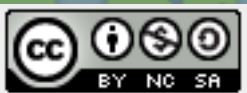


INF 133: User Interaction Software: The Human

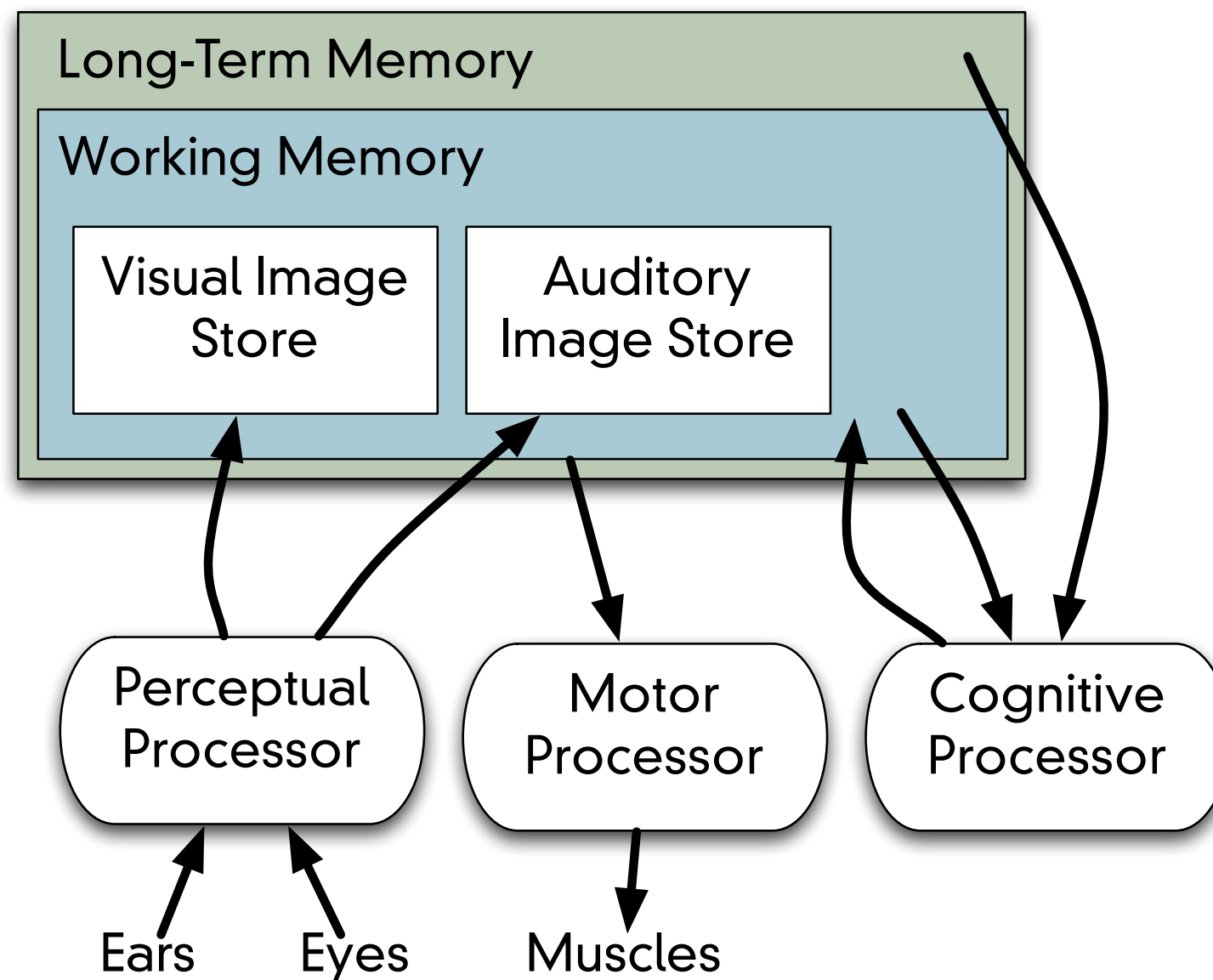
Donald J. Patterson

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Laboratory for Ubiquitous Computing and Interaction



