



Vietnam National University of HCMC
International University
School of Computer Science and Engineering



UI/UX Design & Evaluation

★ Medium-fidelity Prototypes★

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<https://vichithanh.github.io>



SCAN ME

Course Overview

1. Introduction to HCI
 2. Needfinding
 3. Analyzing and Synthesizing
 4. Prototyping
 5. Design Theory, Principles, and Guidelines
 6. Introduction to Prototyping
 7. Visual Design
 8. Human abilities and theoretical models
 9. Human abilities and theoretical models (cont.)
- 10. Medium-fidelity Prototypes**
11. Evaluation: overview. Heuristic evaluation
 12. Design Patterns
 13. High-fidelity Prototypes
 14. Designing for Diversity
 15. Usability Testing & Evaluation Methods
 16. Data Collection Techniques & Report Usability Test Results

Paper Prototypes

- A hand-drawn mock-up of the user interface (usually) on multiple sheets of paper of varying sizes



Materials

- Paper, Transparent paper
- Pens, Markers
- Post-It notes
- Glues, scotch tape, scissors
- Photocopies
- UI Stencils
- Reusable UI components
- Printouts of screenshots



Learnable Lessons From Paper Prototypes

Can Learn

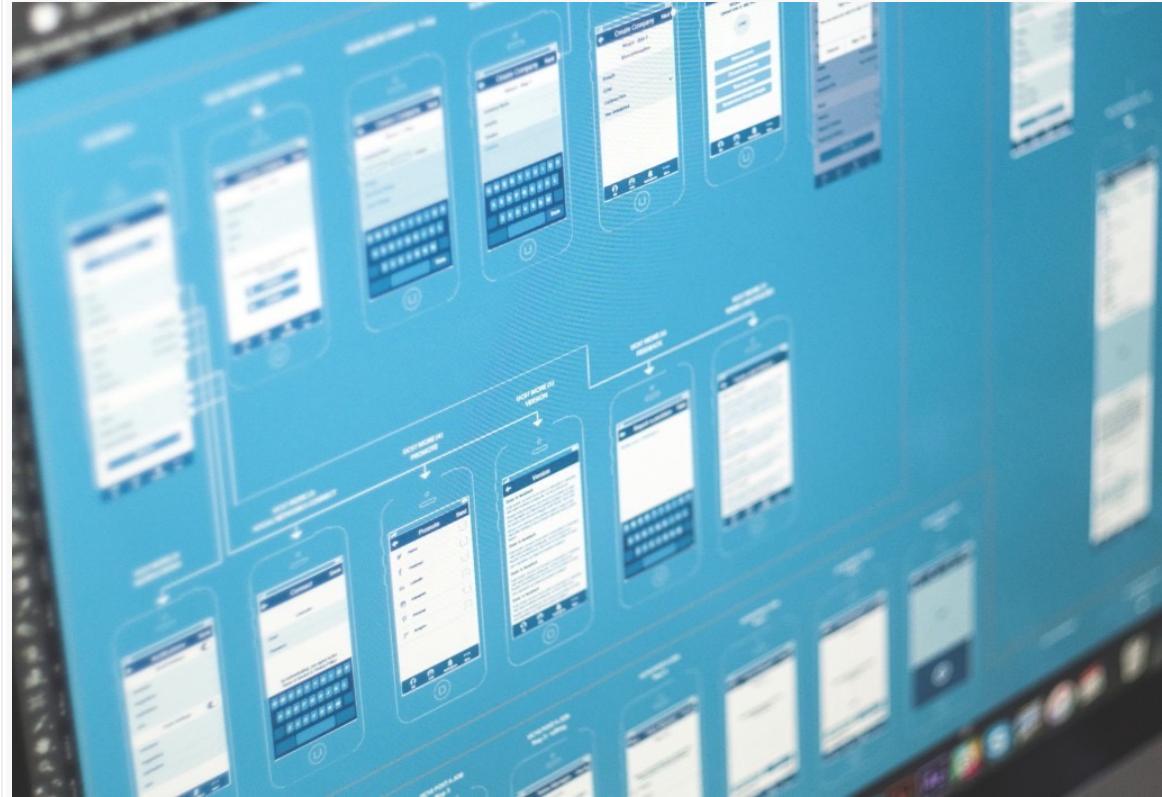
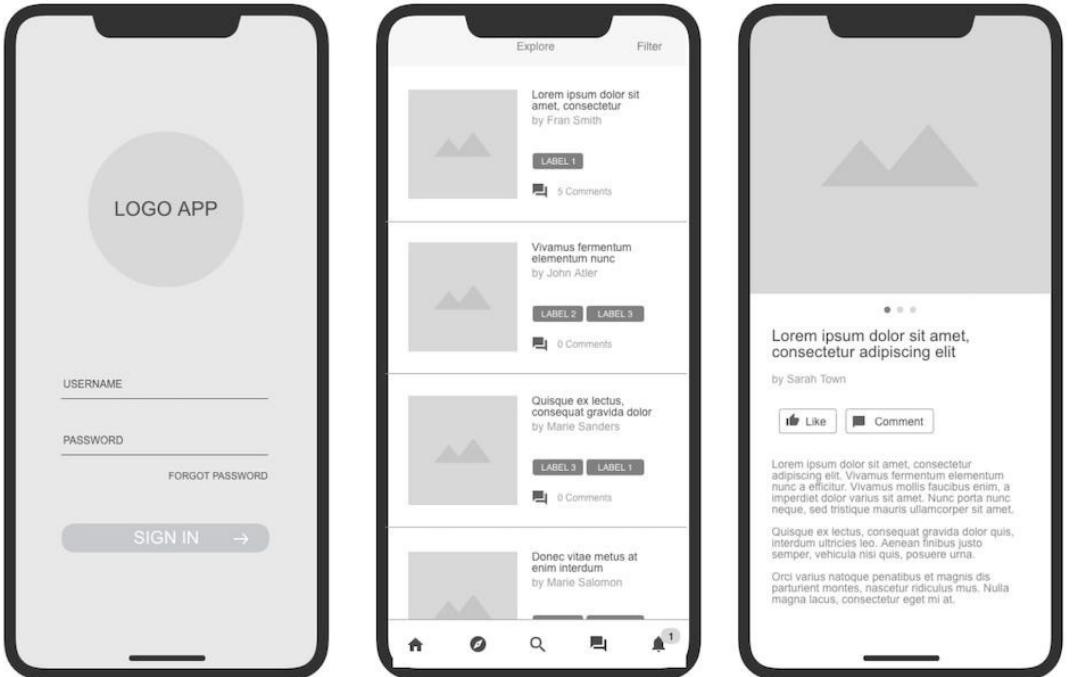
- Conceptual model
 - Do users understand it?
- Functionality
 - Does it do what's needed? Missing features?
- Navigation & task flow
 - Can users find their way around?
 - Are information preconditions met?
- Terminology
 - Do users understand labels?
- Screen contents
- What needs to go on the screen?

Cannot Learn

- Look: color, font, whitespace, etc
- Feel: efficiency issues
- Response time
- Are small changes noticed?
 - Even the tiniest change to a paper prototype is clearly visible to user
- Exploration vs. deliberation
 - Users are more deliberate with a paper prototype; they don't explore or thrash as much

Scott Klemmer, Storyboards, Paper Prototypes, and Mockups,
<https://youtu.be/z4glsttyxw8>

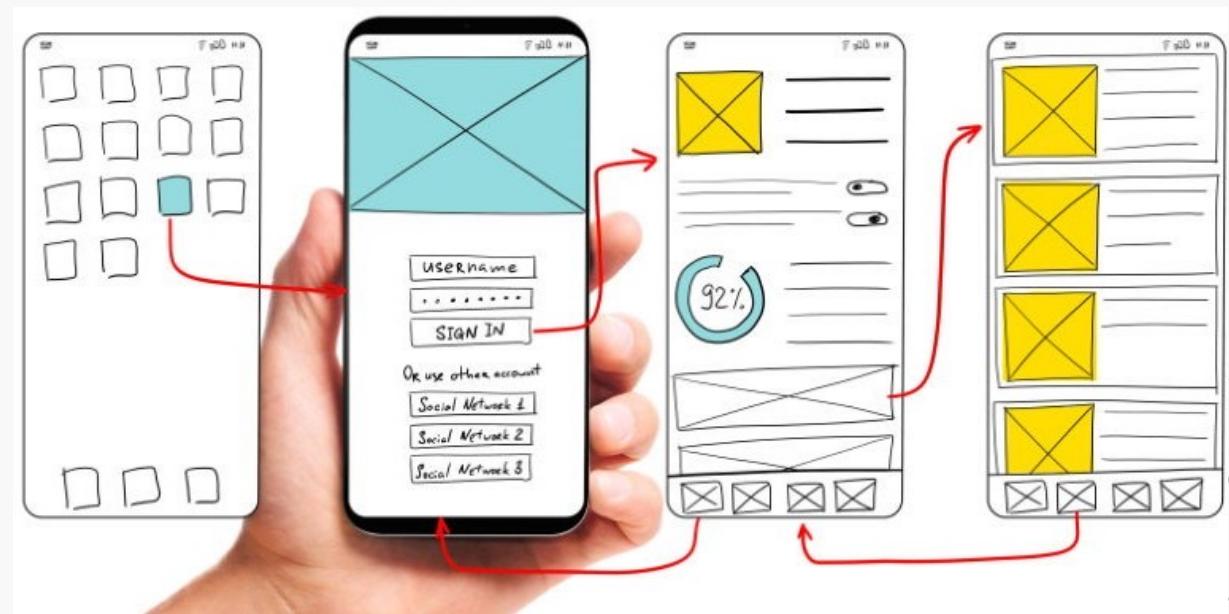
What is Information Architecture?



