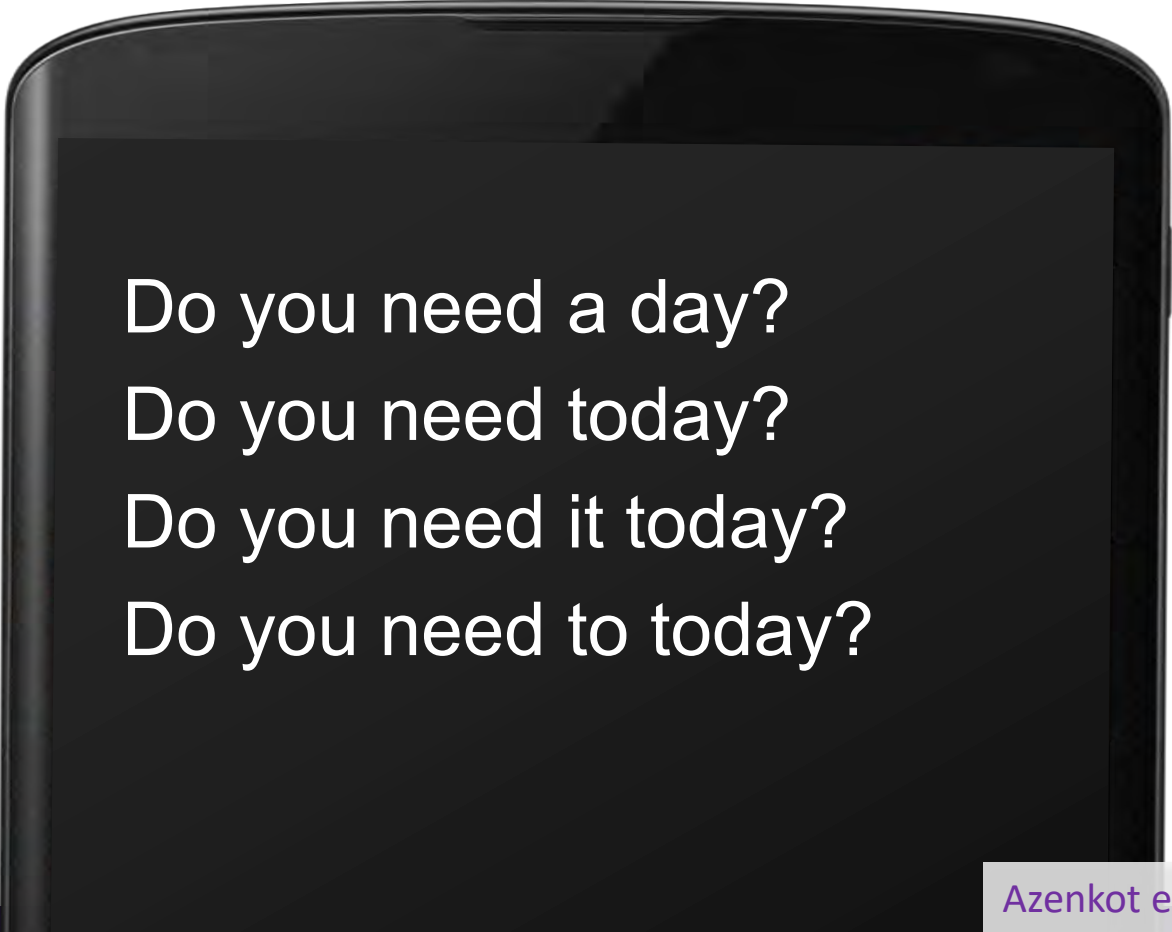
80% of composition time in review and edits



