Movement and Visual AI

***Adapted from Dancing with AI by MIT
https://dancingwithai.media.mit.edu/curriculum
Here are some examples of movement!

Yesterday was images and poses...
We use motion for...
Can AI understand our movement?

What do you think?
It’s time to code with movement!

Has anyone heard of Scratch?
Here’s a quick intro to Scratch and the pieces of it we’ll be using!
Block Programming

Start

Stop

Moving to random position

(**Dancing with AI - Day 3, Slide 18**)
Posenet - Body Posing
Adding pose blocks to Scratch

Body Sensing
Sense body position with the camera.

(**Dancing with AI - Day 3, Slide 21**
Example with Body Posing

Body Pose Sensing

Hi friend!

(***Dancing with AI - Day 3, Slide 22)
Adding hand blocks to Scratch

Hand Sensing
Sense hand movement with the camera.

(**Dancing with AI - Day 3, Slide 24**)
Example with Hand Posing
Affectiva - Face Modeling
Adding face blocks to Scratch

Face Sensing
Sense face movement with the camera.
Example with Face Modeling

When smile detected
switch costume to ecstatic
say Yay!

When eyebrow furrow detected
switch costume to angry
say Grrr...

Yay!
Shake Break!
Let’s Try It!

- Go to https://mitmedialab.github.io/prg-extension-boilerplate/create/
- Follow along with me and we’ll make a few PoseBlocks mini projects together!
Seeing What We Want to See

1. The AIs you created today are based on data of human faces and body parts - what would happen if you put on a mask or costume while testing them?

2. What would happen if you used your AI on your favorite animal instead of humans? Would your model work better/worse than with the mask?

Your model is going to behave differently - and maybe badly - as soon as it comes across data it can't recognize.
I’ve just moved into a big, fancy apartment that I can’t wait to show off to my friends. My door has an AI lock on it that I can program to open when it detects a particular object in front of it.

I take a bunch of pictures of my happy, smiling face and train the AI to open when it sees a human face based on those pictures.

What are some reasons why my lock might not open for my friends?
Those reasons you came up with are examples of AI bias - another reason modern AI can fail in the real-world.

Bias is a BIG part of discussions on AI ethics.
Great Job!
Acknowledgements and Attribution

This curriculum was adapted from “Dancing with AI” curriculum from the MIT Media Lab, licensed as CC-BY-NC under Creative Commons (link on slide 1). “Dancing with AI” was created by the Personal Robots Group at the MIT Media Lab.

Slides taken directly from “Dancing with AI” curriculum or those with few alterations are marked with a footnote, with the original slide identified.

All other slides are either created by Jazmin Collins (using templates and graphics from “Dancing with AI”) or largely altered from their original form to fit the “Movement and Visual AI” lesson plan.