Wireframes (medium fidelity prototypes)

Why digital wireframes?

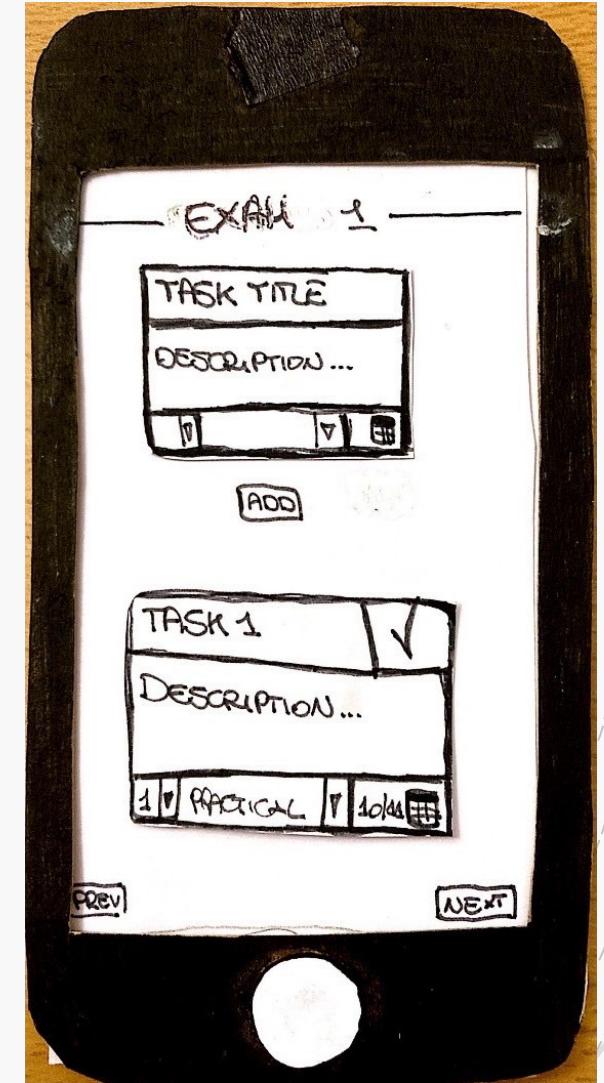
1. Visualise the structure clearly.
2. Clarify the features of interface.
3. Push usability to the forefront.
4. Make the design process iterative.
5. Save time and effort.
6. Make Content Development More Effective.



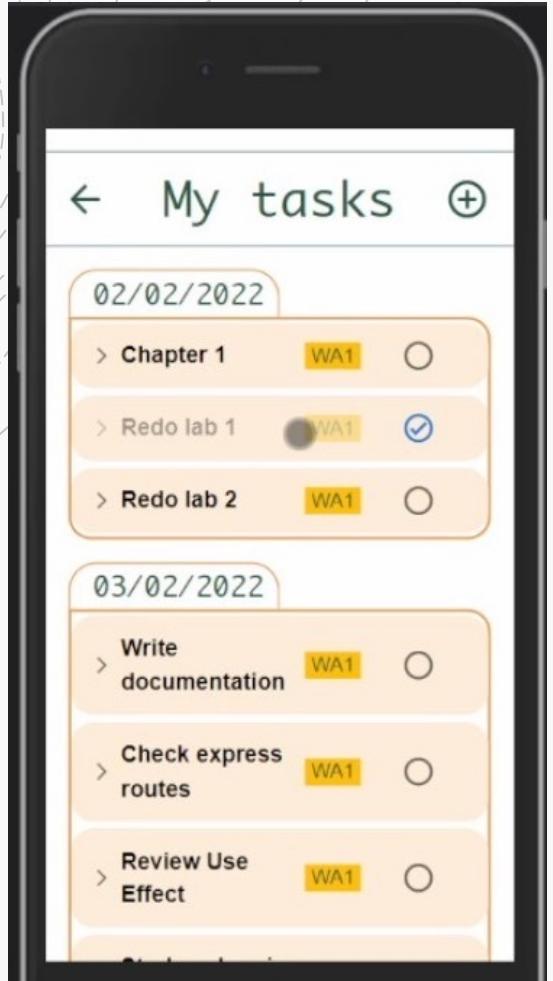
Low to High Fidelity Prototypes

Low-fi

- Lays out the *main* information, interactions, and design choices
- With many missing details



Low to High Fidelity Prototypes



Hi-fi

- It *looks like* the final product

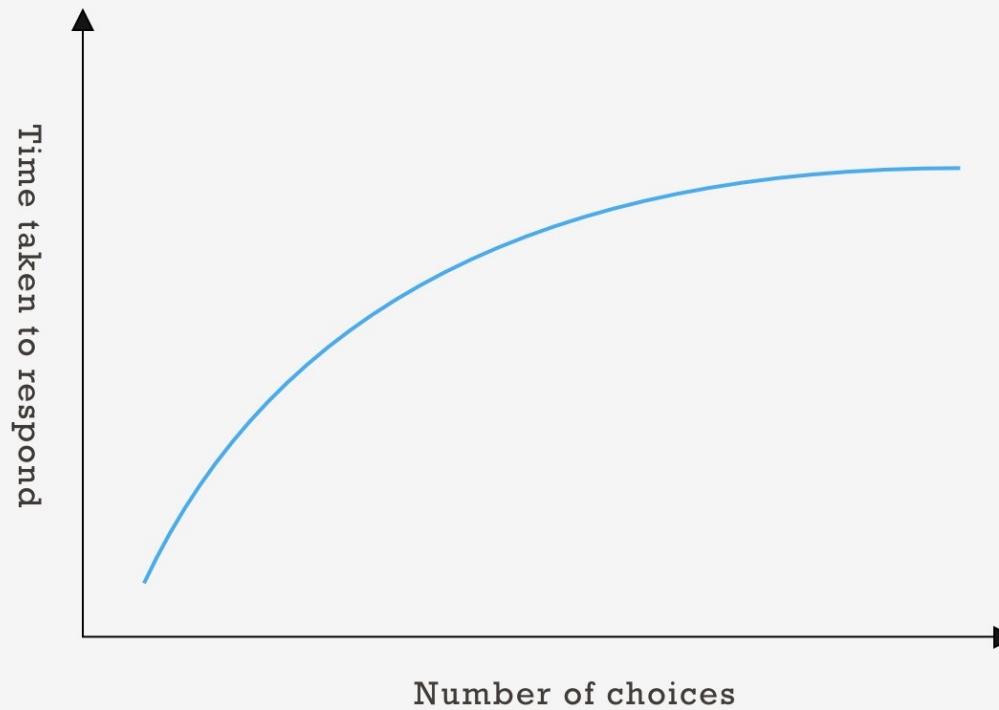
UX Laws applied to information architecture

<https://lawsofux.com/>

<https://builtformars.com/ux-glossary>

Hick's Law

- Hick's law states that the time to make a decision increases with the number and complexity of choices.



Hick's Law

How's your mood? X

Incredible!

Amazing

Great

Good

Fine

Ok

Meh

I've been better

Not so good

How's your mood? ✓

- Great
- Ok
- Not so good
- Bad

Hick's Law



Harder

- Mumbai
- New Delhi
- Bangalore
- Hyderabad
- Pune
- Kolkata
- Chennai
- Ahmedabad
- Jaipur
- Lucknow
- Chandigarh



