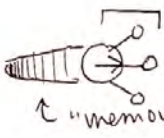
If we think about Cellular Automata, swarms from previous classes, two important dynamics are at play:

1) agents have no memory. Instead, memory is encoded in environment.

2) Signals are highly local (short range)



kernel

If anything is long-range, it has to come from environment.

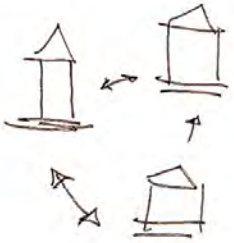
Let's allow our swarms to have just a little bit of memory. Here's a simulation of a colour-passing message.

☆ GH: Agents

↳ plays w/ settings → turn on msg. → design q/q. → history.

As you can see, message-passing is not simple! It gets harder with non-local msgs.

Here's a toy example. Imagine you're in the Distributed Kingdom.



messages between towers.

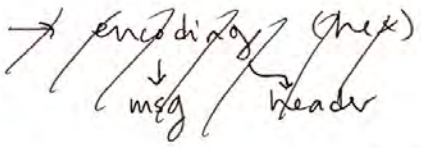
→ tell troops where to go.

→ longer messages.

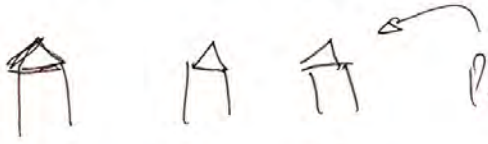
↳ encoding + protocol

☆ Classroom swarm.
- → upload BLE sketch
- → download NRF connect
- → play with hex messages.

Now, design a method for getting a msg across the classroom. My TAs will adjudicate. I'll time. Ens Test.



Now, what if I want to get a message to a specific spot?



→ Header Requires trust!

★ Design a system for a secure message.

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Warm up: Gestalt perception.

occlusion

e.g. proximity

play with what seems to be grouped or continuous.

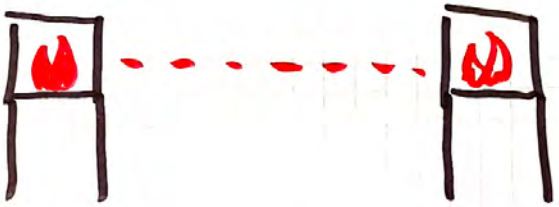
directions ... etc.

Cellular Automata
- ↳ Langton's Ant
- → Conway's GOL
- → Ext. GOL
- → physarum

Kernel

local = no memory on agent

learn in environment

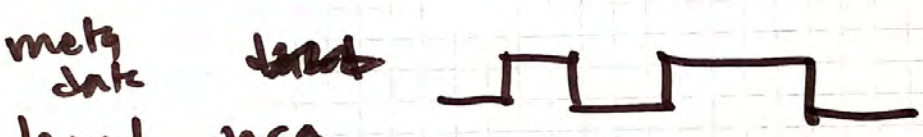


bandwidth of trans. medium.

binary

01011

protocol → timing



- BLE arduino
- NRF connect

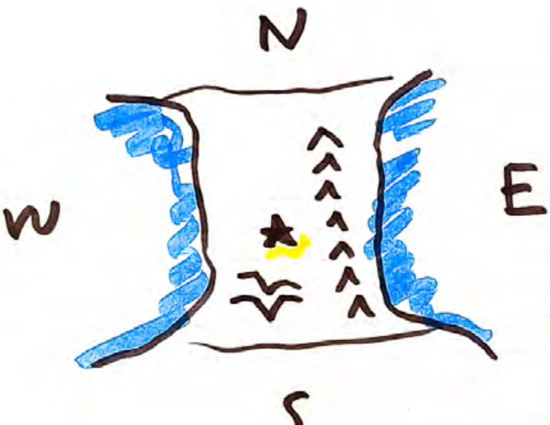
mem = [red] ——→

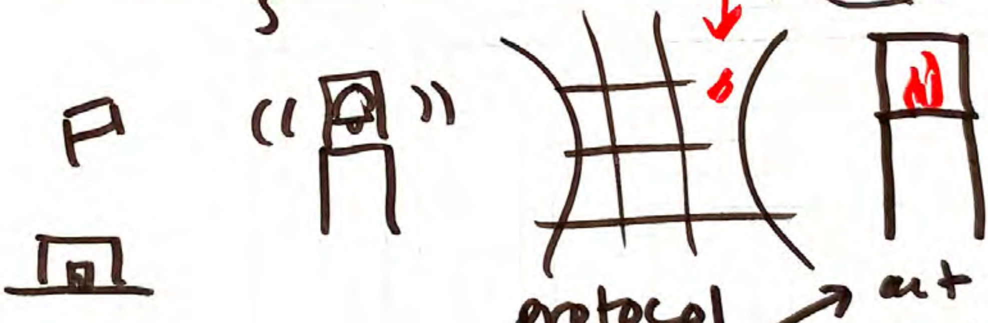
(2s.)

[red , blue , green
1.5 1.7 2.2

m = {N E S W}

fastest way ?





protocol → art
→ enco

0-9
→ a-z → locations


BLE
圆
朵