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<http://www.ics.uci.edu/~djp3>



Memory

- Three types of memory which build on each other
 - Sensory Memory
 - Short-Term or Working Memory
 - Long-Term Memory



Sensory Memory

- Buffers for stimuli received through senses
 - iconic memory: visual stimuli
 - echoic memory: aural stimuli
 - haptic memory: tactile stimuli
- Examples
 - non cognitive recall
- Continuously overwritten



Sensory Memory

Aoccdrnig to rscheearch at Cmabrigde uinervtisy, it deosn't mtttaer waht oredr the ltteers in a wrod are, the olny iprmoetnt tihng is taht the frist and lsat ltteres are at the rghit pclae. The rset can be a tatol mses and you can sitll raed it wouthit a porbelm. Tihs is bcuseae we do not raed ervey lteter by itslef but the wrod as a wlohe.

Note: The meaning is probably not accurate



Short-Term Memory

- Scratch-pad for temporary recall
 - rapid access ~ 70ms
 - rapid decay ~ 200ms
 - limited capacity - 7 ± 2 chunks



How does a web page work?



Web Fundamentals

Create your own website and learn the building blocks of web development with HTML and CSS.

Explore >

<http://www.codecademy.com/learn>

Long-Term Memory

- Repository for all our knowledge
 - slow access ~ 1/10 second
 - slow decay, if any
 - huge or unlimited capacity
- Two types
 - episodic – serial memory of events
 - semantic – structured memory of facts, concepts, skills
 - semantic LTM derived from episodic LTM



Take out a piece of paper

Memorize the photo that is about to
appear

Example



Example

Write down as many things as you can remember

Thinking

- Reasoning
 - Deduction
 - Induction
 - Abduction
- Problem Solving



Thinking

- Reasoning
 - Deduction
 - derive logically necessary conclusion from given premises.
 - Induction
 - generalize from cases seen to cases unseen
 - Abduction
 - reasoning from event to cause
 - Sam drives fast when drunk.
 - If I see Sam driving fast, assume drunk.