Easier

- Mumbai
- New Delhi
- Bangalore
- Hyderabad

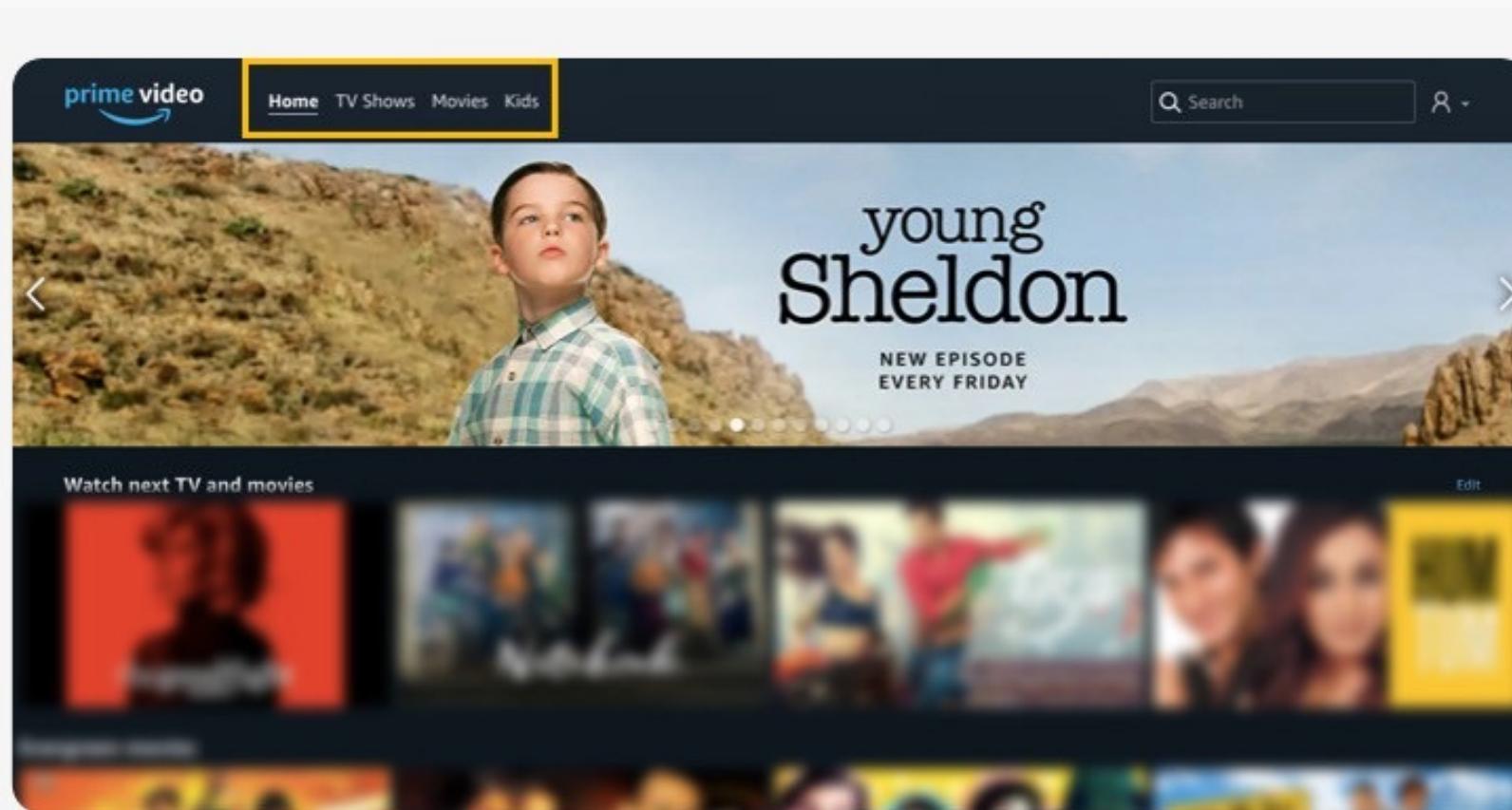
Pune

Easiest

- Mumbai
- New Delhi
- Bangalore
- Hyderabad
- Others

Miller's Law

- Miller's law states that an average human being can keep only a maximum of **7 items** in their working memory at a time.



Chunking information

Ice cream

Milk

Tomatoes

Eggs

Butter

Cupcakes

Frozen peas

Bagels

Cucumber

Cream

Banana

Frozen Foods

Ice cream

Frozen peas

Dairy

Milk

Eggs

Cream

Butter

Bakery

Cupcakes

Bagels

Fruits and Vegetables

Cucumber

Banana

Tomatoes



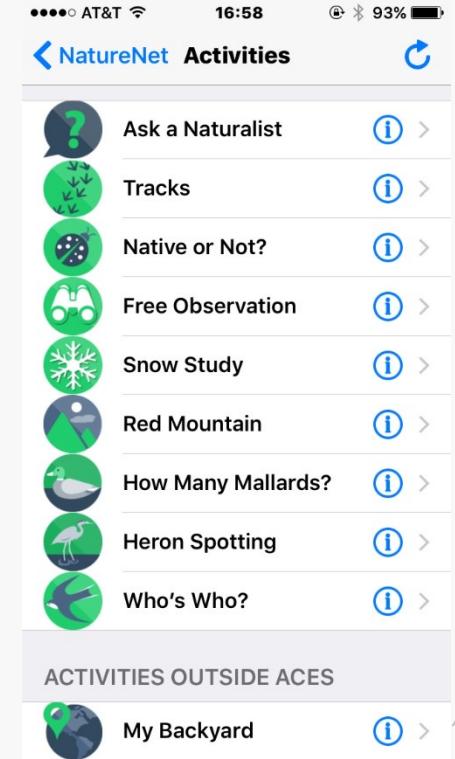
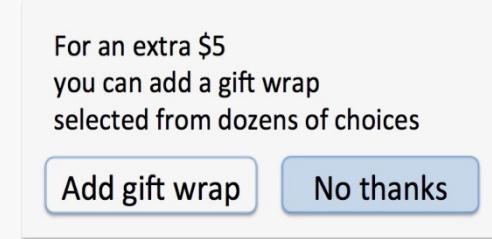
Reading and Navigating

Navigation

- Enables users to know where they are and to steer themselves to their intended destination
- Is about getting work done (or having fun) through a series of actions
- May consist of
 - **Task** navigation: successfully operating interactive applications, such as installing a mobile app, completing an on-line survey, or purchasing a ticket
 - **Web** navigation: finding information on a website or browsing social media
 - **Command menu** navigation: finding the action needed in a desktop application
- Has nothing to do with visual elegance / graphic shininess

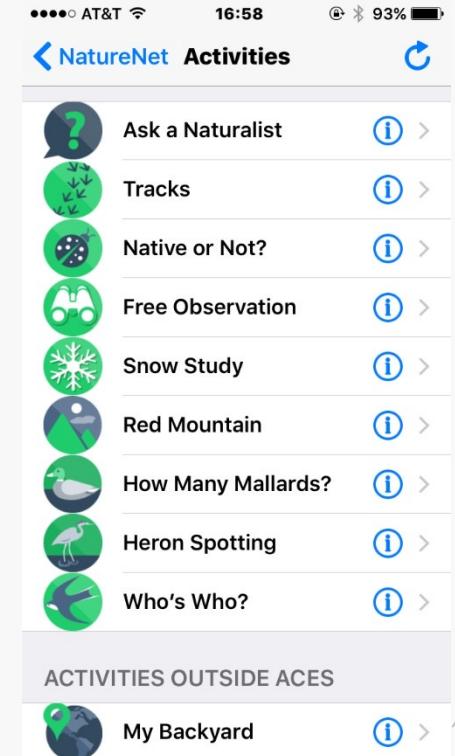
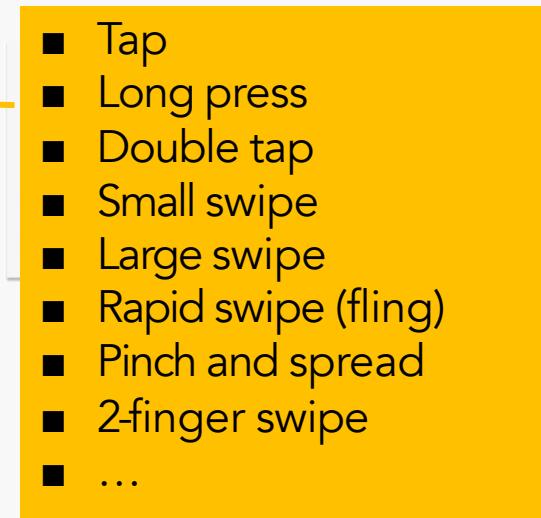
Navigation By Selection

- Menu bars, pop-up menus, toolbars, palettes and ribbons
- Shortcuts and gestures for rapid interaction
- Long lists
- Linear versus simultaneous presentation



