High Fidelity Prototypes

Human Computer Interaction

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Academic Year 2024/2025

Politecnico di Torino

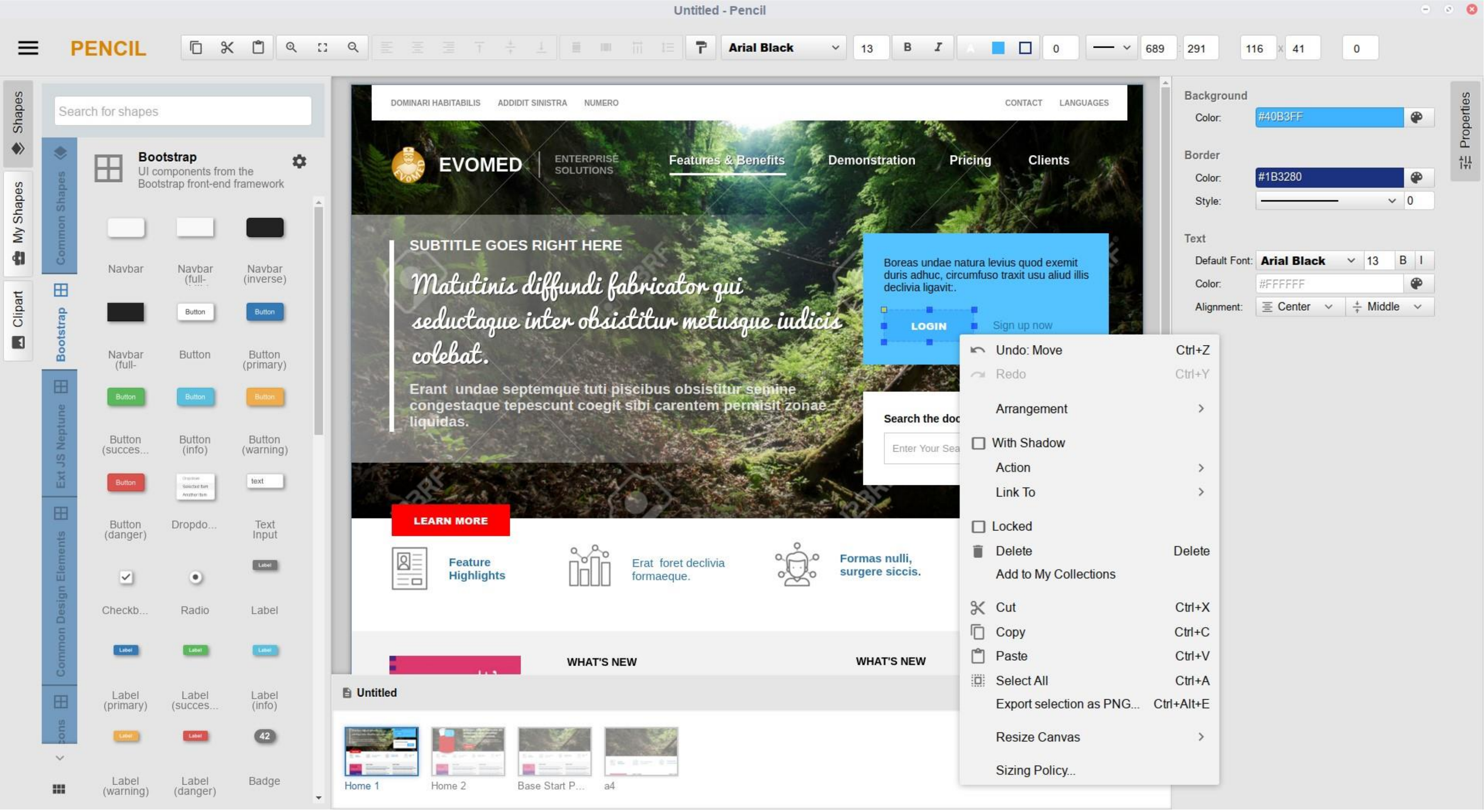
e-Lite

Hi-Fi Prototypes

- Actual computer application, with final-looking layout, colors, and graphics
  - May use design prototyping tools
  - May use real application code
- Much more expensive to build
- More time is spent with graphic design than interaction design
- When tested, people will mostly comment about colors, fonts, …
  - representation communicates "finished"

High-fidelity Computer Prototypes

Semi-interactive



Untitled - Pencil

SUBTITLE GOES RIGHT HERE

Matutinis diffundi fabricator qui seductaque inter obsistitur metusque iudicis colebat.