Spifi



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

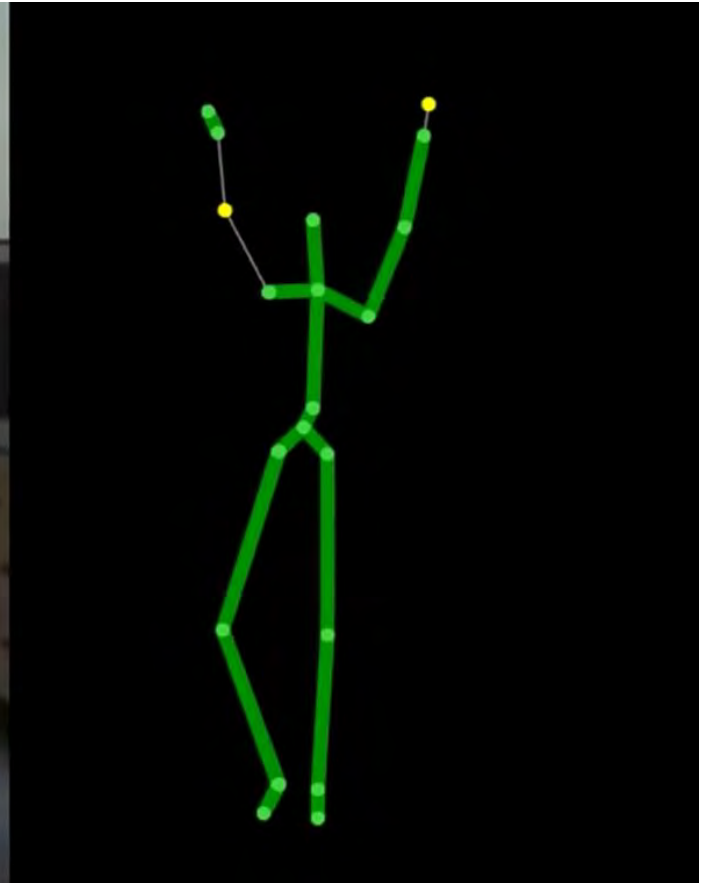


“Sometimes you don’t follow along as well unless [you are] one on one.”

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](#)