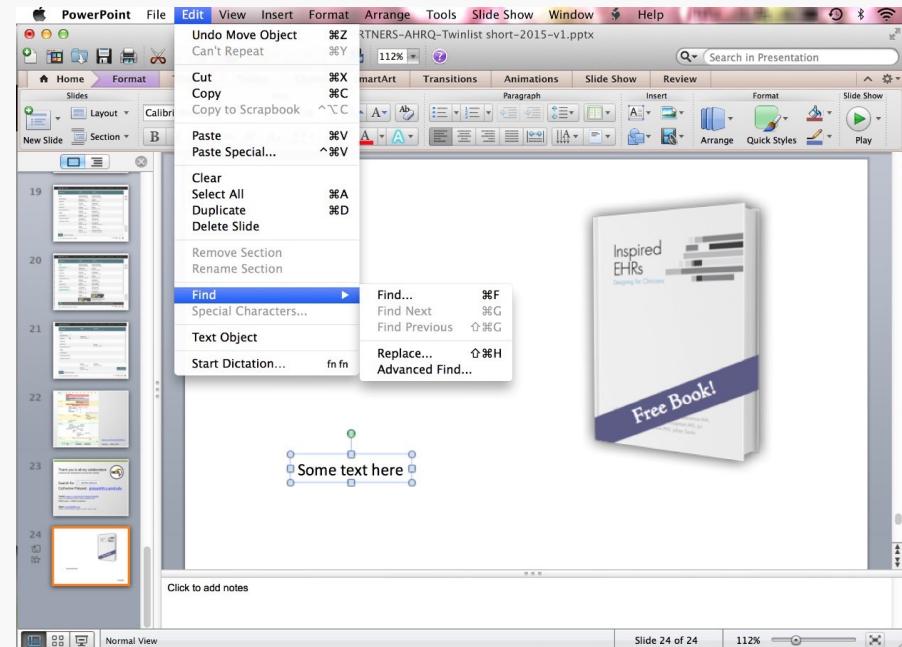
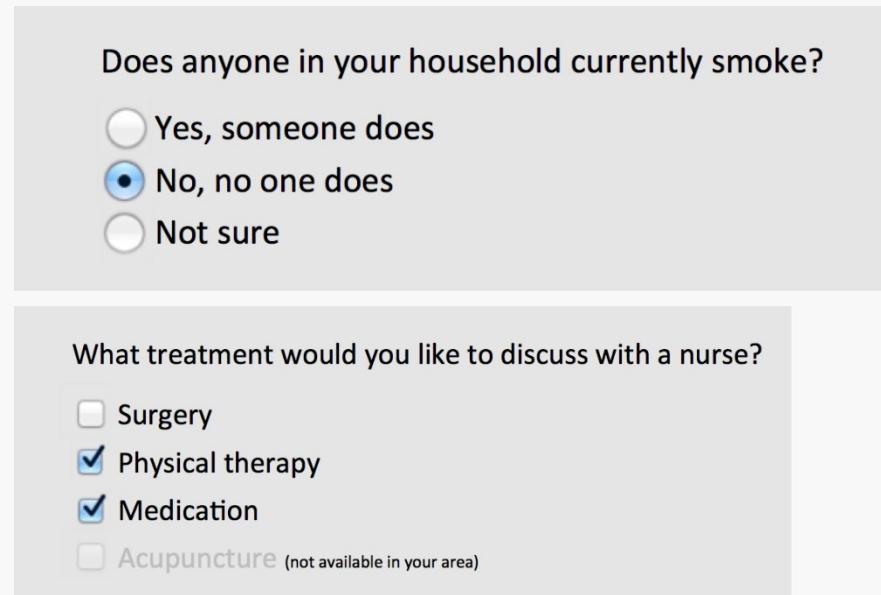
Navigation By Selection

- Menu bars, pop-up menus, toolbars, palettes and ribbons
- **Shortcuts and gestures for rapid interaction**
- Long lists
- Linear versus simultaneous presentation



Navigation By Selection

- Radio Buttons and Checkboxes
- Menu bars, pop-up menus, toolbars, palettes and ribbons



Menus

The screenshot shows the official NASA website homepage. At the top, there's a navigation bar with links to 'Missions', 'Galleries', 'NASA TV', 'Follow NASA', 'Downloads', 'About', and 'NASA Audiences'. Below the navigation is a search bar and a magnifying glass icon. A yellow horizontal bar highlights the 'NASA TV' link. The main content area features several video thumbnails and news cards. One prominent video thumbnail shows two men in a space station module. Another video thumbnail shows a landscape on Mars with a play button. News cards include: 'One-Year Crew Halfway There' (with an image of two men in a space station module), 'Good Morning From the International Space Station' (with an image of a space station at night), 'The Real Martians' (with an image of a Mars rover), 'Space Travel New Green Propellants Complete Milestones' (with an image of a rocket engine), 'Fire and Smoke Rough Fire Still Burning in California' (with an image of a wildfire), 'Real Martians Moment: We're Learning More!' (with a video thumbnail), and 'SDO Solar Mission SDO Catches an Earth-Moon Double Photobomb' (with a video thumbnail). To the right, there's a sidebar with a calendar, launch schedule, and a tweet from NASA about a 3D-printed habitat challenge. The footer contains the NASA logo, a statement about Brian Dunbar being the NASA Official, and links to 'No Fear Act', 'FOIA', 'Privacy', 'Office of Inspector General', 'Agency Financial Reports', and 'Contact NASA'.

This screenshot shows the 'NASA TV' section of the website. It features a large video player window showing two men in a space station module, identical to the one in the main homepage. Below the video player, there are two smaller images: one of three people working on a large piece of equipment, and another of three people in lab coats looking at a screen. The top navigation bar for this section includes 'NASA TV' and a magnifying glass icon.

Content Organization

- Organizing menus in a meaningful structure results in faster selection time and higher user satisfaction
- Approaches:
 - Linear sequence (e.g., in a wizard or survey)
 - Hierarchical structure (tree) that is natural and comprehensible (e.g., a store split into departments)
 - Network structure when choices may be reachable by more than one path (e.g., websites)

Tree-like Content Organization

SATURDAY 4 MAY 2024

▼ Help Wish List Gift Registry Classes & Events Store Locator 0 Checkout

Welcome to REI! | [Log In](#) or [Register](#)

FREE SHIPPING With \$50 minimum purchase.

SHOP REI **SHOP REI OUTLET** **TRAVEL WITH REI** **LEARN** **BLOG** **MEMBERSHIP** **STEWARDSHIP**

Camp & Hike Climb Cycle Fitness Run Paddle Snow Travel Men Women Kids Footwear More **Deals**

Bikes
Mountain Bikes
Road Bikes
Hybrid Bikes
Kids' Bikes

Bike Helmets
Road Helmets
Mountain Bike Helmets
Kids Helmets

Cycling Clothing
Jerseys
Jackets
Shorts
Tights and Pants
Accessories

Cycling Shoes
Road Shoes
Mountain Bike Shoes

Bike Accessories
Computers
Lights
Locks
Pumps
Racks
Trailers
Trainers

Bike Components
Brakes
Saddles/Seat Posts
Tires, Tubes and Wheels
Tools and Maintenance
Drivetrain Components
Pedals
Handlebars

Car Racks | [Novara Cycling](#) | [Cycling Deals](#) | [All Cycling](#)

Deals (31)

Features

- Moisture wicking (27)
- Quick drying (26)
- Sun-protective fabric (22)
- Waterproof (15)
- Insulated (11)
- Earflaps (6)
- Made in USA (5)

[See 8 More](#)

Brand

- Clear
- 686 (6)

 Find great gear and clothing


GIVE THE GIFT OF GEAR
ANYTIME, ANYWHERE
REI gift & e-gift cards
[Buy now ↗](#)






★★★★★ (1)
REI Rainwall Rain Jacket - Girls'
\$31.83 - \$64.50
[Compare](#)


★★★★★ (1)
REI Rainwall Rain Pants - Kids'
\$49.50
[Compare](#)


★★★★★ (9)
REI Sahara Convertible Pants - Girls'
\$44.50
[Compare](#)








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Rules for Tree-like Organization

- Use **task semantics** to organize menus
- Limit the **number of levels** (i.e., prefer broad-shallow to narrow-deep)
- Create groups of **logically similar** items: e.g., Level 1: countries, Level 2: states, Level 3: cities
- Form groups that **cover all possibilities**: e.g., Age ranges: [0-9] [10-19] [20-29] and [≥ 30]
- Make sure that items are **non-overlapping**: e.g., use “Concerts” and “Sports.” over “Entertainment” and “Events”
- Arrange items in each branch by **natural sequence** (not alphabetically) or group related items
- Keep **ordering** of items **fixed** (or possibly duplicate frequent items in dedicated section of the menu)

Example

1



Tool Prenotazioni

Selezionare l'ambito per il quale ci si intende prenotare

Ambiti per i quali è possibile effettuare una prenotazione

► Aule Studio

► Biblioteca

► Segreteria generale studenti

▼



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Aule Studio - Seleziona Aula Studio

► Sala studio al Secondo Piano di C.so Castelfidardo 39

► Sala studio sotto l'aula 7

▼



Tool Prenotazioni

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Turni disponibili - Aule Studio - Sala studio al Secondo Piano di C.so Castelfidardo 39

Legenda turni prenotazione

Disponibile Passato Non prenotabile Prenotazioni non attive Turno al quale sei prenotato

Tutti gli orari sono da intendersi espressi secondo il fuso orario italiano

A partire da giorno 15 luglio 2020, è consentito l'uso della seguente Sala Studio della Sede Centrale:

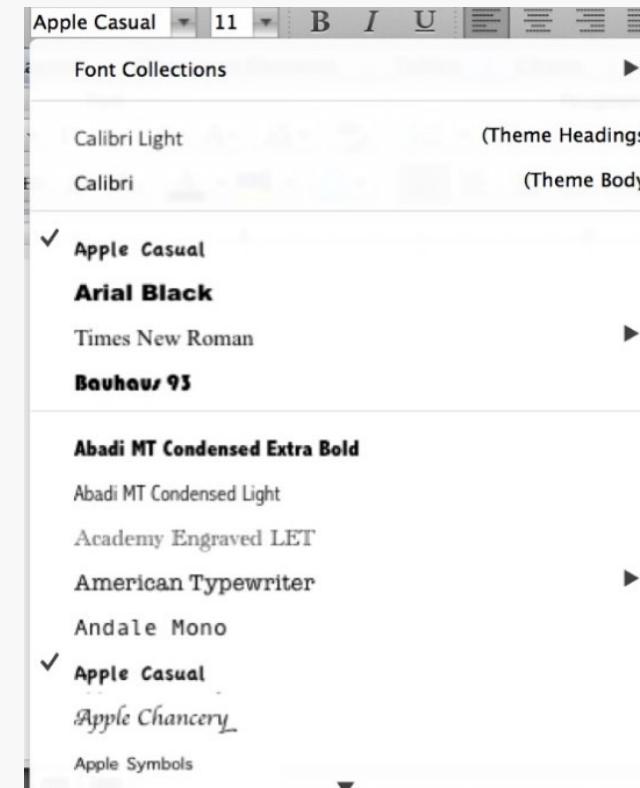
- Sala studio al Secondo Piano di C.so Castelfidardo 39, codice locale TO_CIT11_XP02_001

Le sale studio sono aperte dalle ore 9.00 alle ore 18.00 dal lunedì al venerdì. L'accesso sarà consentito su due turnazioni orarie, dalle ore 9.00 alle 13.00 e dalle ore 14.00 alle ore 18.00

14 Set 2020 - 18 Set 2020						1 giorno	3 giorni	Settimana lavorativa	Settimana
		Lunedì 14 Set 2020	Martedì 15 Set 2020	Mercoledì 16 Set 2020	Giovedì 17 Set 2020	Venerdì 18 Set 2020			
09:00	09:00 - 13:00 - prenotazioni: 36/36	09:00 - 13:00 - prenotazioni: 33/36	09:00 - 13:00 - prenotazioni: 36/36	09:00 - 13:00 - prenotazioni: 32/36	09:00 - 13:00 - prenotazioni: 35/36				
10:00									
11:00									
12:00									
13:00									

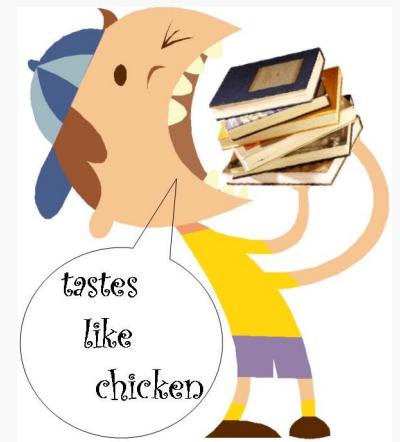
Menu Grouping: example

- 3 groups
 - Template styles
 - Frequently used fonts
 - All fonts
- Alphabetical order within each group
 - Lack of a semantic ordering
- Preview for recognition
- Scrollable list



Information Scent

- Informavores orient themselves using *information scent*
- How can we figure out how to get the information we want?
- Do we realize what options are available to us?
- Web pages (and UIs general) provide cues to suggest where to find information
 - Icons, Menus, Breadcrumbs, Color coding, ...



Informavore, an organism that consumes information

Poor Information Scent

- Users flailing around...
 - Do not know where to go
- Low confidence
 - Users are not sure of their actions, both before executing it and after they see its effects
- Back button
 - When it's used too often...

Example

The screenshot shows the homepage of the Politecnico di Torino Teaching portal. The header features the university's logo and navigation links for The Politecnico, Teaching, Research, Business, and International Campus. It also includes language selection (ITA | ENG), login, and search functions.

Teaching portal

The main content area is organized into several colored boxes:

- Course catalogue**: Course catalogue, curricula, course syllabi. Special projects: Young Talent Project and Alta Scuola Politecnica.
- Student Guide**: Find the Student Guide of your degree programme.
- Student services**: Exam dates, course finder, lecture rooms, libraries, course timetables, Language Centre, thesis proposals, support services, cultural activities and much more.
- Notice board**: News and events from the Office of the University Registrar, the Office of Student Services and the various degree programmes.
- Apply@polito**: Politecnico di Torino online application service (all levels and programmes).
- Orientation**: Choosing your degree programme, application information and services for PoliTO and high school students.
- Fees, scholarships and prizes**: Tuition fees and reductions, IELTS payment policy, scholarships and financial aid, part-time on-campus jobs, university residences and much more.
- Study abroad**: International mobility for students, faculty and staff, calls for applications for study periods at foreign universities, thesis and internships abroad, teaching mobility, international.
- News - events - notices**: For further informations click here.
- Career service**: Internships and job placements for students and graduates, recruiting services for employers.
- Graduates**: State examination for professional practice, alumni, Almalaurea.
- Regulations / Student discipline**: Regulations, Disciplinary Board.
- Teaching Quality Assurance**: Teaching Quality Assurance, Joint Committee on Teaching, regional accreditation.

At the bottom, there are links for Posta Studenti (email, LUN-VEN 9:00-13:00, 011-8907965), Ente Regionale per il Diritto allo Studio Universitario, Contact us, Lezioni online demo, Osservatorio regionale per l'università e gli studi universitari, POLITECNICO DI TORINO, PoliTO App, and social media icons (Facebook, YouTube, Instagram).

Contacts

© Politecnico di Torino
Corso Duca degli Abruzzi, 24 - 10129 Torino, ITALY

Example

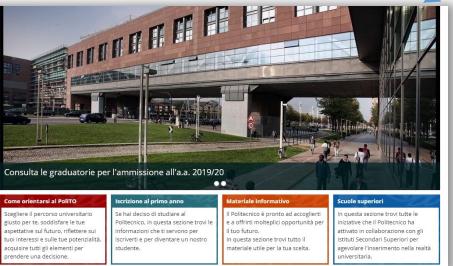
Bachelor's degree programmes	Young Talent Project
Master's degree programmes	Alta Scuola Politecnica
Specializing Master's programmes and Lifelong Learning	Ph.D. programmes
Curricula and course syllabi of current and previous years	Postgraduate School

Welcome to Apply@polito - the online application service of the Politecnico di Torino

- Bachelor Italian students
- M.S. Italian students
- Students with a foreign qualification
- Ph. D
- Specializing master
- Exchange programmes
- State exams

News - Events

Online application form
Privacy - Information
Forgot your password?



STUDENTS & GRADUATES Check all the opportunities to build your career

EMPLOYERS Find out how to get in touch with our talents

HIGHLIGHTS:

Giovedì 07 Novembre 2019 ore 17:30 - Aula 4P TECH TALK VISHAY L'evoluzione della E-Mobility

VIDEO GALLERY:

LA BELLEZZA DI FARE IMPRESA Job Fair@Polto under 250 | La bellezza di fare impresa

Career Day 2018 | I consigli delle aziende per il colloquio di lavoro

Career Day 2018 | L'importanza delle esperienze cumulativa

STUDENT GUIDE (2019 - 2020)

Area Course

Architecture Bachelor's degree programme in ARCHITECTURE Location: Torino - Class: ARCHITECTURE

Architecture Bachelor's degree programme in ARCHITECTURE Location: Torino - Class: ARCHITECTURE

Architecture Bachelor's degree programme in DESIGN AND COMMUNICATION Location: Torino - Class: INDUSTRIAL DESIGN

Architecture Bachelor's degree programme in DESIGN AND VISUAL COMMUNICATION Location: Torino - Class: INDUSTRIAL DESIGN

Architecture Bachelor's degree programme in DESIGN AND VISUAL COMMUNICATION Location: Torino - Class: INDUSTRIAL DESIGN

Architecture Bachelor's degree programme in TERRITORIAL, URBAN, ENVIRONMENTAL AND LANDSCAPE PLANNING Location: Torino - Class: TOWN, REGIONAL AND ENVIRONMENTAL PLANNING

Architecture Bachelor's degree programme in ARCHITECTURE CONSTRUCTION CITY Location: Torino - Class: ARCHITECTURE AND ARCHITECTURAL ENGINEERING

Architecture Bachelor's degree programme in ARCHITECTURE FOR THE SUSTAINABILITY DESIGN Location: Torino - Class: ARCHITECTURE AND ARCHITECTURAL ENGINEERING

Architecture Bachelor's degree programme in ARCHITECTURE HERITAGE PRESERVATION AND ENHANCEMENT Location: Torino - Class: ARCHITECTURE AND ARCHITECTURAL ENGINEERING

Architecture Bachelor's degree programme in ECODESIGN Location: Torino - Class: DESIGN

Architecture Bachelor's degree programme in SYSTEMIC DESIGN Location: Torino - Class: DESIGN

Architecture Bachelor's degree programme in TERRITORIAL, URBAN, ENVIRONMENTAL AND LANDSCAPE PLANNING Location: Torino - Class: REGIONAL, URBAN AND ENVIRONMENTAL PLANNING

Engineering Bachelor's degree programme in AEROSPACE ENGINEERING Location: Torino - Class: INDUSTRIAL ENGINEERING

Course catalogue Courses, credits, specific course syllabi. Special projects: Young Talent Project and Alta Scuola Politecnica.

