HCI FUNDAMENTALS 2026

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High Fidelity Prototypes

HCI Fundamentals

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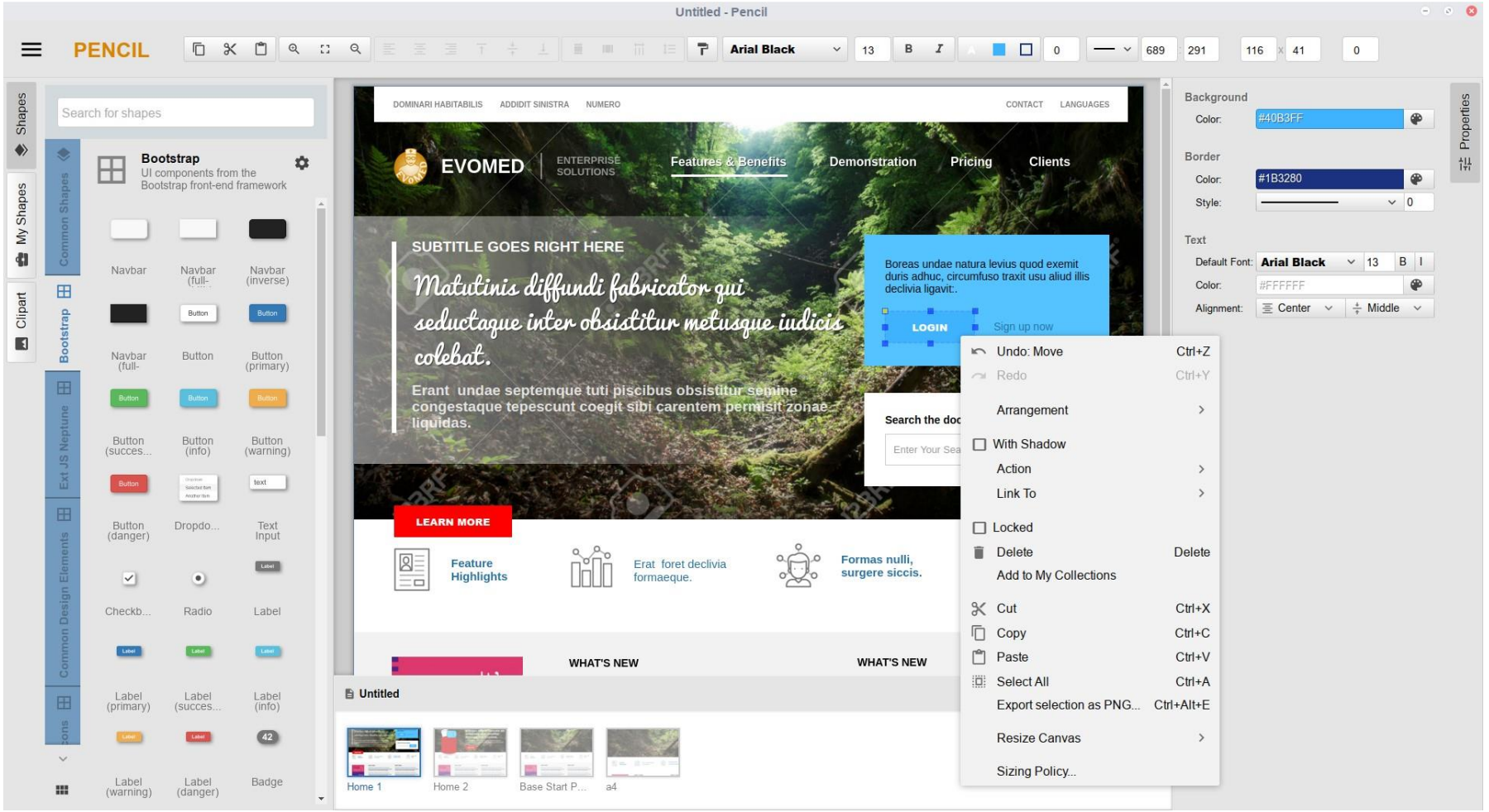
Academic Year 2026/2027

