Memory

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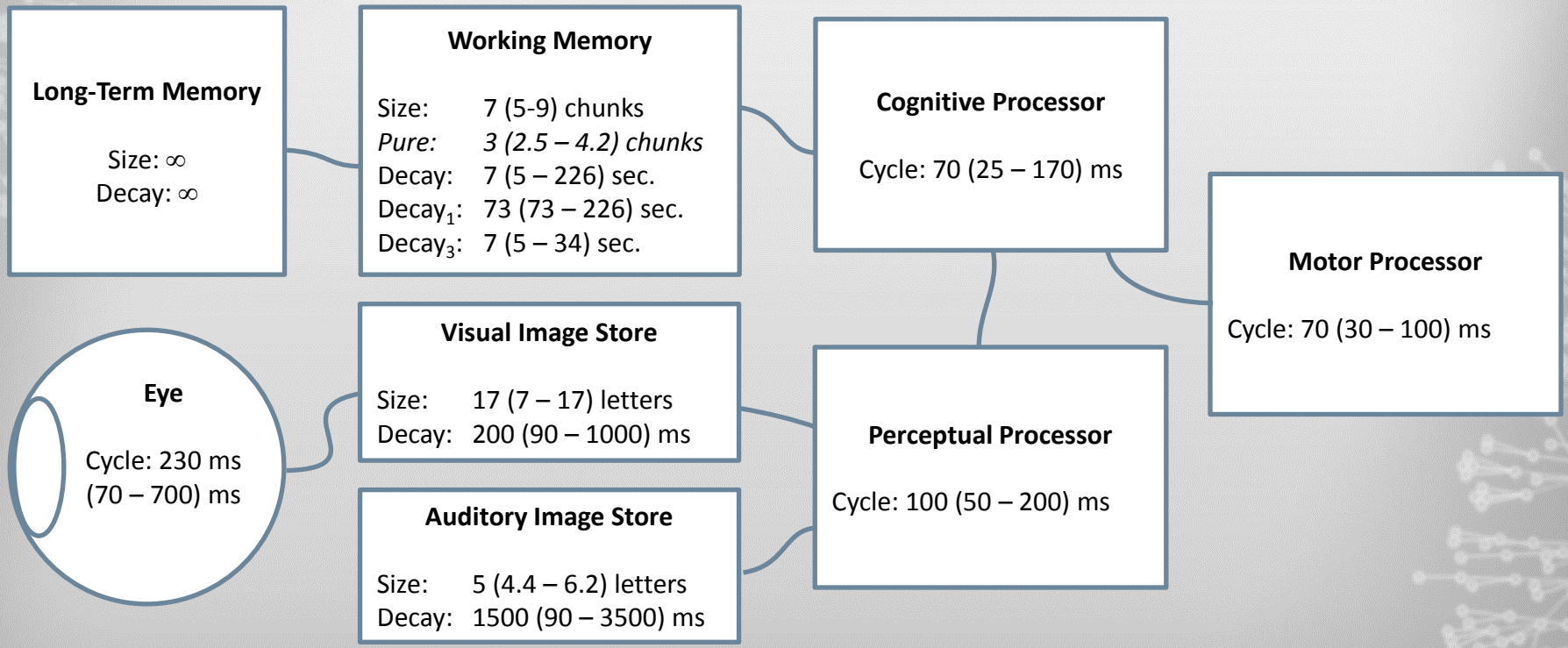
What Will We Learn

- What is the difference between short term and long term memory?
- How can I remember things better?
- How can I learn better?

The Model Human Processor



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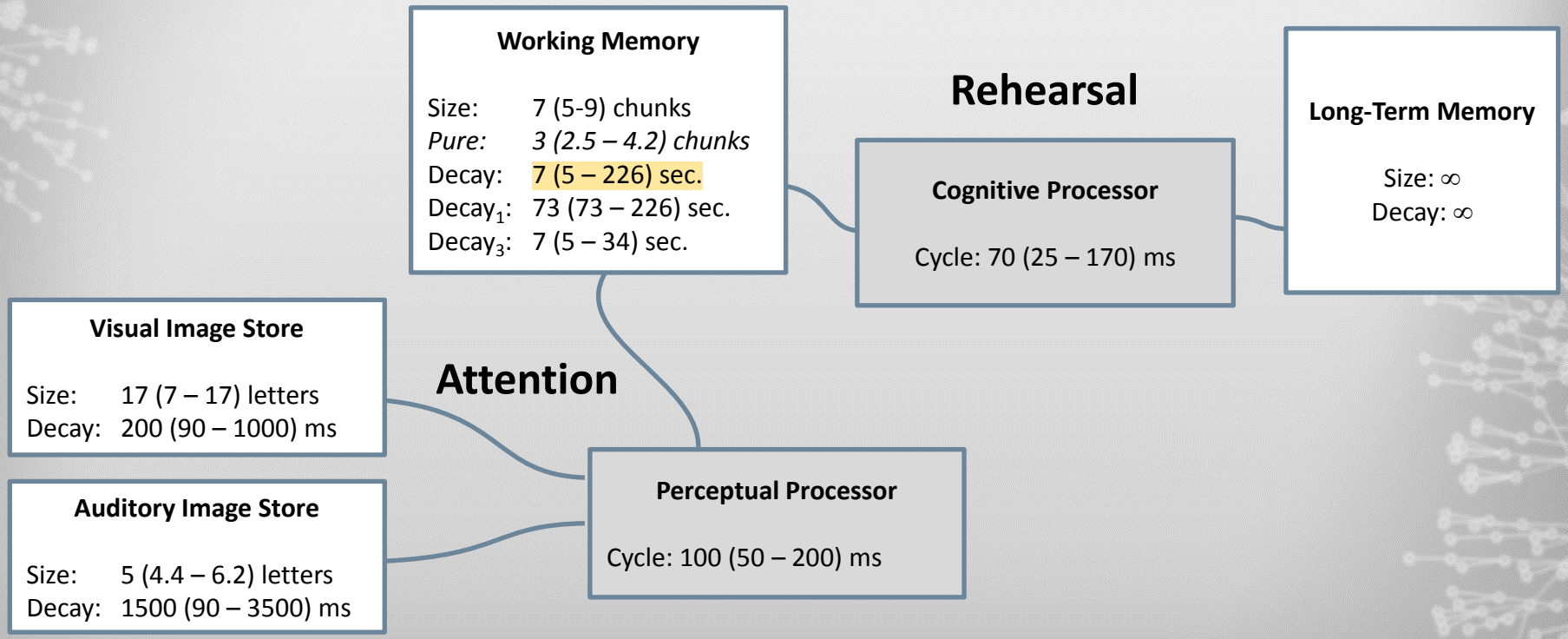
Memory