Student Guide Find the Student Guide of your degree programme.

Apply@polito Politecnico di Torino online application service (degrees and programmes).

Orientation Choosing your degree programme, application information and services for Polito and high school students.

News - events - notices

Regulations / Student discipline

Teaching Quality Assurance

Fees and Reductions

Part-time Collaborations

Halls of residence

Researching activity announcements

Scholarships and prizes

External Institutions' announcements

News - events - notices

Exam dates	Course finder	C.L.A. Language Center	Course Timetables
Thesis proposals	Support services	Research Labs	Campus maps
Student teams	Register of student societies	Libraries	Study rooms
Student projects	Donations (5X1000)	University residences	Free room finder
Mobility and Cultural	Sports activities	Polito Wi-Fi	

Teaching portal

Generale

Studenti

Area dell'Architettura

Area dell'Ingegneria

Area dell'Ingegneria

Area dell'Ingegneria

AlmaLaurea

Esami di stato

Ex allievi

Certificati e autocertificazioni

Example

Survey@Polito

Administration -- Logged in as: **corno**

Surveys: Smart Home Survey

Survey Smart Home Survey (ID:365355)

Title: Smart Home Survey (ID 365355)
Survey URL (English): <https://survey.polito.it/365355/lang-en>

Description: This very short survey aims at exploring the future and expected user interaction between user and smart environments, in particular smart homes. The research goal is to update, and compare, the research findings of a similar survey held in year 2010 (5 years ago). The expected completion time for this survey is 5 minutes or less.

Welcome: Thank you for agreeing to take part in this survey. All the answers you give are anonymous, and the data-set will be released as open data after the survey ends. You may choose to reply in any of the supported languages, preferably your mother tongue.

End message: Thanks for completing the survey. The results will be available on the website <http://elite.polito.it/2380988/> The paper describing the previous survey (in 2010) is available at: <http://porto.polito.it/2380988/>

Administrator: Fulvio Corno (fulvio.corno@polito.it)

Start date/time: -

Expiry date/time: -

Template: default

Base language: English

Additional languages: French
German
Italian
Portuguese
Spanish

End URL: e-Lite research group webpage

Number of questions/groups: 11/3

Survey currently active: Yes

Survey table name: beta_survey_365355

Hints: Answers to this survey are anonymized.
It is presented group by group.
Participants can save partially finished surveys
Basic email notification is sent to: fulvio.corno@gmail.com
Regenerate question codes: [\[Straight\]](#) [\[By group\]](#)

LimeSurvey Version 1.92+ Build 120919

Common Problems

- Unexpected categories
- Short links
- Hidden navigation
- Icons are too generic, or not easily recognizable

Icons

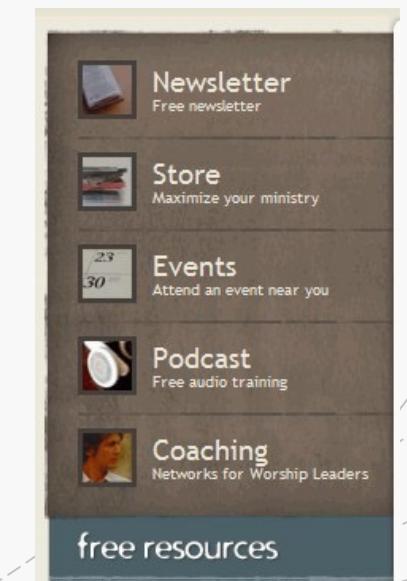
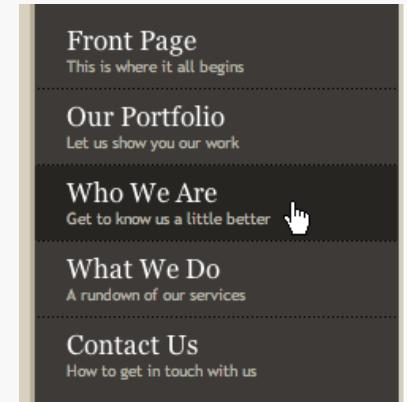
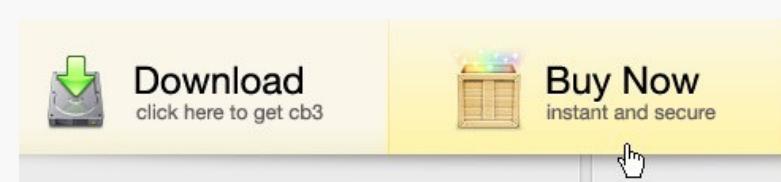
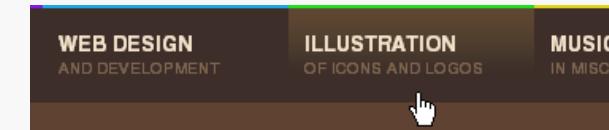
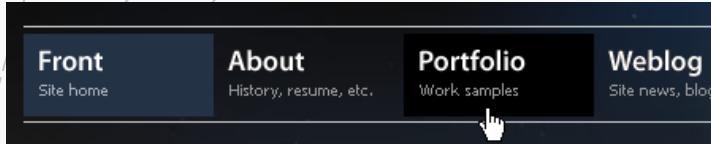
- Icons facilitate recognition over recall
 - When they are consistently used, and frequently visible
 - Redundant coding helps recognition and memorization
 - Icon + Text + Tooltip + Context



Links

- Always use multi-word links
 - Download the [next assignment template](#)
 - Assignment template: click [here](#)
- Straight language, not jargon
 - [Scor-o-matic](#) download
 - Download the [spreadsheet for computing scores](#)

“Speaking” block navigation



Forms

- Logical field grouping
 - Sections
 - Dividers
 - Columns (spacing)
 - Titles
- Real-time error checking and validation feedback
 - Suggestions for correction
- Explicit submit button

Create an IEEE Account [?](#) [X](#)

* Required field

Provide your personal information

* Given/First name: Catherine

Middle name:

* Last/Family/Surname: Plaisant

Enter e-mail address & password

The e-mail provided here will be the username of your account.

* E-mail address: cplaisant@

* Re-enter e-mail address:

* Password: Your password is good

* Confirm password:

⚠ The e-mail address provided is not in a valid e-mail format (for example: j.doe@nomail.com). Please try again.

Passwords must be between 8 and 64 characters, and include at least one number. [More...](#)

Set security questions

For your security, IEEE Accounts are required to have two security questions and answers.

* Security question 1:
Select

* Type your answer:

* Security question 2:
Select

* Type your answer:

[Privacy & Opting Out of Cookies](#)

[Create Account and Continue Joining](#) [Cancel](#)

Form Elements and UI Elements

Home > Folder Index Page > Page You're On

The collage illustrates a variety of user interface elements:

- Text input fields**: Let you input text.
- Checkboxes**: NonFederal (99) and Federal (57).
- Radio buttons**: Yes and No.
- Dropdowns**: Find your state or... Go.
- Date pickers**: SEP 18th 2010, JUN 22, Sep. 2010 calendar.
- Social sharing**: Send, Post, Tweet buttons.
- Buttons**: ON OFF switch.
- List boxes**: Are like dropdowns, But they let you make multiple selections, Like checkboxes do.
- Navigation**: General Settings, Your Profile, Sign Out.
- Menu Item**: Messages 1 About Us.
- Image gallery**: A grid of five placeholder images with arrows for navigation.
- Tags**: Costs (72), Health Conditions (54), Improving Care (53), Prevention (50), Rights, Protections and Benefits (135), Insurance Coverage (141).
- Search**: Navigation Crystal Clear, Navigation Menu, Navigation Soft Style, Navigation Glass, Navigation Plastic.
- Search**: Enter Keywords, Search Option One, Search Option Two, Search Option Three.
- Search**: Enter Keywords, Category, SEARCH.
- Search**: Search, Everything, Entries, Photos, Videos, Audio.
- Progress**: A horizontal progress bar with three segments labeled 1, 2, 3.
- Progress**: A horizontal progress bar with five segments labeled 1, 2, 3, 4, 5.
- Progress**: 1. Skills, 2. Location, 3. Finish.
- Progress**: 1 Step Select your plan, 2 Step Select your goal, 3 Step Select your plan.
- Text**: This is a box. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Fusce metus. Pellentesque sit amet velit. Phasellus non quam. Nulla diam purus, tristique quis, eleifend ac, molestie eu, sapien. Vestibulum ante ipsum primis. Vestibulum ante ipsum primis.
- Text**: READ MORE.
- Text**: https://www.usability.gov/how-to-and-tools/methods/user-interface-elements.html

Reading Content

Organizing text and content for maximum visibility

Reading Content

“How people
read on-line?”

