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|  | **Self-Aware Robots and Platforms** |  |

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## For the following activities you will be exploring various topics in computer science and answering questions related to the topics.

**Hod Lipson and Self Modeling**

[Spider](https://www.youtube.com/watch?v=iNL5-0_T1D0)

* What is motor babbling and what is this accomplishing?

Motor babbling is moving the motors in random directions to try and gain an understanding of what each one does.

* Why does the modeling use disagreement as an indicator?

It uses disagreement as an indicator because the result can prove the idea of what it looks like to the robot. Disagreement can help rule out which hypotheses are wrong about what it looks like and allows the robot to better understand what it looks like.

* What conclusions does Dr. Lipson say can be drawn from the spider robot learning mobility?

Some conclusions might be that the robot can learn from itself, but it does need the programs to allow it to learn from itself. Not all robots need to be taught how to do something, when it is better to let them just learn from themselves.

[A Step Closer to Self Aware Machines](https://engineering.columbia.edu/press-releases/lipson-self-aware-machines) (Article) [YouTube Video](https://www.youtube.com/watch?time_continue=128&v=4dp_iiESLo8)

* How many trajectories and points did the robotic arm initially collect?

It initially collected one thousand trajectories and one hundred points each.

* How many hours of training did it take for the robot to be accurate within 4 cm?

It took less than 35 hours.

* Explain the experiment where a part of the robot was changed mid experiment.
  + Purpose: It was to teach the robot how to change its self image to accommodate the part changed.
  + Applications: This can be used for future robots to adapt to a change in themselves allowing them to continue to do their task given.
  + Conclusions to be drawn: This can draw the conclusion that robots don’t need all of their programming and can teach themselves allowing them to require less maintenance.

[Redefining Consciousness](https://www.youtube.com/watch?v=chukkEeGrLM&feature=youtu.be)

* Define Self Simulating:

Self simulating is the ability to imagine yourself.

* How does the self model need to change or the robot to be able to transition from the cup exercise to the writing task?

It needs to just have the objective change so that the robot can readjust its next movements to get the job done.

* What industries and systems does Dr. Lipson say this technique will benefit?

This will benefit every single system. Factories, traffic lights, self-driving cars, and other industries are included in this.

* How are both the spider and the arm self aware?

They both are becoming self aware through the programs and data the robots themselves have used and gathered.

[**Platforms**](https://www.youtube.com/watch?v=gaULkshOxiY)

* Define a platform:

A platform is a website or application that brings two or more sides of an economy together.

* What are some early examples of platforms from the video?

Some early examples of platforms include Ebay, Amazon, and Ticketmaster.

* Political economist Karl Polanyi defined three types of economies. What are they and what is a one sentence description of that economy?

1. Reciprocity: Goods are exchanged as gifts among the community.
2. Householding: Families make all their needs by themselves for themselves only.
3. Redistribution: A highly powerful leader has all the goods and redistributes them to members of their society.

* What events happened at each of the following dates, date ranges, and events?
  + Late 1700s
    - Industry was booming and manufacturing started taking over Europe.
  + 1776
    - Adam Smith published, *An Inquiry Into the Nature and Causes of the Wealth of Nations* that talked about production and the free market.
  + Advent of competitive pressures
    - Businesses started lowering production costs to make them able to sell their products for less while still maintaining decent profits
  + Assembly lines
    - Provided companies cheaper labors that didn’t need to be trained in any certain specific way.
* Explain why Uber is not a taxi company?

Uber is a technology company that pairs a driver with you to make sure that the driver gets you to where you need.

* How is a tech company like a feudal lord?

They own, assist and distribute them among their consumers for a price.

* What is a platform selling you in most of these examples?

Amazon is selling us a lot of stuff in most of these examples.

* Explain what happened with John Deere tractors:

John Deere forbids farmers to adjust or modify their tractors causing them to need to buy a new tractor every time they need to meet new standards.

* How are platforms monopolizing data? What are the ramifications of this?

These platforms are taking over the data and are causing themselves to push out small commeditors. Some ramifications include that everything is leased and competition is at its highest as companies fight for different goods and services.

[**Piracy**](https://www.youtube.com/watch?v=UJqyxmhDWTM)

* What two things make paying for content win over piracy?

Affordable and more convenient than stealing.

* + What is “the rub?”

Instead of paying for the things you want to watch, you have to pay for the service’s full catalog.

* Why is the old model failing?

It is failing because of competition becoming more apparent as other companies start wanting in on the different customers that will pay for their movies and tv shows or other services.