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Sensory Memory

Human Device Memory

- *Iconic* memory - visual
  - Persistence of vision
  - .5 seconds
- *Echoic* memory - aural

1.5 seconds

- *Haptic* memory - touch
- *Arousal* - level of interest or need

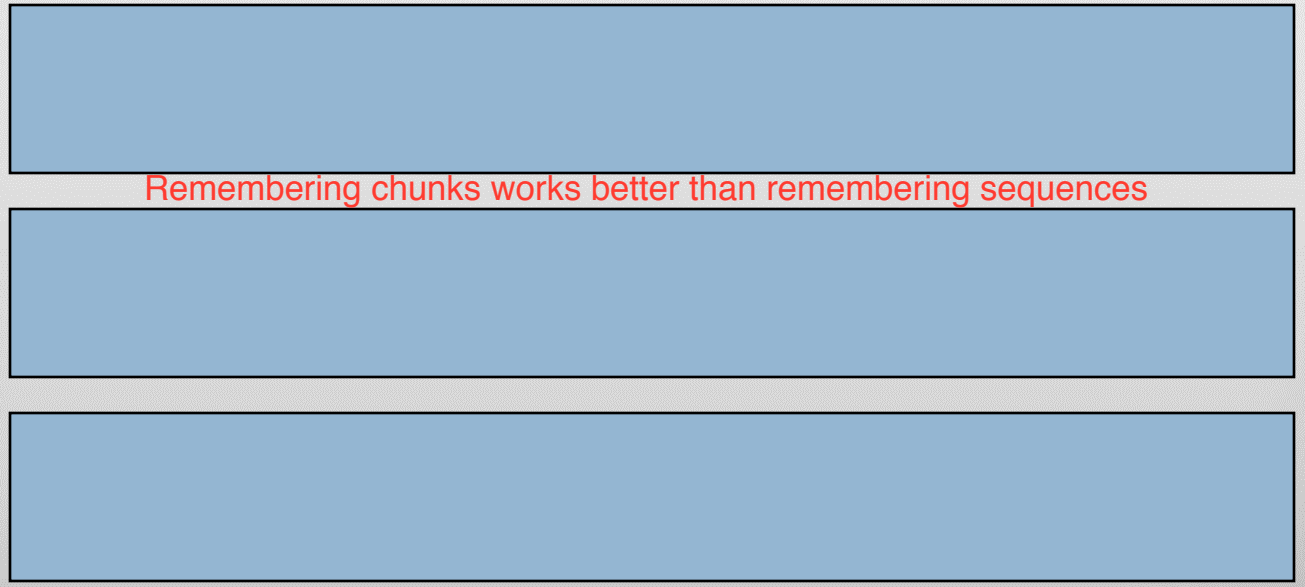
intensity of attention

Working Memory

Human DRAM

- 70ms access time
- 200ms *refresh* time
- Size: 7 +/- 2 items
  (digits, chunks, words)
- *Recency* effect – last is best

Fun with Working Memory



Long Term Memory

The Human World-Wide Web

- Two types
  - *episodic* - events, organized temporally
  - *semantic* - facts, organized associatively
- Representations
  - semantic nets
  - frames (database w/field, entries)
  - scripts (roles, scenes, props)

songs. We know the lyrics when we hear the melody

links between facts

How We Remember

How does information get from short term memory into long term memory?

- *Total time hypothesis* – hit the books
- *Distribution of practice effect* - don't cram
- *Meaning* - concrete better than abstract
  - faith age cold tenet quiet logic idea value past
  - boat tree cat child rug plate gun flame head
- Structure, familiarity and concreteness

1 bun
2 shoe
3 tree
4 door
5 hive
6 sticks
7 heaven
8 gate
9 wine
10 hen

How We Forget

- Decay
  - Logarithmically - forget most early
  - Jost's Law - if two equally strong memories at a given time, then the older is more durable.
- Interference
  - proactive inhibition – can't teach an old dog new tricks
  - retroactive interference – mind blown
  - emotion - good old days, forget the mundane

What Did We Learn

- Sensory memory decays very quickly, but supports sensory processing
- Working memory decays quickly, but supports cognitive processing
- Long term memories persist indefinitely, but the challenge is getting information stored
- We can learn and remember better if we vary learning styles