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



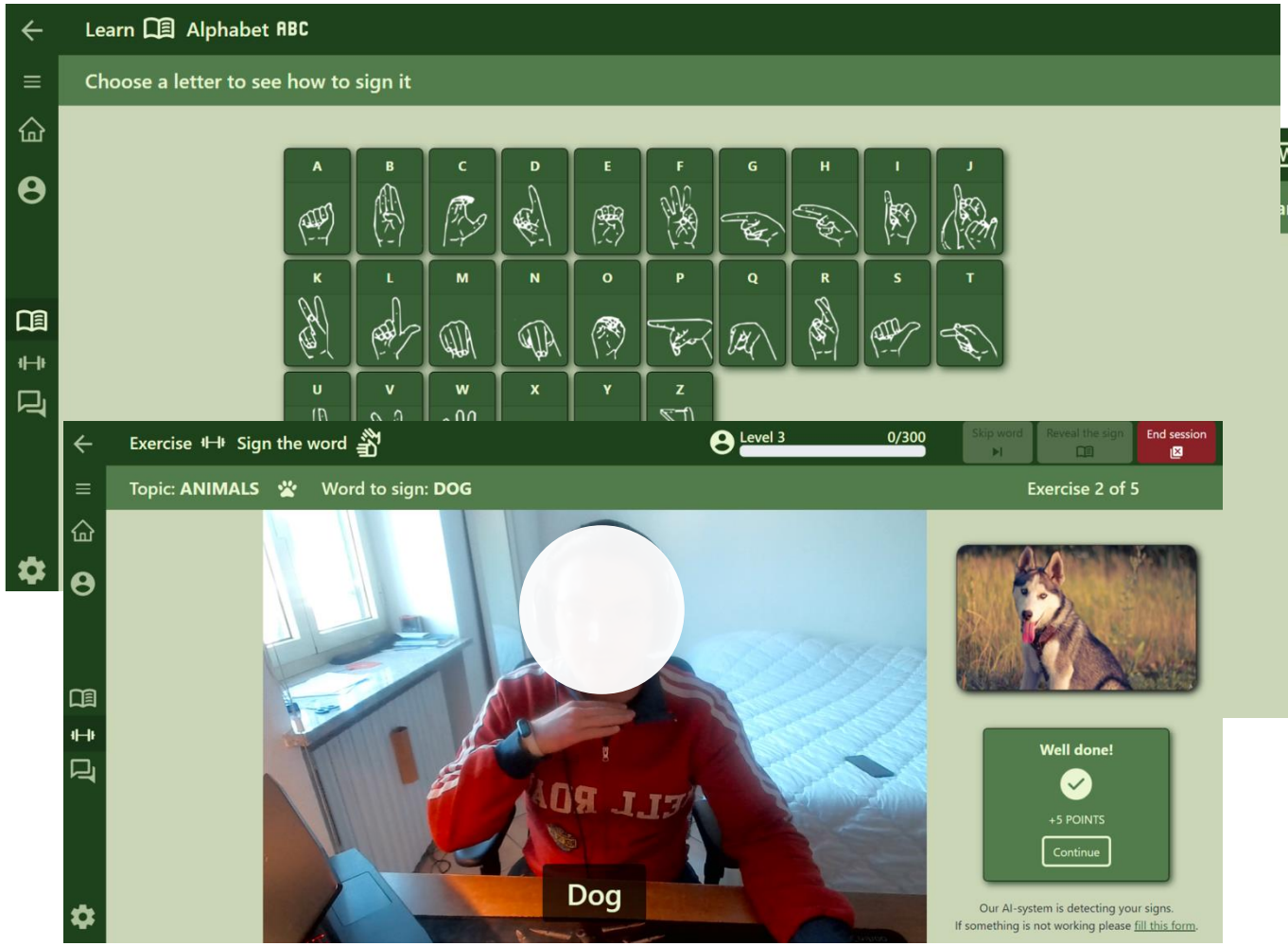
High-fidelity Prototypes

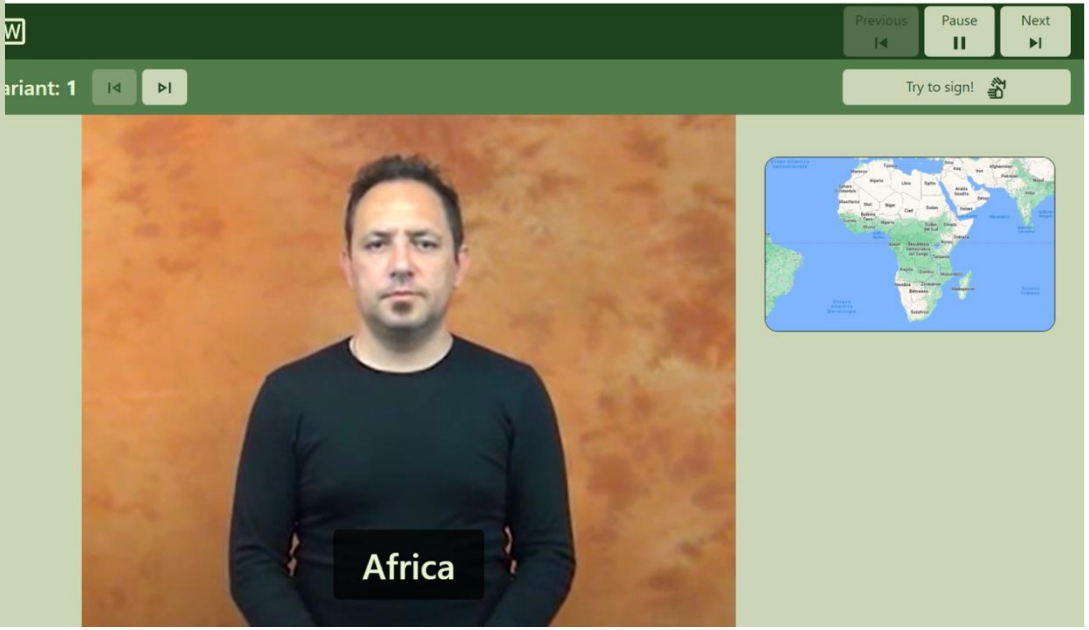
With Code



High-fidelity Prototypes

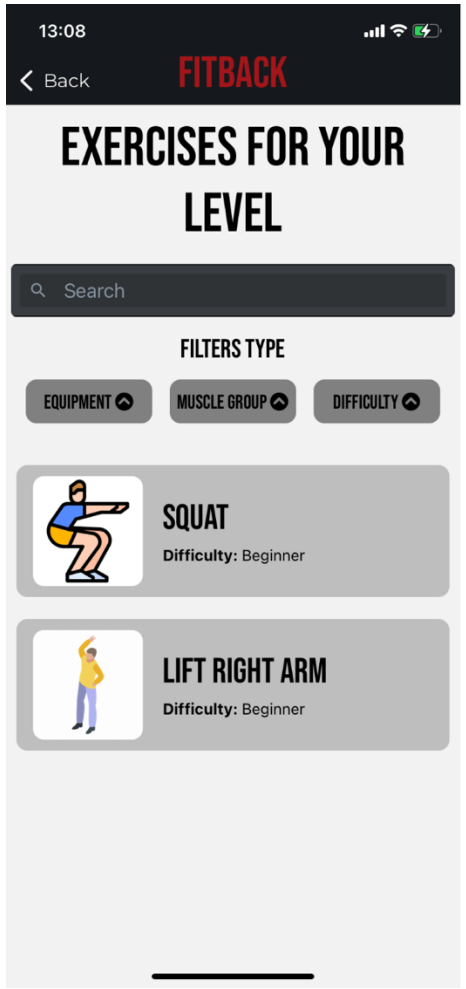
With Code

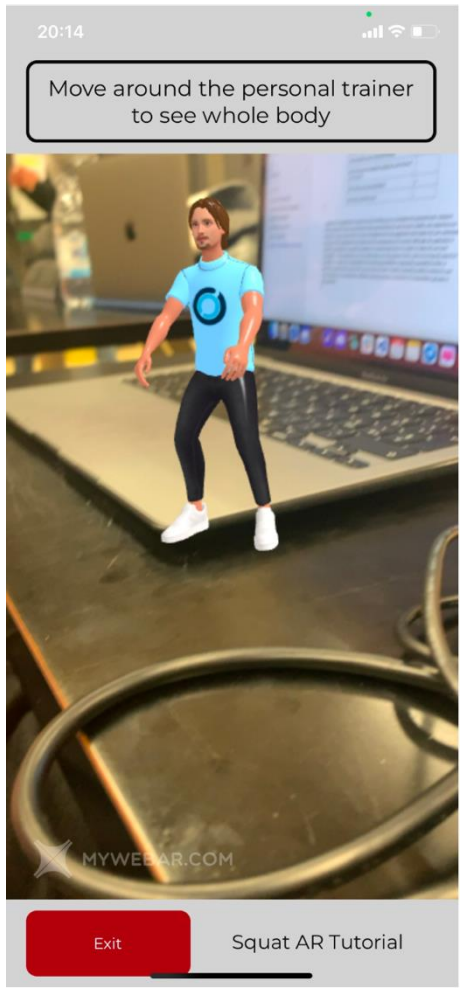


