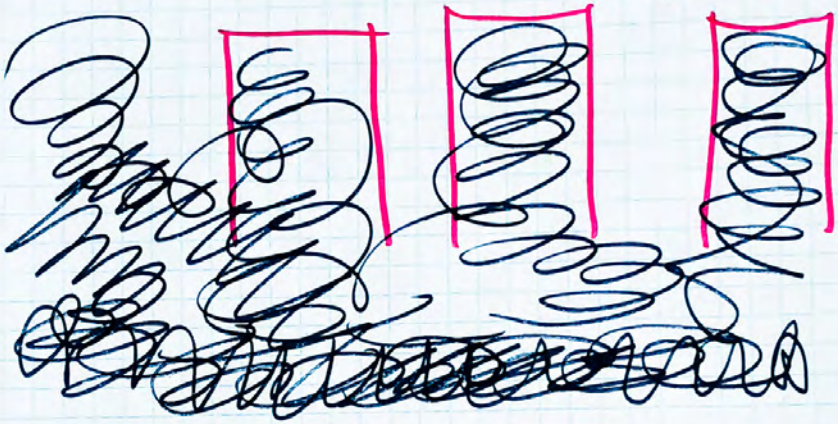
COGS 300 Intro 01 Jan 6/26 ①

Warm up: Draw scribbles until something emerges.



Embodied

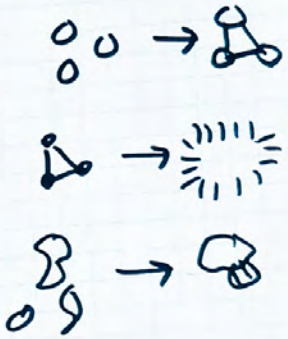
Embedded

Extended

Enacted

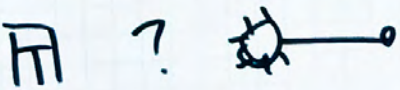
Emergence

$$\begin{array}{r} 1237 \\ +\ 4212 \\ \hline 5449 \end{array}$$



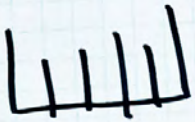
Scale-free
ideas of intelligence.

computation as a model
for intelligent systems.

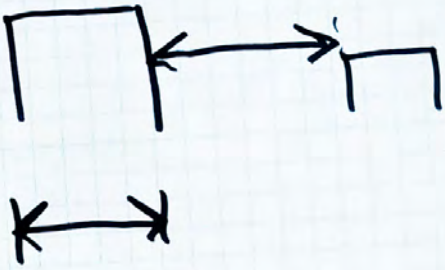


Design Challenge:

Estimation



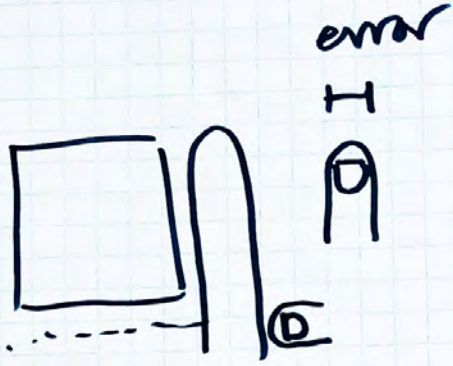
Error



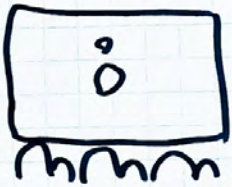
1. smaller than hand.
2. bigger than hand, smaller than body
3. ~same size as body.
4. whole room

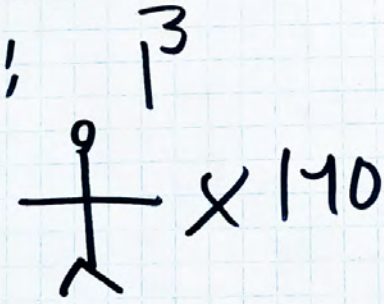
Process

error


eyes
H


3 fingers
± pinky




x 140

Are circuits like neurons?

Intro 01

Music starts before class. Encourage contemplative silence during exercise.

00:00 Brief explanation of drawing exercise: emergent scribbles.

dragon

Draw until something emerges. Like cloud watching.

call out to class.

00:04 ring 1-min bell.

00:05 ring Stop bell. ★ Ask people what emerged. Explain the point of the drawing exercise:

1. Teaching you to draw
2. Loosen up
3. Demo concepts: emergence.

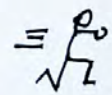
This is the format in this class:

1. experience
2. reflect
3. Design / extend.

★ Who took COGS 200 + learned about 4Es?

embodied

embedded



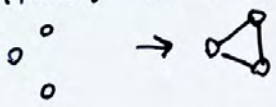
enacted

1+1 = 2

extended

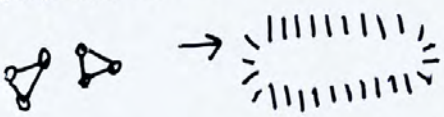
My contention: 5m "e" is emergent many atomic things coming together to produce new phenomena.

atoms → molecules



molecules → cells

cell wall



How do agents form?

cells → brains

But also:

people → cities

scale-free laws?

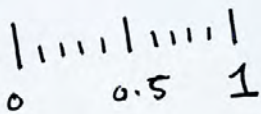
cities → economies

Also, using models from computation:

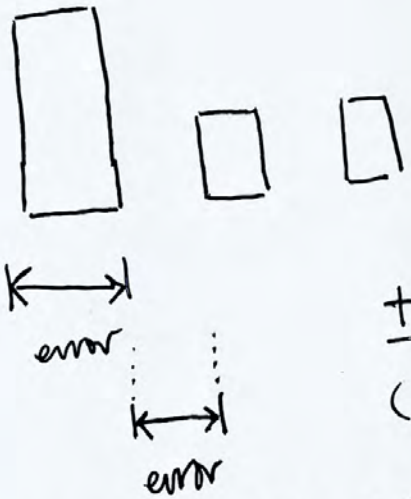
transistors → chat GPT

00:20 Measure with your body.
A big part of this course will be estimation + error management.

ruler



Zoom in:



± 1 tick
(1 mm)

In this exercise, no rulers.
only body. Measure the following:

- smaller than hand
- bigger than hand, smaller than torso
- about as big as body
- room

Estimate error. Attend to process.
Be prepared to talk.

00:40 wrap up. move to course format + website. Lead into battery example.

Explain circuit + voltage basics.
Demo Tinkercad including sim.
pass around demo.

Demo Arduino. Blow something up.

01:00 Demo breadboard. Do circuit exercise.

If time: talk about signals.

Reflection: Are circuits like neurons?
→ can intelligence emerge?
→ is the logic + structure similar?
→ how good is the computational model?