“They don’t”

How Users Read on the Web by Jakob Nielsen on September 30, 1997
<https://www.nngroup.com/articles/how-users-read-on-the-web/>

Eye Tracking



- Observe eye movements
 - One or more cameras
 - Usually in infrared
- Infer where the user was looking (on the screen)
- Record the positions where your gaze will go
- Combine observations from many users

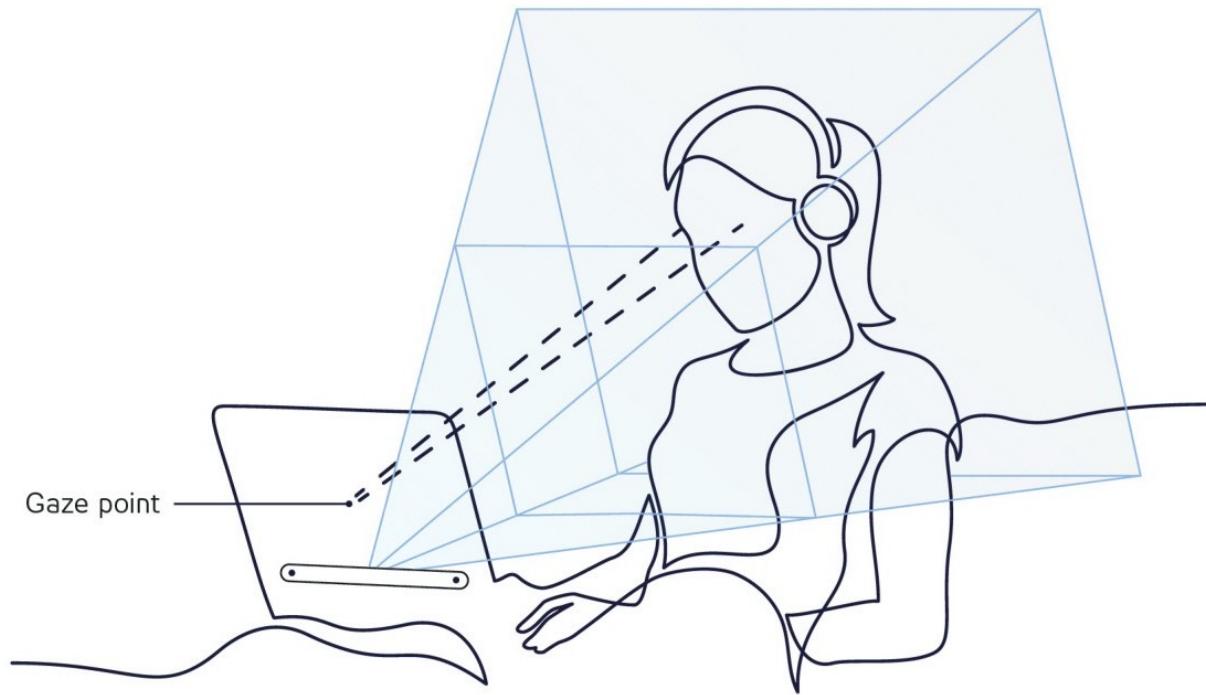
Eye Trackers



Source: <https://www.tobii.com>

Eye Tracker: How It Works

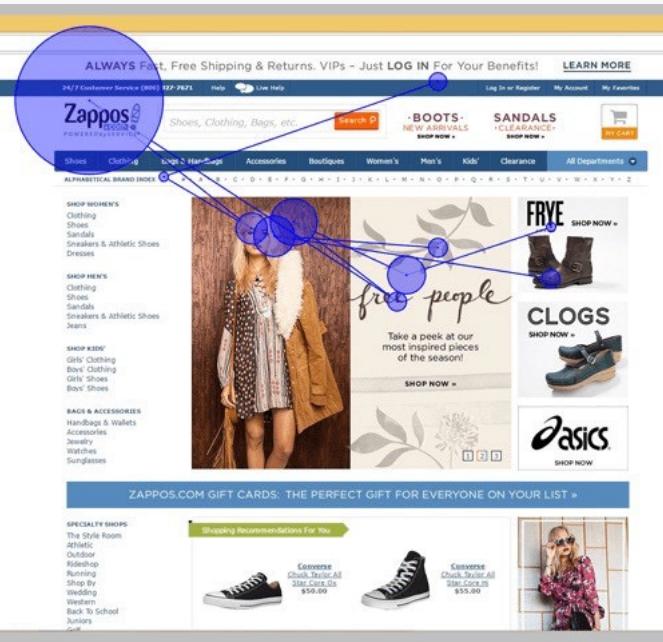
- 1** An eye tracker consists of cameras, projectors and algorithms.
- 2** The projectors create a pattern of near-infrared light on the eyes.
- 3** The cameras take high-resolution images of the user's eyes and the pattern.
- 4** Machine learning, image processing and mathematical algorithms are used to determine the eyes' position and gaze point.



Source: <https://www.tobii.com/group/about/this-is-eye-tracking/>

Eye Tracker: Examples

Beware the Midas' Touch!

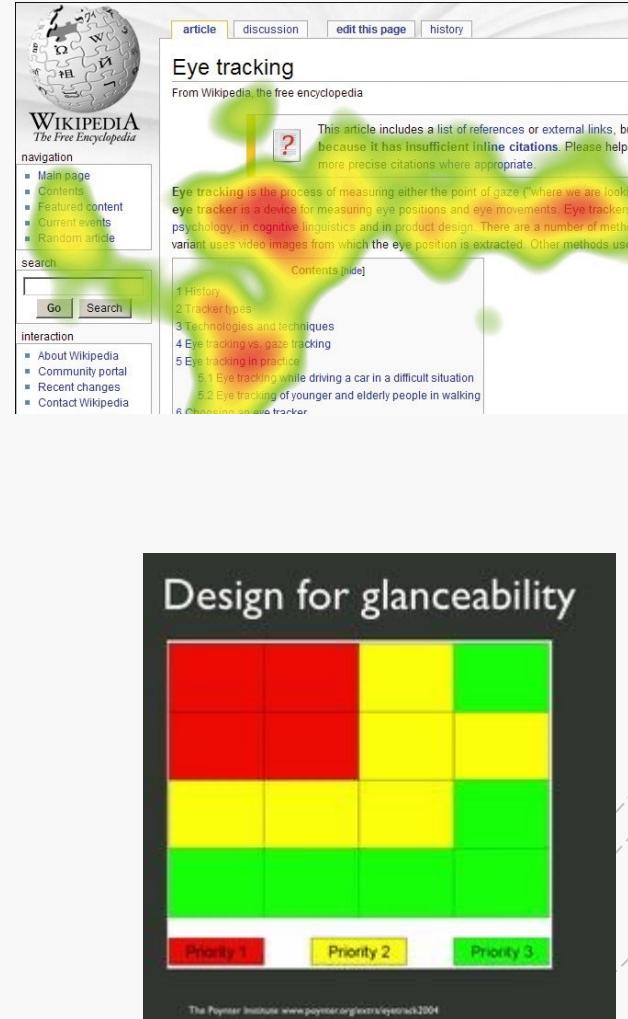
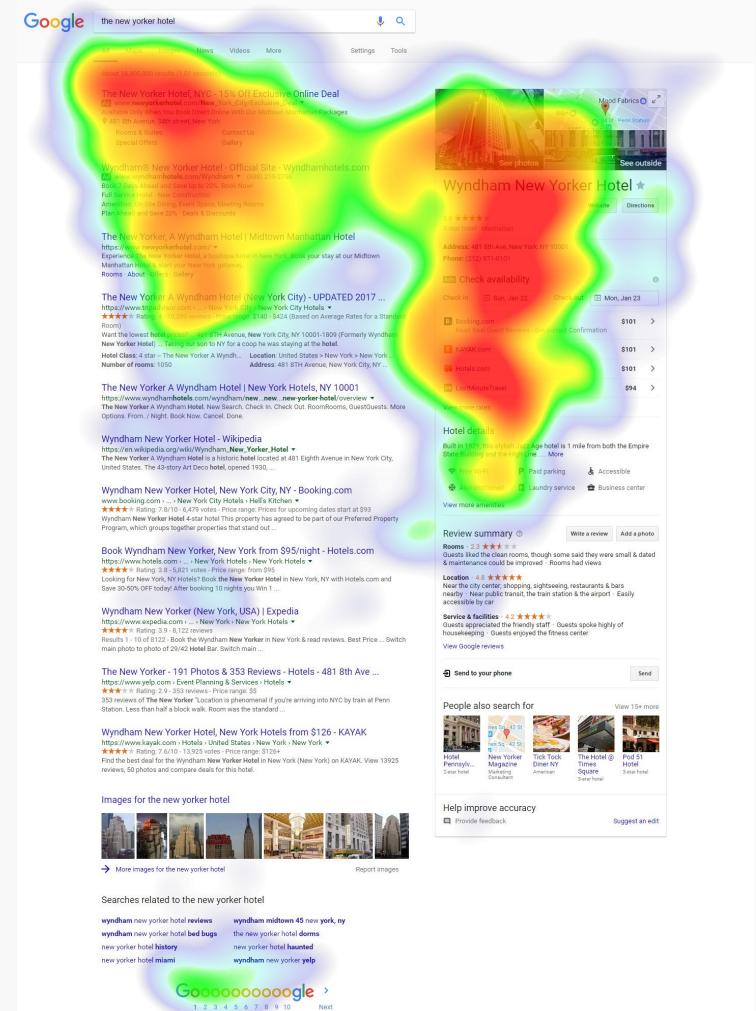


The image shows the Windows 10 Eye Control Settings dialog box. The 'Activation method' section is highlighted with a red arrow pointing to the 'Dwell' button, which is set to 'On'. Other options include 'Switch' and 'Advanced Settings'. The dialog also includes sections for 'Gaze cursor', 'Shape writing', 'Advanced mouse', and 'Show help pop ups', each with its own toggle switch. At the bottom are buttons for 'Restore Defaults', 'Help', 'Apply settings', and 'Test settings'.