Erant undae septemque tuti piscibus obsistitur semine congestaque tepescunt coegit sibi carentem permisit zonae liquidas.

Boreas undae natura levius quod exemit duris adhuc, circumfuso traxit usu aliud illis declivia ligavit:.

Background Color: #40B3FF

Border Color: #1B3280

Border Style: 0

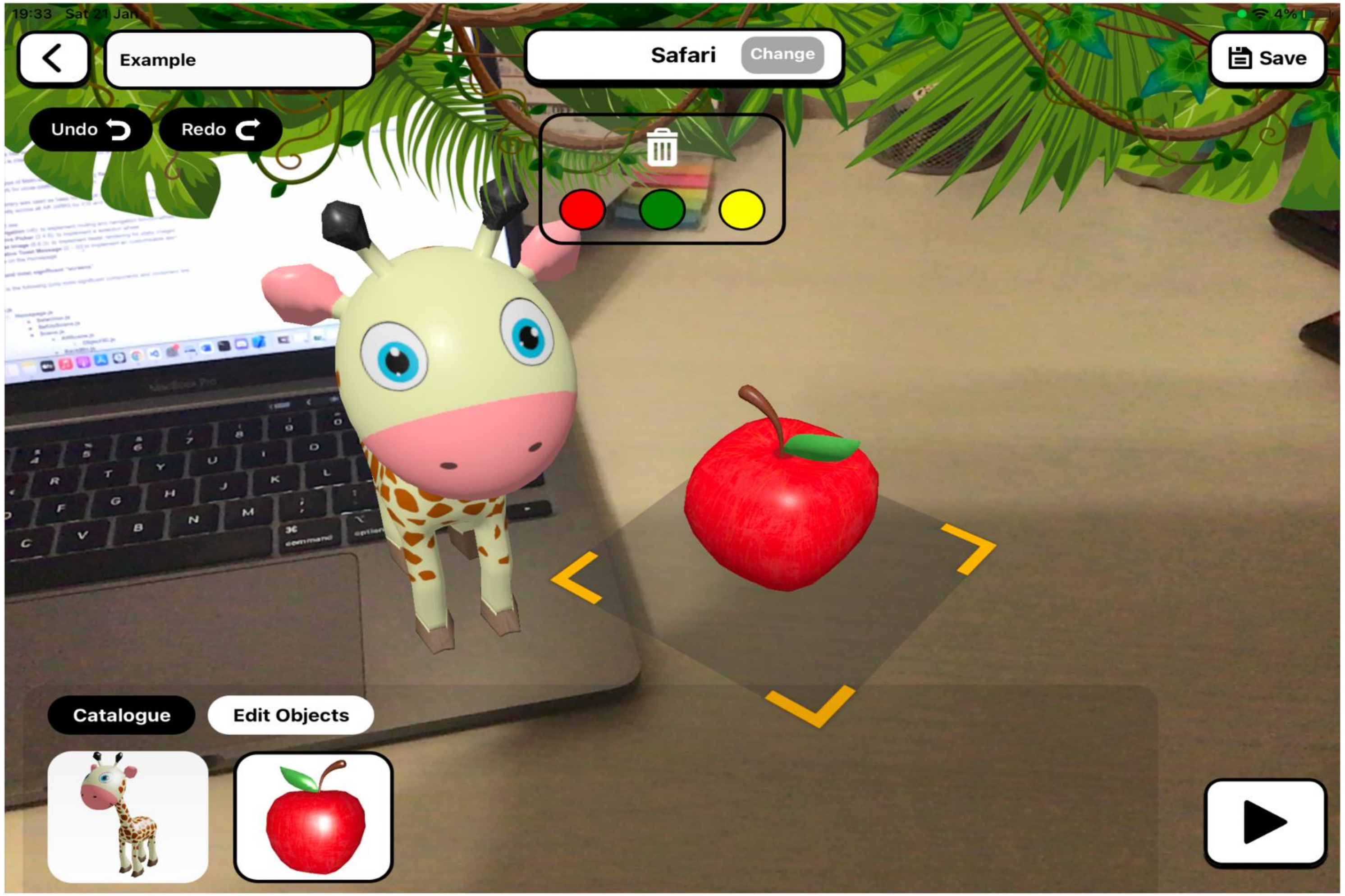
Text Default Font: Arial Black 13

Text Color: #FFFFFF

Alignment: Center, Middle

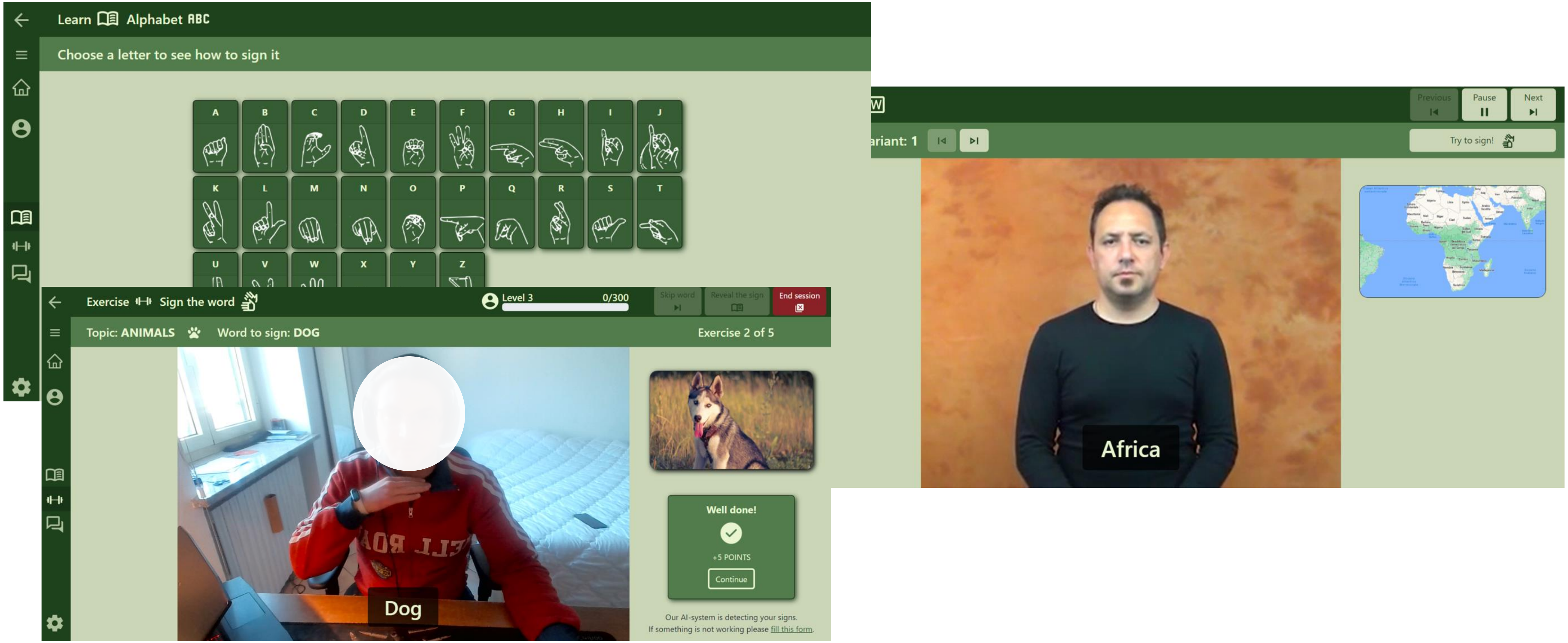
High-fidelity Prototypes

With Code



High-fidelity Prototypes

With Code



Learn Alphabet ABC