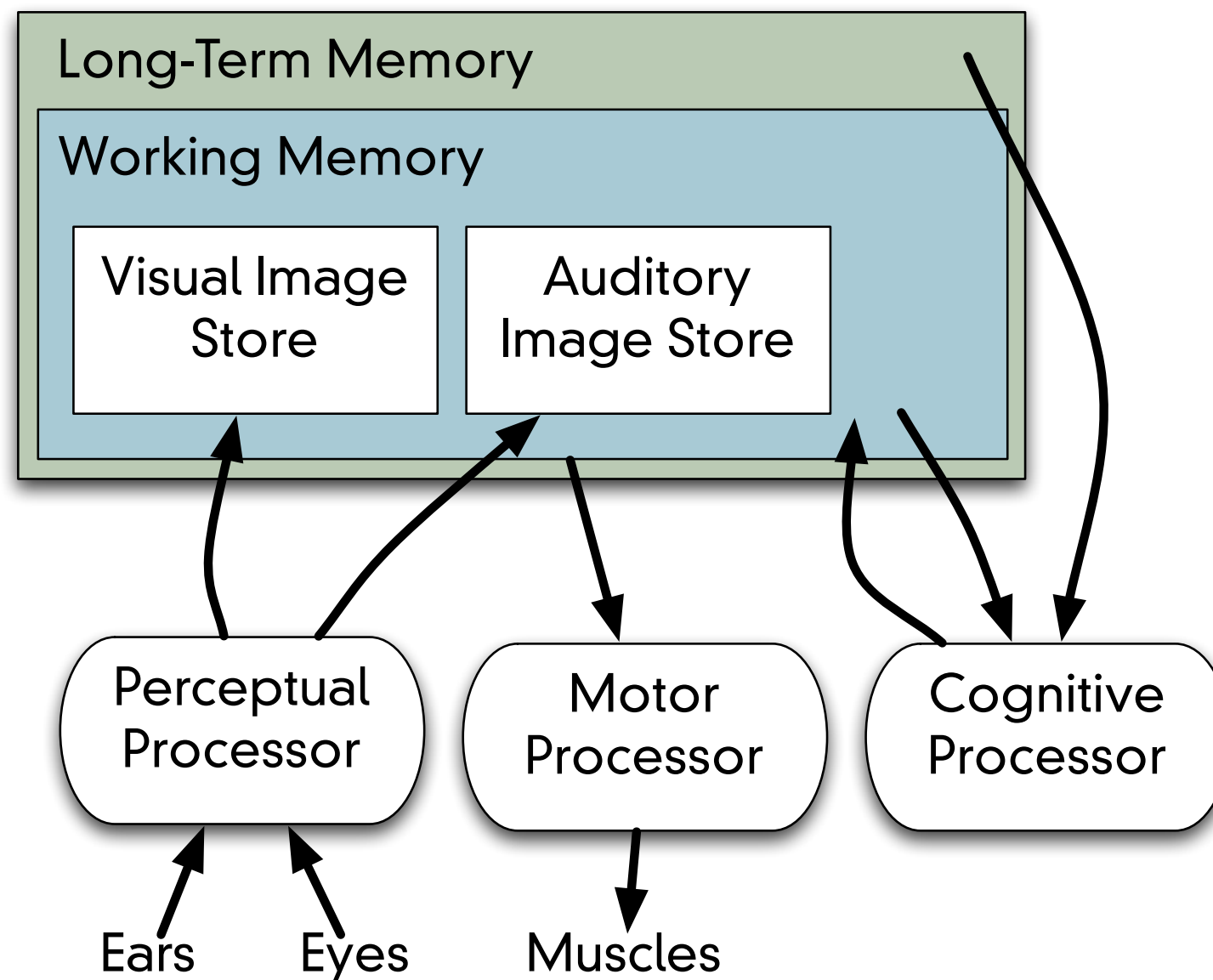


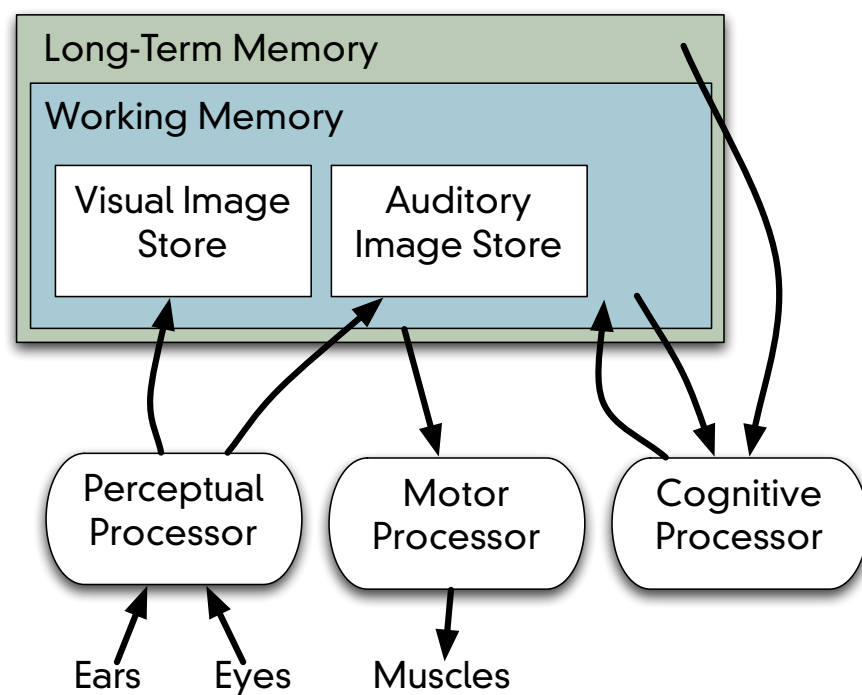
Thinking

- Problem Solving
 - Process of finding solution to unfamiliar task using knowledge.
 - Many theories of this process



- What is missing from this model?





- Eyes as human output
- Touch as human input
- Sensory Memory
- Social Organization Around the individual
- External cognitive aids
 - Augmented Reality
 - Search

Individuals vary in their abilities

- long term
 - sex, physical and intellectual abilities
- short term
 - effect of stress or fatigue
- changing
 - age
- Ask yourself:
will design decision exclude section of user population?