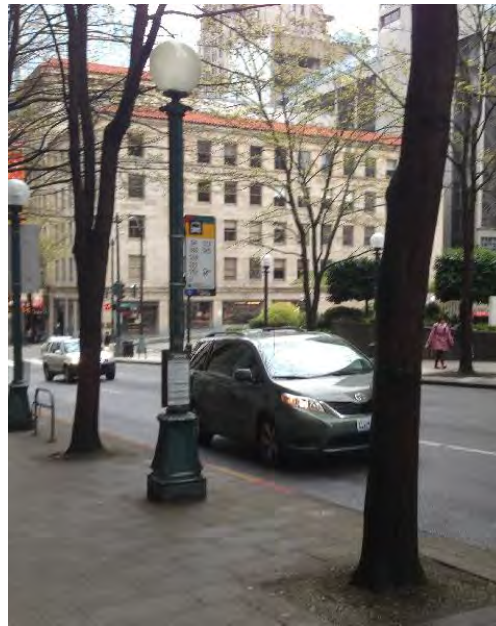
NW MARKET ST & BALLARD AVE NW

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

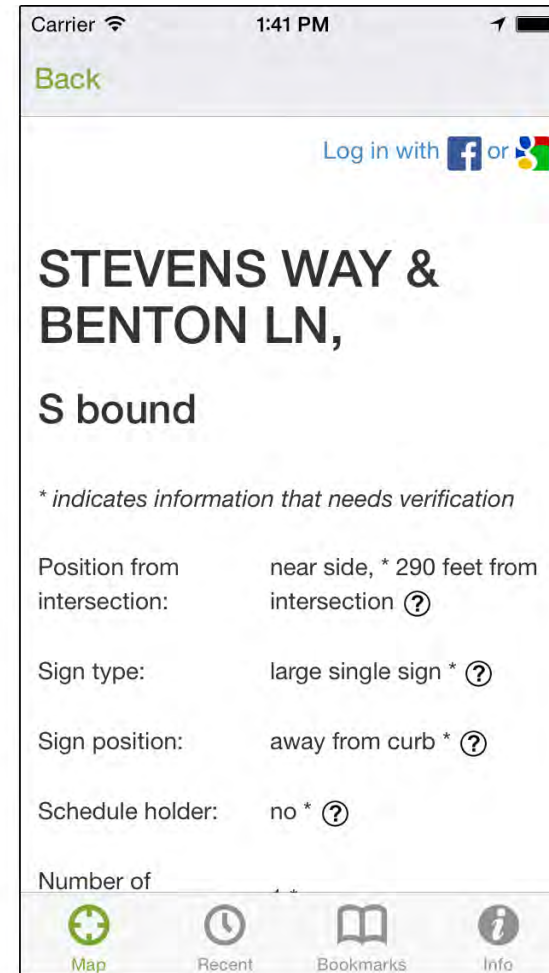
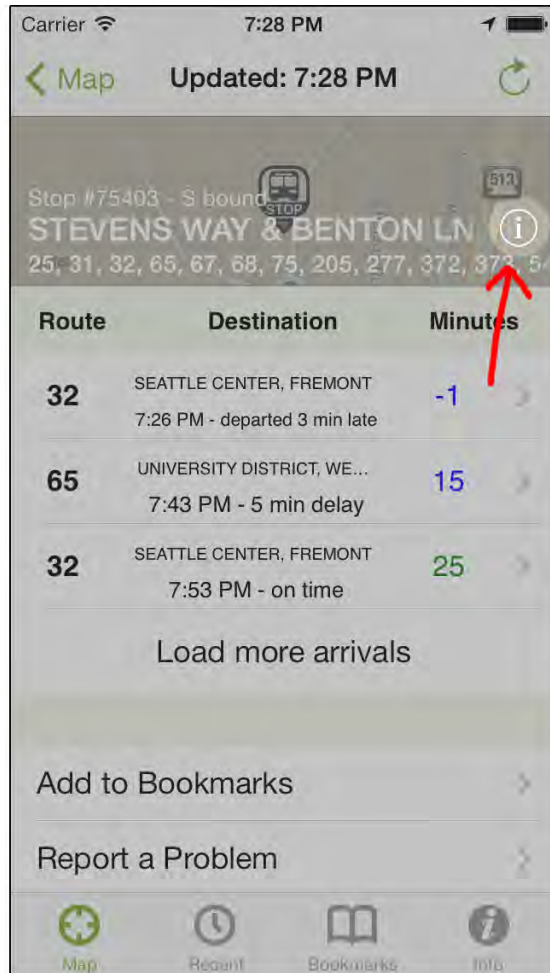
Last Update: 03:57 PM

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



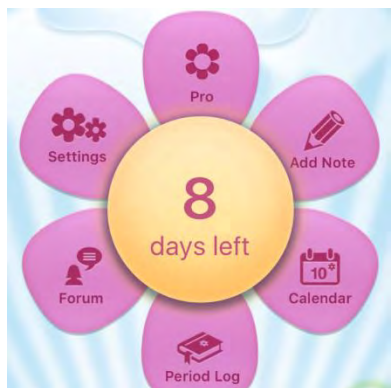
“with Health, you can monitor all of your metrics that you’re most interested in”
Apple Software executive Craig Federighi

“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>

Pinkification and Menstruation



Period Diary



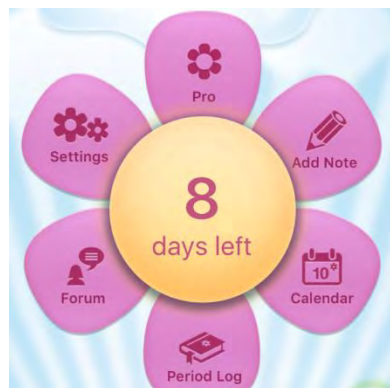
P. Tracker Lite

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

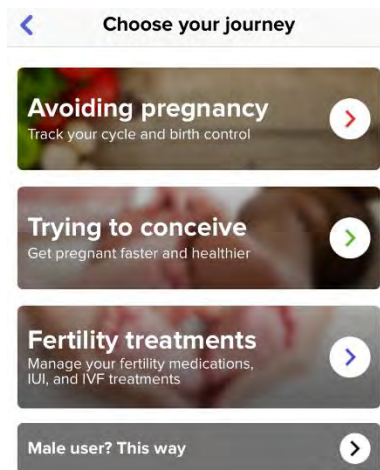
“they have tried to make it ‘feminine’ by adding flowers... It makes me feel like you are trying to ‘dumb it down’ for me. Why can’t keeping track of my menstruation be a professional and organized task?”