Choose a letter to see how to sign it

Exercise Sign the word

Topic: ANIMALS

Word to sign: DOG

Exercise 2 of 5

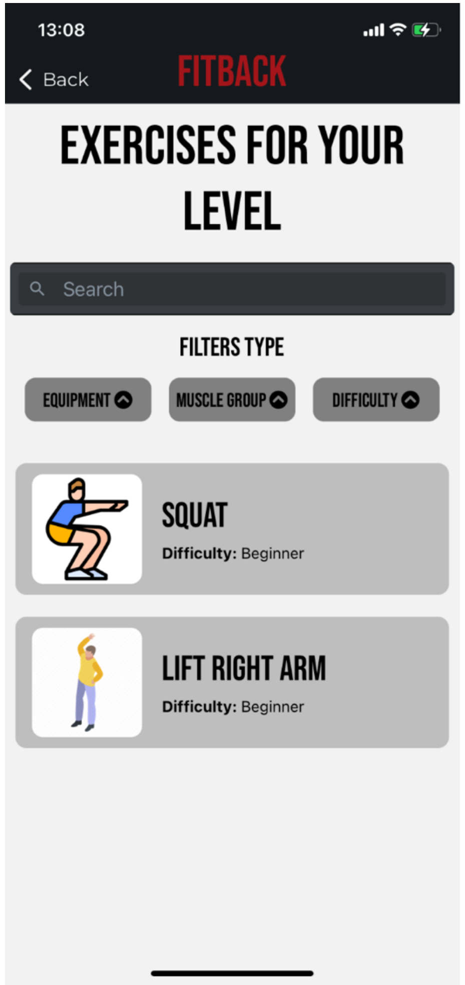
Well done!

+5 POINTS

Our AI-system is detecting your signs.
If something is not working please fill this form.