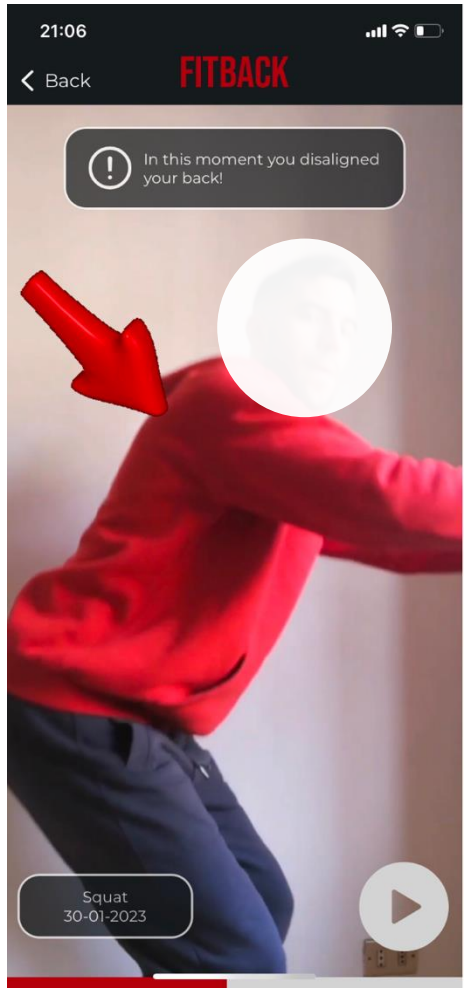


High-fidelity Prototypes

With Code







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



https://www.invisionapp.com/



https://www.figma.com



https://froont.com/



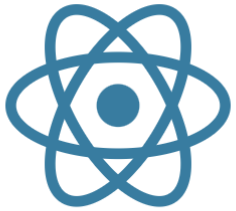
