☆ Warm up: draw a robot — as many kinds as you can.

Welcome to COGS 300!

Embodied — in your body
Embedded — in an environment
Enacted — process, not state
Extended — happens "in" env.

} 4E

not obvious! many current sciences ignore.

Brain in a vat

is this the experience machine?

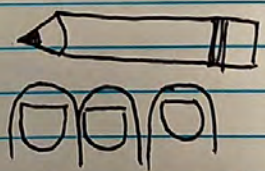
where to slice? muscles are just neurons.
Retina does computation.
Even sensory neurons adjust.

You'd have to simulate everything.

OK, let's demonstrate the 4 e's.
Get into groups.

Measure:
- Smaller than your hand.
- Bigger than hand, smaller than body
- Bigger than body
- The whole room.

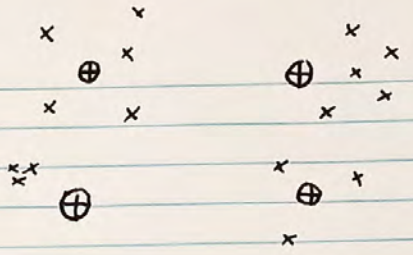
Estimate error:



± 1 finger
:
less?

✓ ×

Accuracy vs. precision



⊛ both acc+prec.

→ you can approximate anything + get pretty good
First assignment will be to measure a building.

→ robots use approximation always.
you never "know" 100%.

→ memorize your body's SI units.

Ontology vs. epistemology

Realism vs subjectivism.

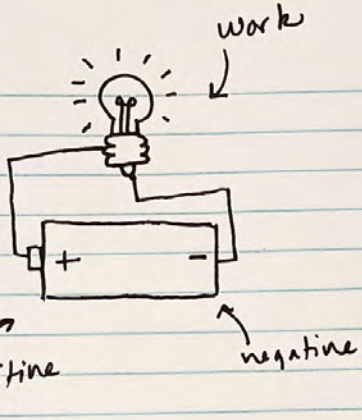
How does body estimation support or fit into each?

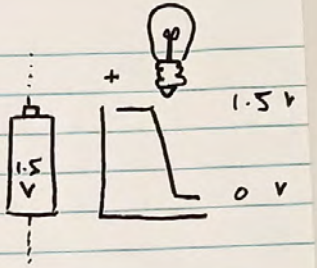
positivism
post-positivist
constructivist
interpretivist
solipsism.

Syllabus + course site. + piazza.

piazza.com/ubc.ca/winterterm12025/cogs300

Electricity





$V = IR$ voltage = current × resistance

multimeter

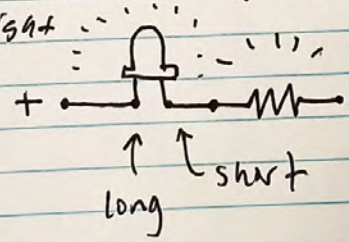
$1.5\,V = 1.\overline{66}\,A \times 0.9\,\Omega$

brighter → $3.0\,V = 3.\overline{33}\,A \times 0.9\,\Omega$

TinkerCAD. lamp circuit only

~~Arduino code~~

Breadboard led circuit.



★ show multimeter

TinkerCAD Arduino lamp

Demo Arduino power ... blow something up.

Introduction

COGS 300

WARM UP: Draw as many different kinds of robots as you can think of.

↑ cartoon

↙ 6-axis pick + place

... etc.

Embodied
Embedded
Evacted
Extented

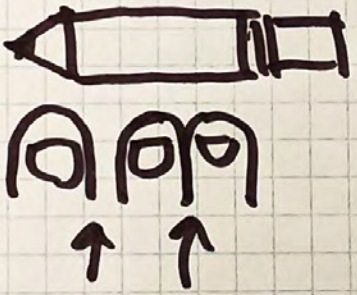
1 + 2 ↓
2590639
8193311

10783950

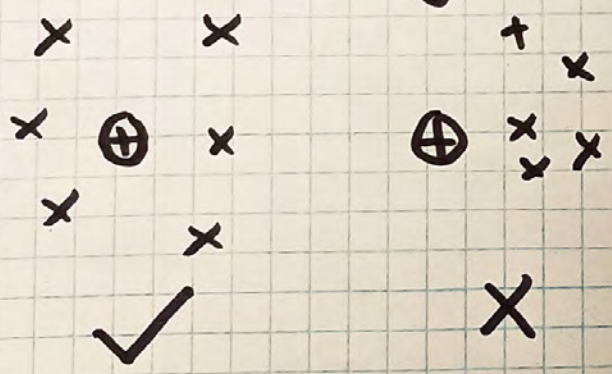
measure:

- smaller than hand
- bigger than hand, smaller than body
- bigger than your body
- whole room

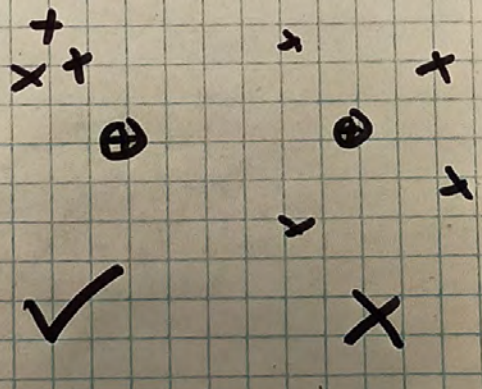
Error



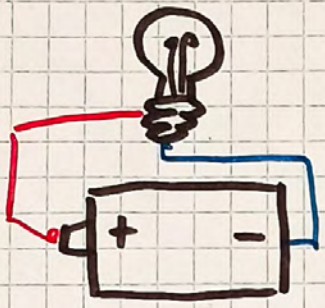
Accuracy

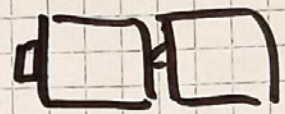


Precision



Electricity





1.5 + 1.5 = 3V