High-fidelity Prototypes

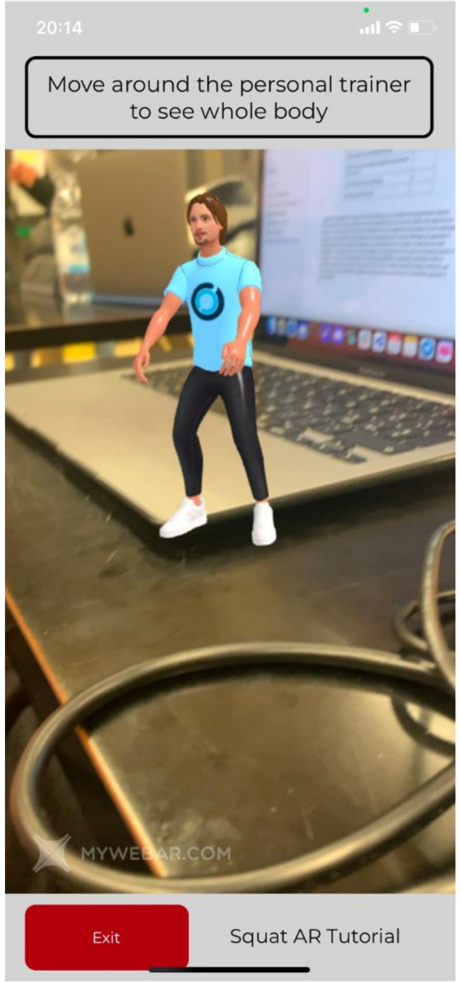
With Code



EXERCISES FOR YOUR LEVEL

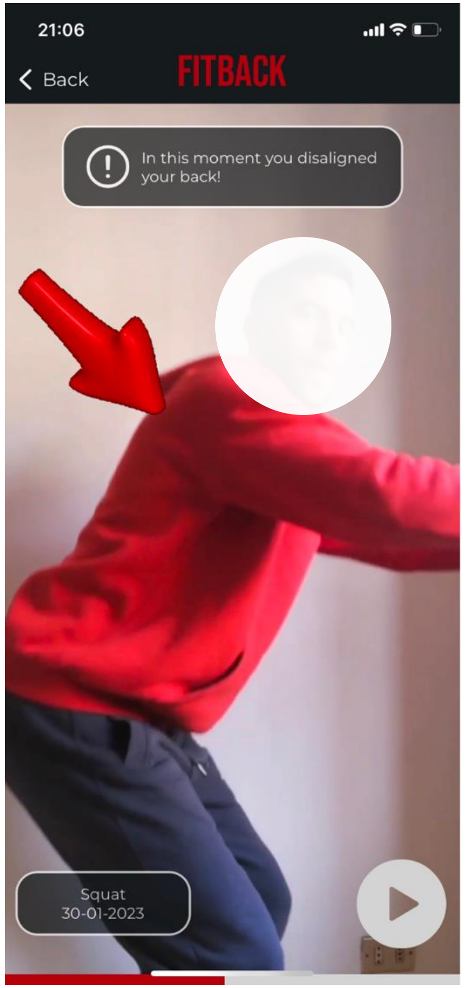
SQUAT
Difficulty: Beginner

LIFT RIGHT ARM
Difficulty: Beginner



Move around the personal trainer to see whole body

Squat AR Tutorial



In this moment you disaligned your back!

Squat
30-01-2023

What Can We Learn From Hi-Fi Interactive Prototypes?

- Screen layout
  - Is it clear, overwhelming, distracting, complicated?
  - Can users find important elements?
- Colors, fonts, icons, other elements
  - Well-chosen?
- Interactive feedback
  - Do users notice & respond to status bar messages, cursor changes, other feedback
- Efficiency issues
  - Controls big enough? Too close together? Scrolling list is too long?

Suggested Video

- **Prototyping: fake it till you make it**
- By Apple Design Team
- https://youtu.be/3lqh-A5Jy4Q