https://webflow.com/



https://principleformac.com/

Some Tools For Interactive Hi-Fi Prototypes

With Code



React

https://react.dev

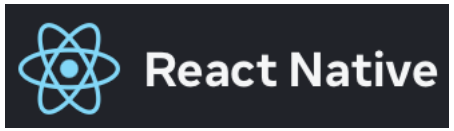


https://firebase.google.com



https://ngrok.com

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https://reactnative.dev



https://expo.dev



https://virocommunity.github.io

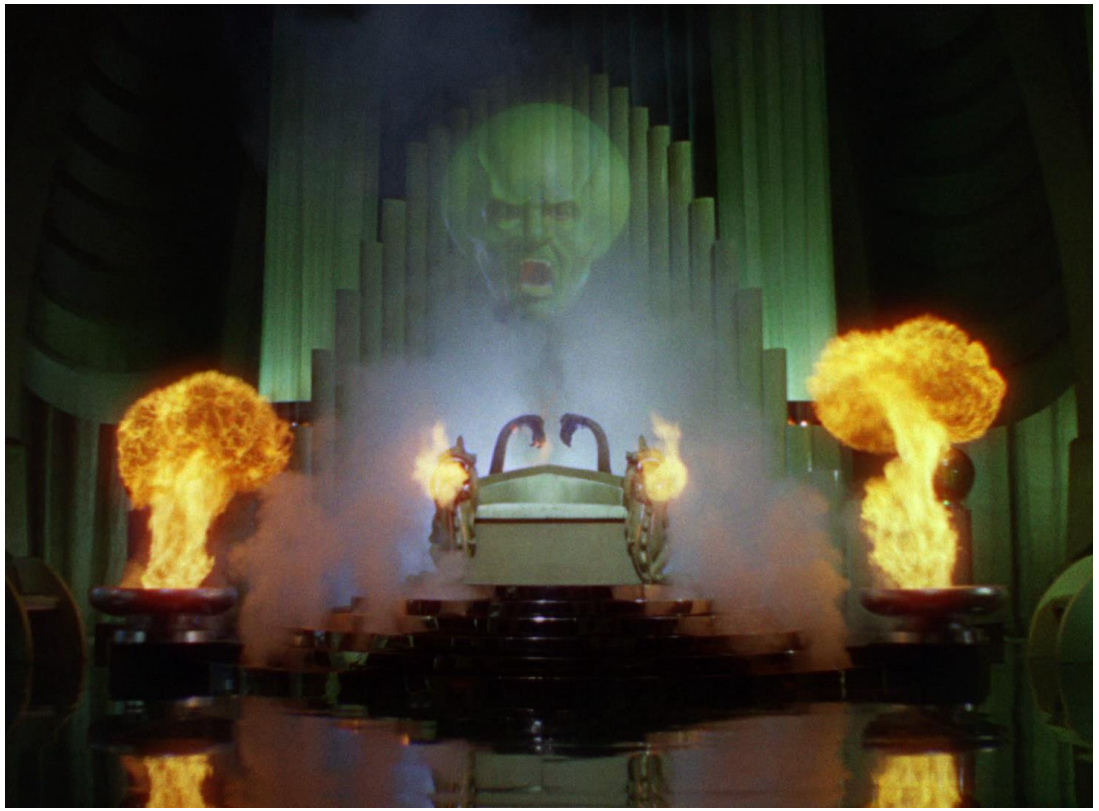
Wizard-of-Oz Techniques

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?





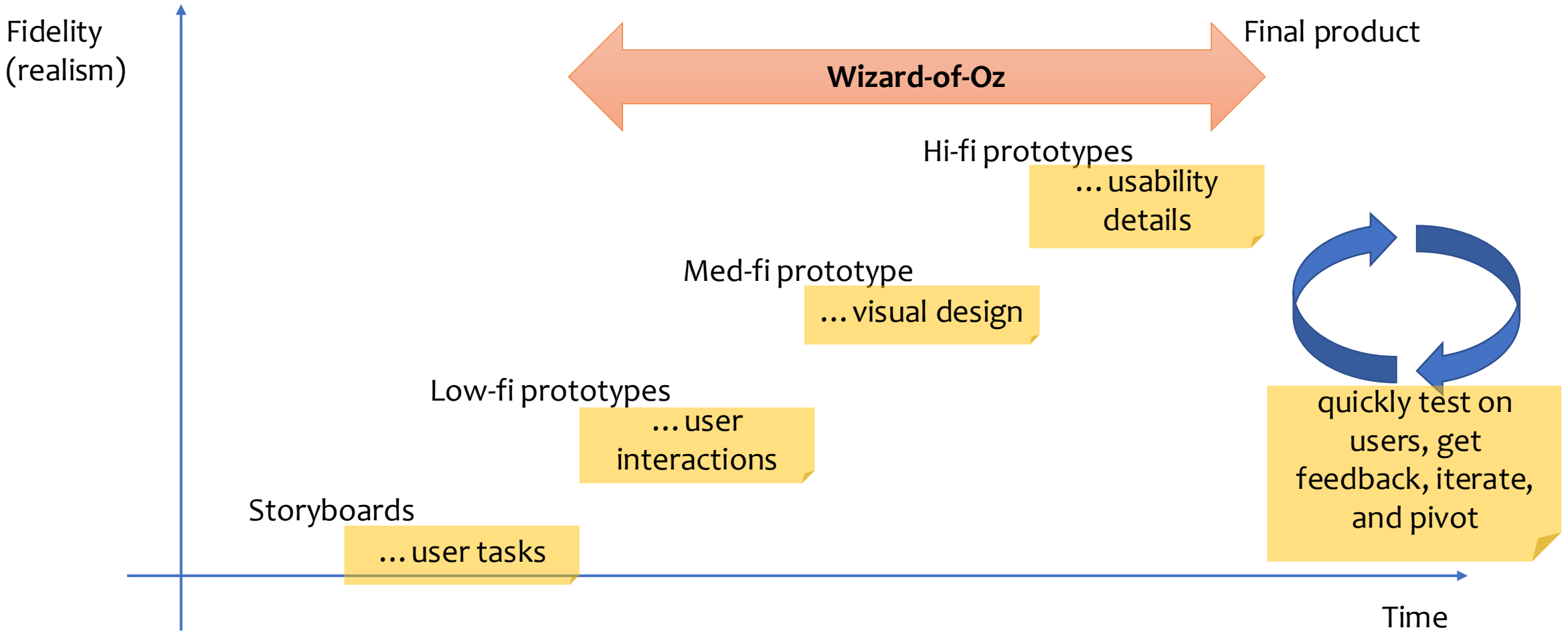
Remember the Mechanical Turk?