“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

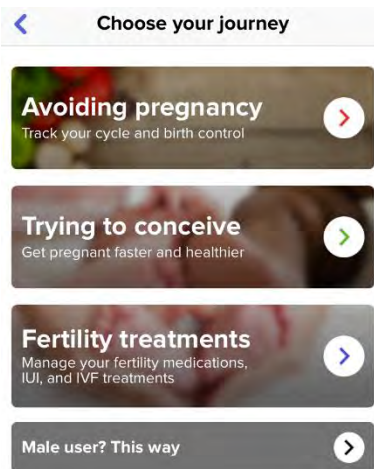


Glow



Clue

Diverse Needs and Menstruation



Glow

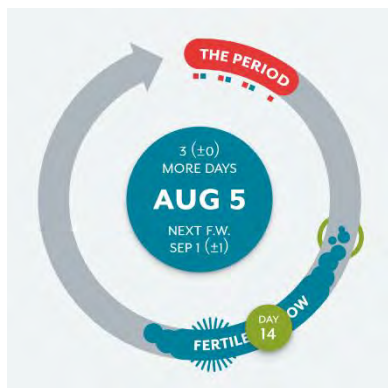


Clue

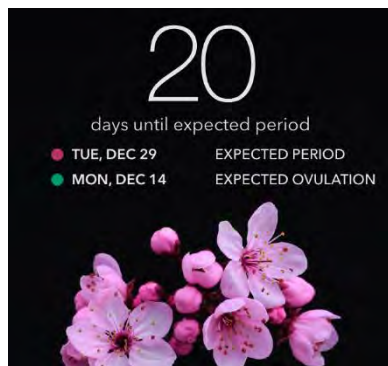
“it’s hard to find tools that work for me!
[Clue] uses gender neutral language...
it’s also not focused on pregnancy, which
I’m not interested in at all.”

“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

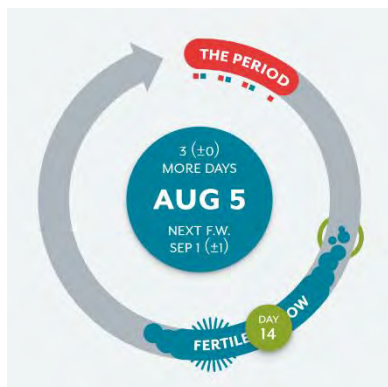


Life

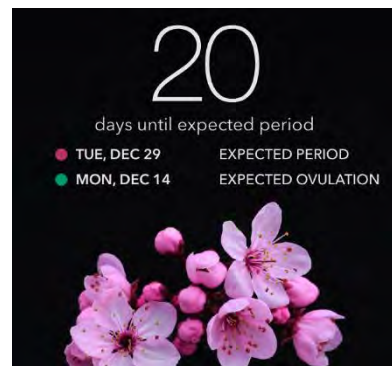
Designs often highlight ovulation information alongside the period

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

Diverse Needs and Menstruation



Clue

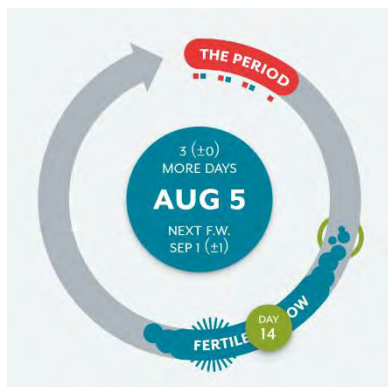


Life

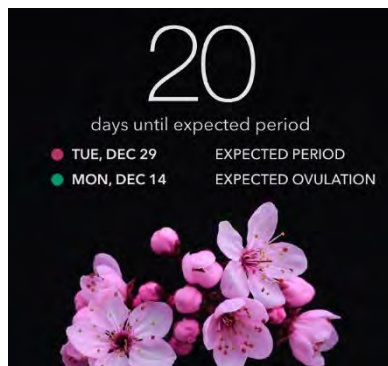
“when I was younger I used to just remember. When I started trying for a baby, it became important to know my fertile times.”

“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

CSE 440: Introduction to HCI

User Interface Design, Prototyping, and Evaluation

Lecture 14:
Designing for Diverse Needs

James Fogarty

Eunice Jun

David Wang

Elisabeth Chin

Ravi Karkar



Tuesday / Thursday

10:30 to 11:50