Some Tools For Interactive Hi-Fi Prototypes

No-Code

invision

https://www.invisionapp.com/

Figma

https://www.figma.com

FROONT

https://froont.com/

webflow

https://webflow.com/

Principle

https://principleformac.com/

Some Tools For Interactive Hi-Fi Prototypes

With Code

React

https://react.dev

Firebase

https://firebase.google.com

ngrok

https://ngrok.com

…

React Native

https://reactnative.dev

Expo

https://expo.dev

viro COMMUNITY

https://virocommunity.github.io

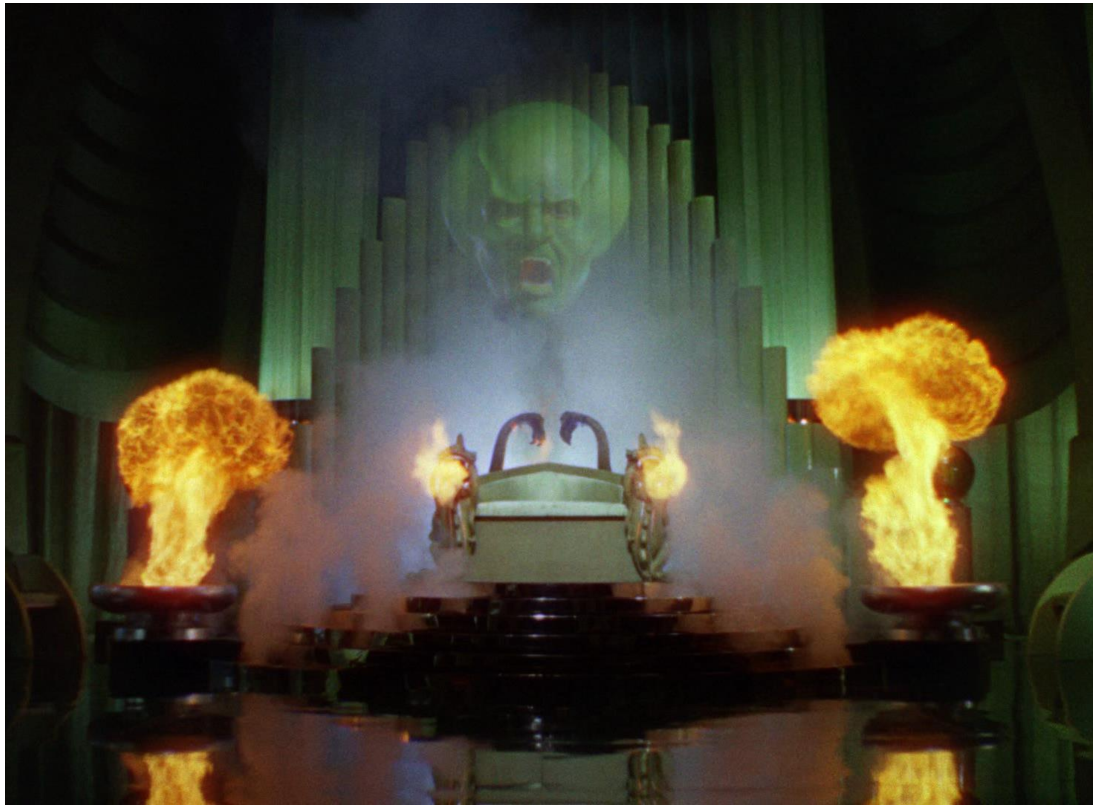
Wizard-of-Oz Techniques

Faking a technology, or filling-in for missing functionality

Goal

- How to test an application that is really complete…
  - With finalized user interface
  - With finalized algorithms
  - Also including stuff that we still are not able to implement
- …but without actually writing the code
  - Except for a semi-interactive ‘dumb’ prototype

Remember The Man Behind The Curtain?