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…



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

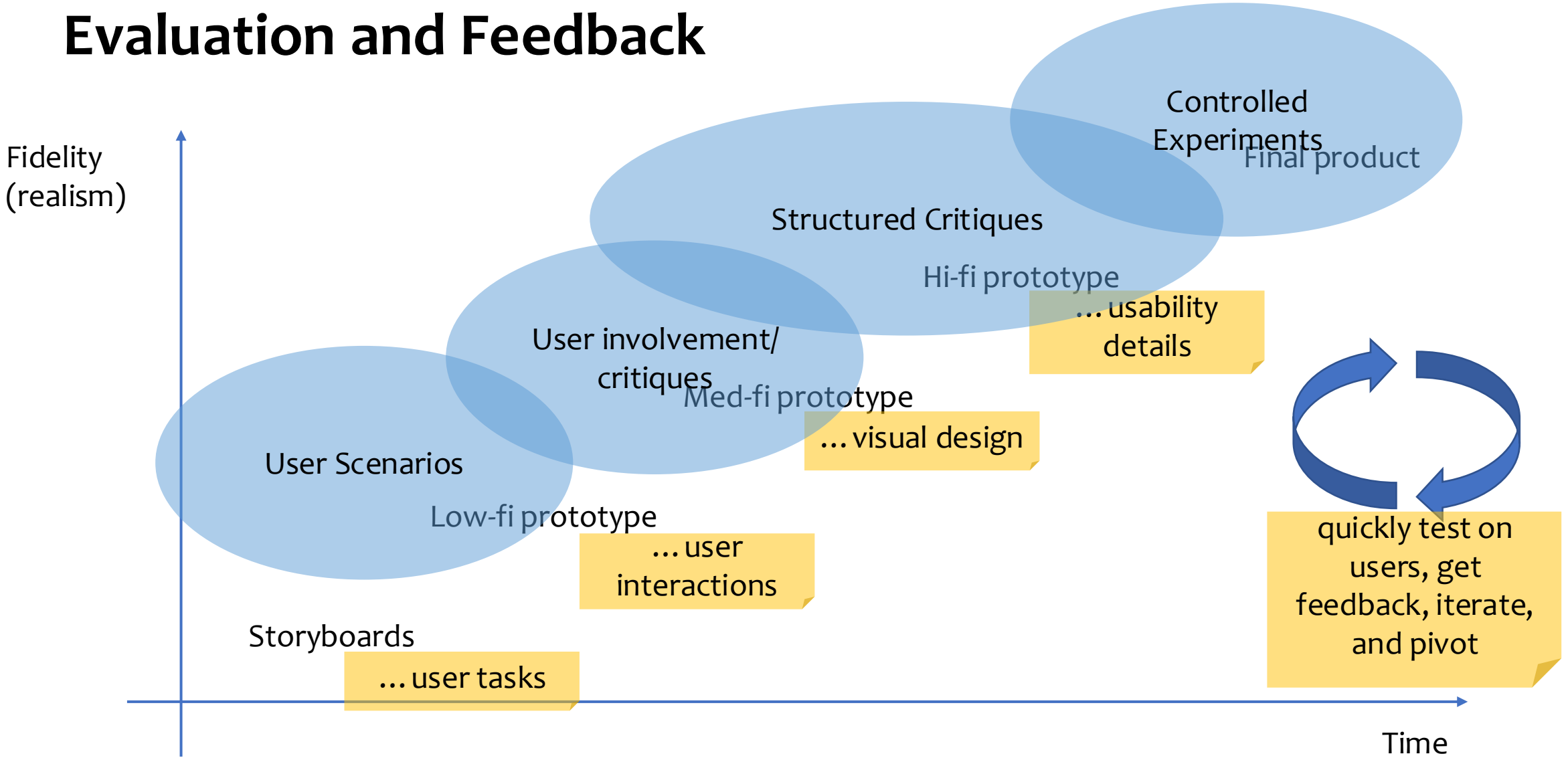
Risks

- 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



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

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