Holodeck video

http://www.youtube.com/watch?v=JHL5tJ9ja_w



<http://www.youtube.com/watch?v=aWLX2yxcmHo>



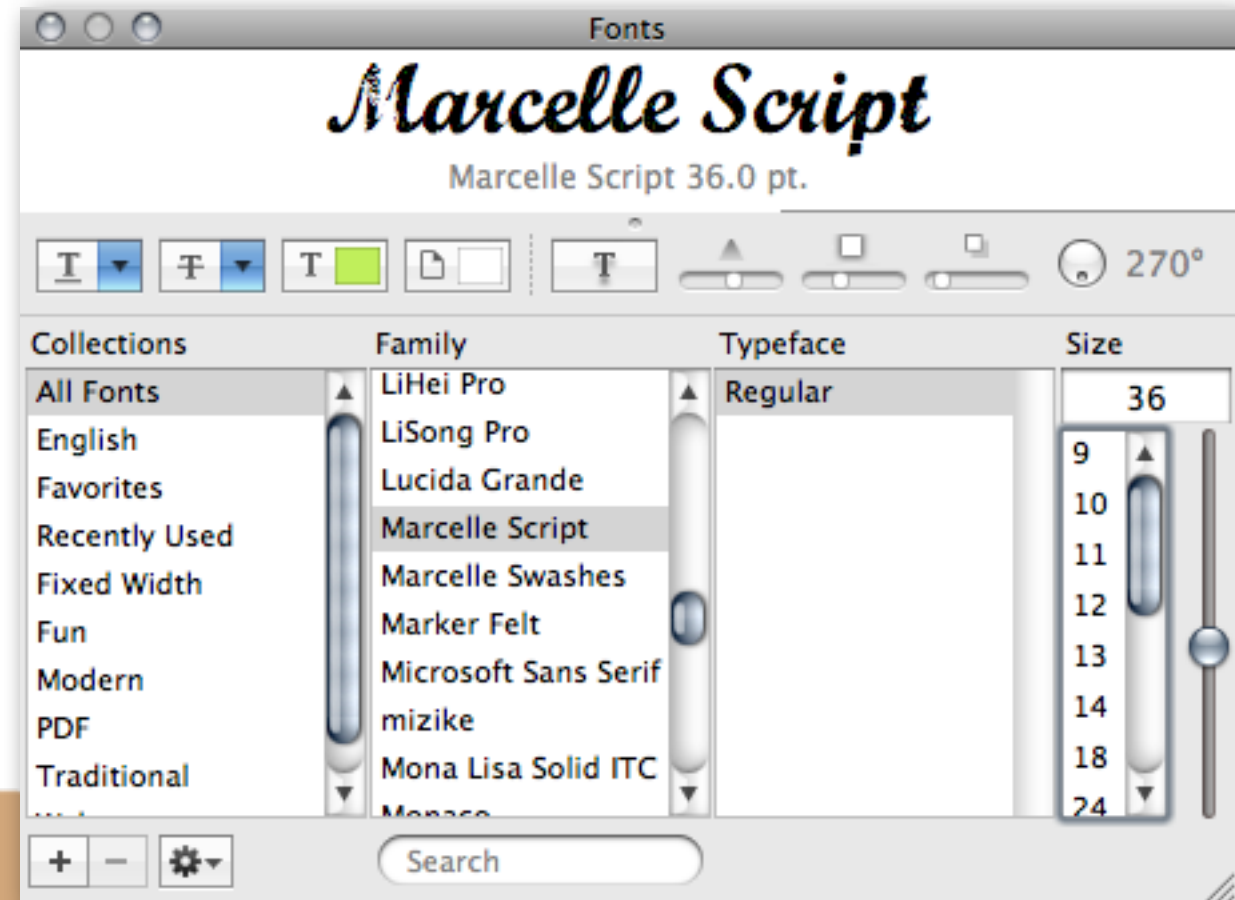
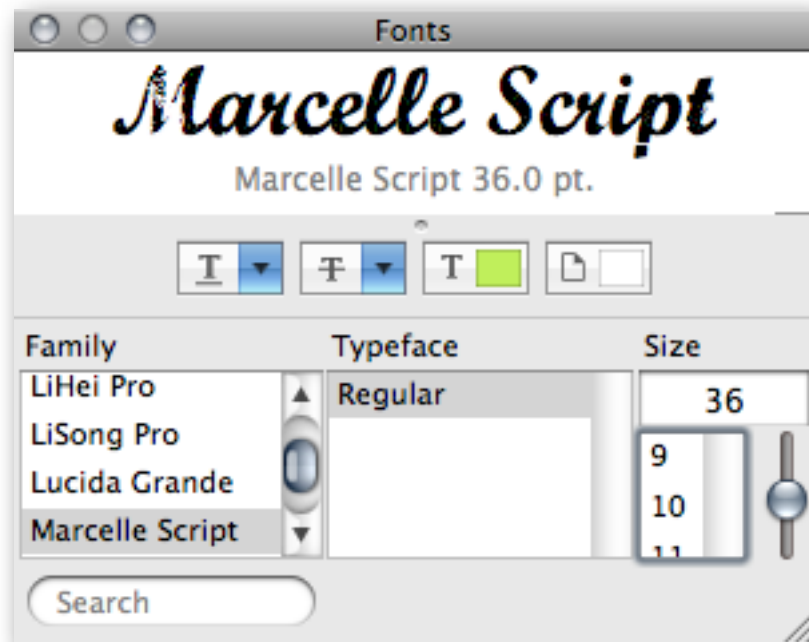
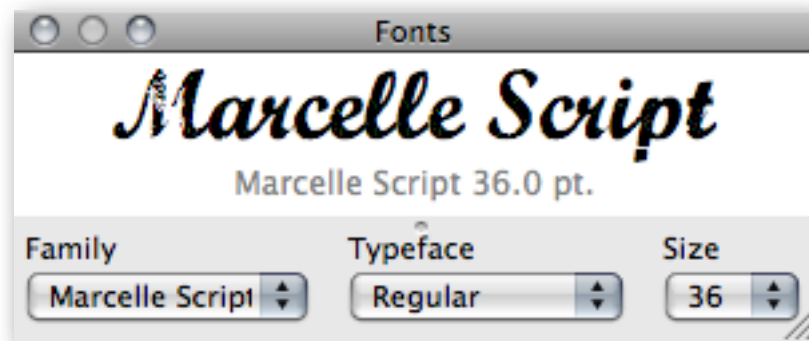
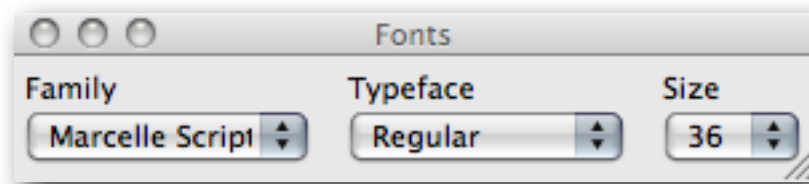
How will these designs affect different people?



Addressing different skills and environments

- “Plasticity”

- Adapting to different environments easily.
- What environments?



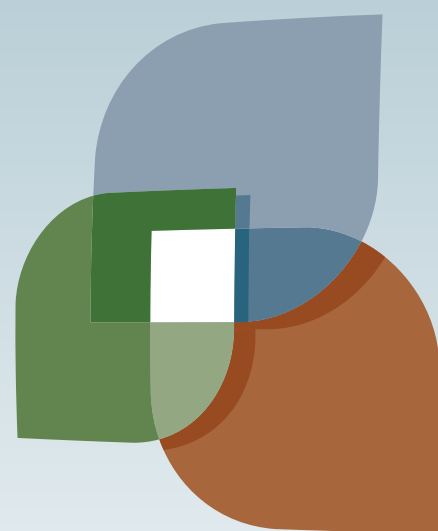
Individuals vary in their abilities



- Using an ATM if you are blind
- <https://www.youtube.com/watch?v=Jzah0A6IC5o>



How could an ATM be changed to accommodate blind users
and not degrading the experience for sighted users?



L U C I