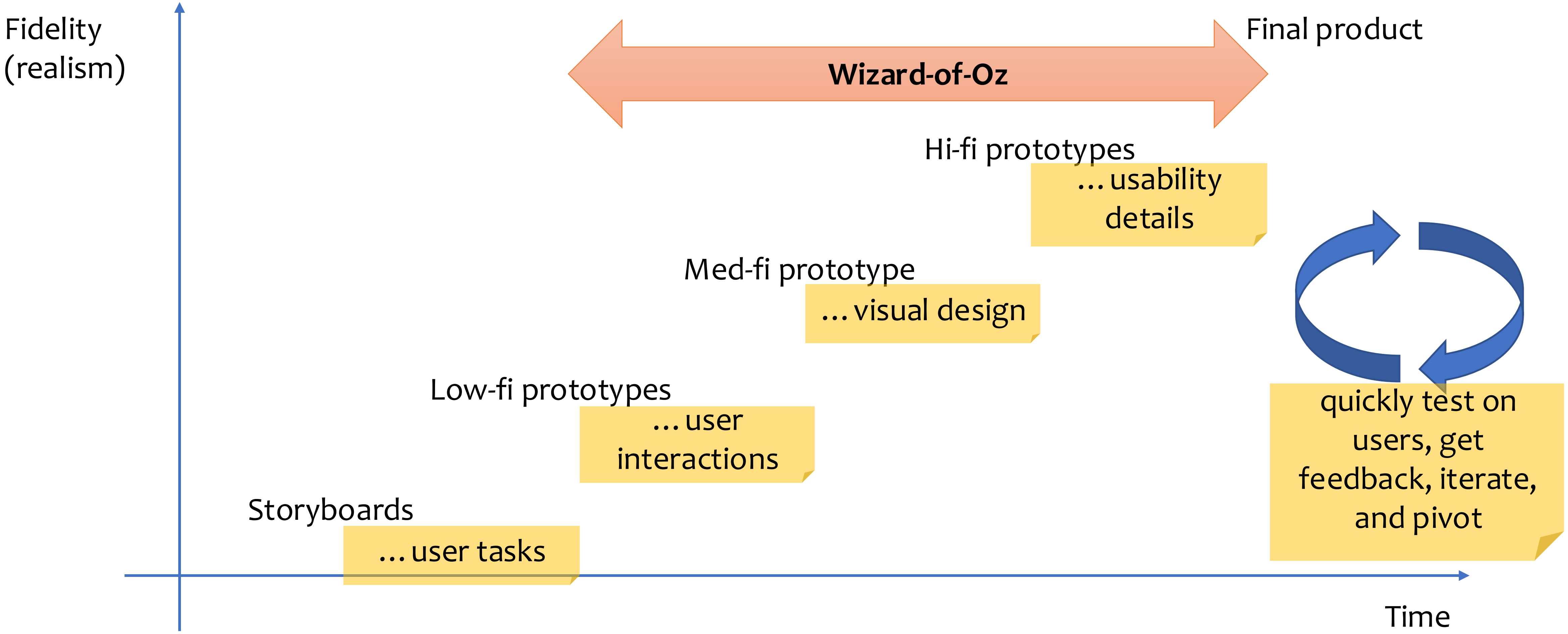


Remember the Mechanical Turk?

Wizard-of-Oz

- Software simulation with a human in the loop to help
- “Wizard of Oz” = “man behind the curtain”
  - Simulates the machine behavior with a human operator
  - Wizard is usually but not always hidden
- Often used to simulate future technology
  - Speech recognition
  - Learning
- Wizard may be hidden or visible
  - Must always be revealed, at least at the end

Prototypes Facilitate Conversations About…



Fidelity (realism)

Wizard-of-Oz

Final product

Hi-fi prototypes

… usability details

Med-fi prototype

… visual design

Low-fi prototypes

… user interactions

Storyboards

… user tasks

quickly test on users, get feedback, iterate, and pivot

Time

Implementing a Wizard-of-Oz Prototype

- Choose supported tasks and scenarios
- Create User Interface mock-ups
  - Implement a part of the system
  - Leave “hooks” for the Wizard’s actions
- Implement a back-office interface for the Wizard
- Define “rules of behavior” for the Wizard
  - When he should respond
  - How it should respond (the “algorithm”)

Benefits

- Faster and cheaper than most interactive prototypes
- More “real” than paper prototyping
- Creating multiple variations is easy
- Identifies bugs and issues with current design
- Can envision applications that are difficult to build
- Playing wizard allows a better understanding of algorithmic requirements