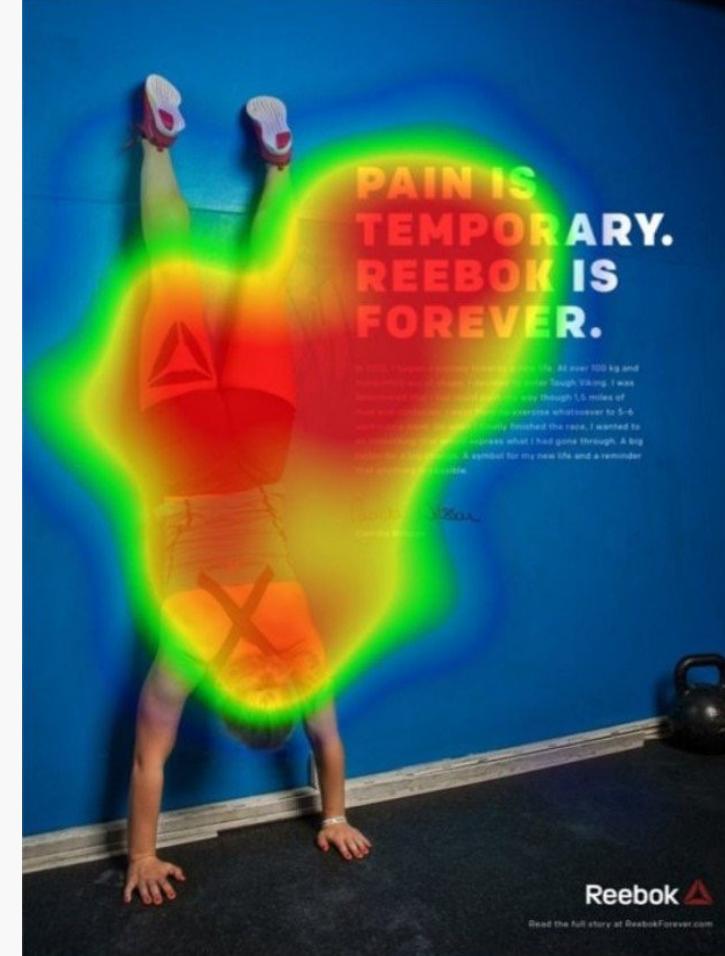
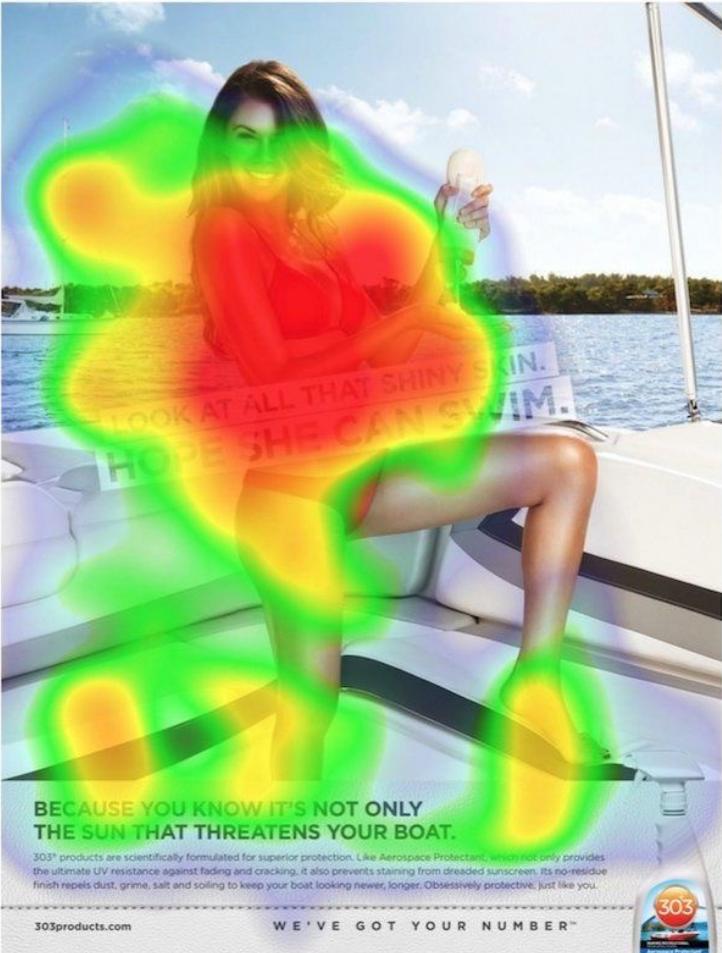
Windows 10 Eye Control Settings

Location on the Page

- Eye tracking studies show where the users actually look on the page
- Search “eye tracking heat map” and see the major patterns
- Users “glance” and spend limited amount of time on each page.
- F-shaped pattern



Did Anyone Ever Look at the Product Name?



Scanning

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Experiment

Site Version	Sample Paragraph	Usability Improvement (relative to control condition)
Promotional writing (control condition) using the "marketease" found on many commercial websites	Nebraska is filled with internationally recognized attractions that draw large crowds of people every year, without fail. In 1996, some of the most popular places were Fort Robinson State Park (355,000 visitors), Scotts Bluff National Monument (132,166), Arbor Lodge State Historical Park & Museum (100,000), Carhenge (86,598), Stuhr Museum of the Prairie Pioneer (60,002), and Buffalo Bill Ranch State Historical Park (28,446).	0% (baseline)
Concise text with about half the word count as the control condition	In 1996, six of the best-attended attractions in Nebraska were Fort Robinson State Park, Scotts Bluff National Monument, Arbor Lodge State Historical Park & Museum, Carhenge, Stuhr Museum of the Prairie Pioneer, and Buffalo Bill Ranch State Historical Park.	+58%
Scannable layout using the same text as the control condition in a layout that facilitated scanning	Nebraska is filled with internationally recognized attractions that draw large crowds of people every year, without fail. In 1996, some of the most popular places were: <ul style="list-style-type: none"> •Fort Robinson State Park (355,000 visitors) •Scotts Bluff National Monument (132,166) •Arbor Lodge State Historical Park & Museum (100,000) •Carhenge (86,598) •Stuhr Museum of the Prairie Pioneer (60,002) •Buffalo Bill Ranch State Historical Park (28,446). 	+47%
Objective language using neutral rather than subjective, boastful, or exaggerated language (otherwise the same as the control condition)	Nebraska has several attractions. In 1996, some of the most-visited places were Fort Robinson State Park (355,000 visitors), Scotts Bluff National Monument (132,166), Arbor Lodge State Historical Park & Museum (100,000), Carhenge (86,598), Stuhr Museum of the Prairie Pioneer (60,002), and Buffalo Bill Ranch State Historical Park (28,446).	+27%
Combined version using all three improvements in writing style together: concise, scannable, and objective	In 1996, six of the most-visited places in Nebraska were: <ul style="list-style-type: none"> •Fort Robinson State Park •Scotts Bluff National Monument •Arbor Lodge State Historical Park & Museum •Carhenge •Stuhr Museum of the Prairie Pioneer •Buffalo Bill Ranch State Historical Park 	+124%

Best Locations to Put Content

- Above the fold
 - Prioritize, do not cram
- Where people expect
 - Where other pages put similar content
 - **Not** where the ads usually go
- Users will scroll down if the first content is interesting

Banner Blindness

- The brain learns to avoid uninteresting content
- Banners and Advertisements are recognized subconsciously (by their appearance) and are never considered
 - Ads also “poison” adjacent elements
- Lesson learned: never create a message / title / warning / etc. that might look like an ad. (Faux ads)



References and Acknowledgment

- Scott MacKenzie: Human-Computer Interaction - An Empirical Research Perspective, Morgan Kaufmann
 - Chapter 3: Interaction Elements
- Ben Shneiderman, Catherine Plaisant, Maxine S. Cohen, Steven M. Jacobs, and Niklas Elmquist, Designing the User Interface: Strategies for Effective Human-Computer Interaction
 - Chapter 8: Fluid Navigation
- COGS120/CSE170: Human-Computer Interaction Design, videos by Scott Klemmer,
https://www.youtube.com/playlist?list=PLLssT5z_DsK_nusHL_Mjt87THSTIgrsyJ



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THANK YOU

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<https://vichithanh.github.io>



SCAN ME