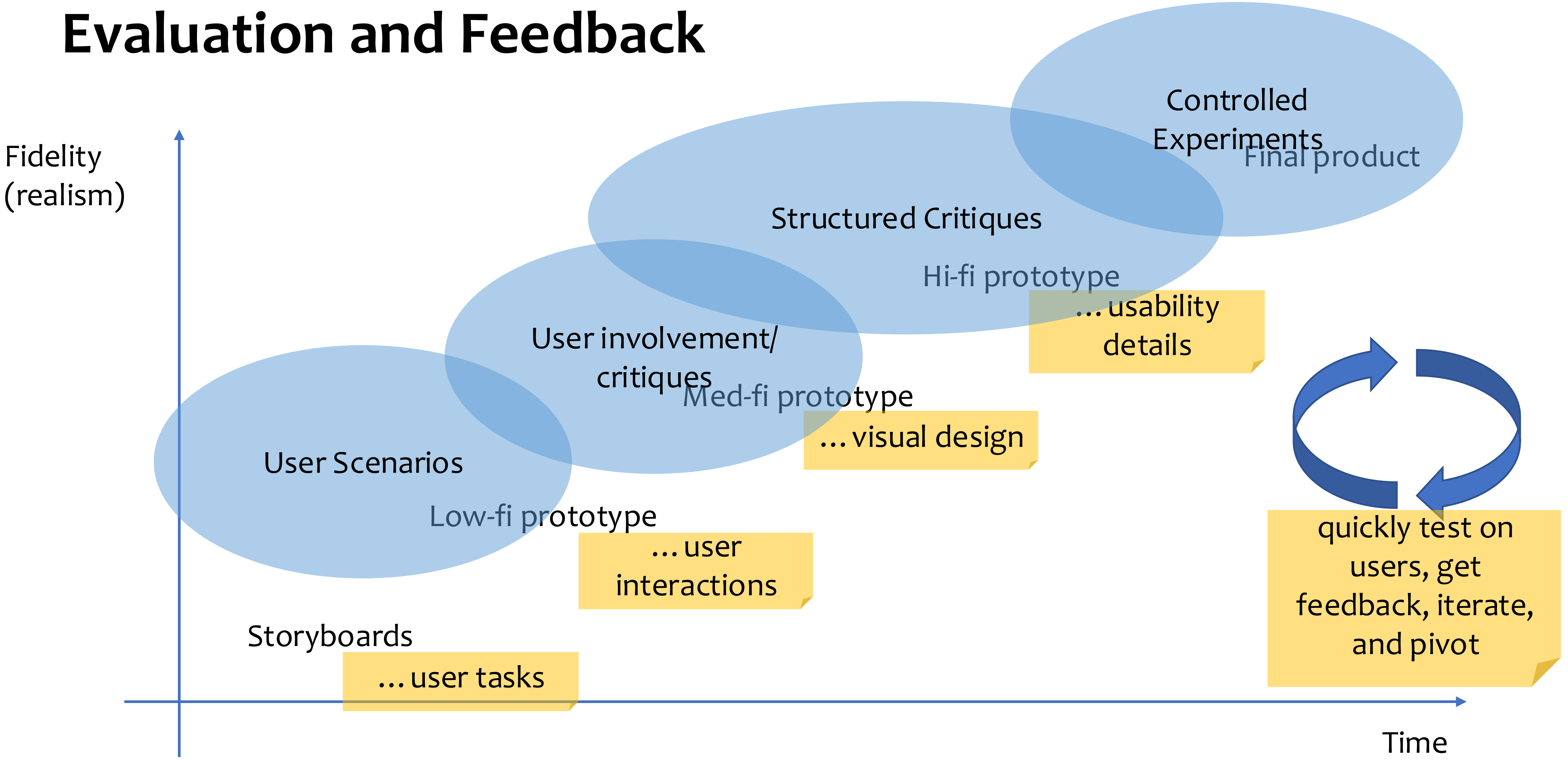
Risks

- May be over-optimistic
  - Speech recognition that always works (instead of having an error rate)
  - Super-intelligence (that will never exist)
- Wizard behavior is difficult
  - Take into account system limitations
  - Emulate expected system response
  - Within acceptable timing
- Needs at least two researchers

Wrap-up

Many different techniques, applicable to different goals and contexts

Evaluation and Feedback



Fidelity (realism)

Storyboards

…user tasks

User Scenarios

Low-fi prototype

…user interactions

User involvement/ critiques

Med-fi prototype

…visual design

Structured Critiques

Hi-fi prototype

…usability details

Controlled Experiments

Final product

quickly test on users, get feedback, iterate, and pivot

Time

References and Acknowledgments

- Google, Begin Today With Rapid prototyping, https://www.youtube.com/playlist?list=PL9KVIdeJ2K8NDpsiyYpcbB_qifd3y5CYZ
- MIT, http://web.mit.edu/6.813/www/sp18/classes/11-prototyping/#reading_11_prototyping
- Scott Klemmer, Storyboards, Paper Prototypes, and Mockups, https://youtu.be/z4glsttyxw8
- Thanks to Fulvio Corno, past teacher of the course, for his work on some of these slides

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