CIFellows 2020-2021

Open-ended creative activities connecting **computational models** and **dance** led to **meaningful** and **personally relevant** discourse around the **capabilities and ethics of AI systems**.

AI+Dance: Co-Designing for Culturally Sustaining AI Education with danceON
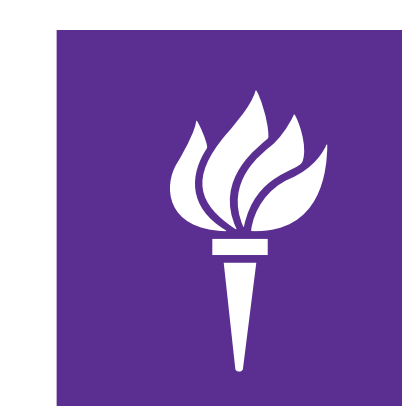
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AI and AI Education

- The ubiquity of **artificial intelligence** has introduced a rise in **ethical challenges** (e.g., **racism** and **sexism**) resulting from how these systems are designed and implemented.
- These challenges exist within a computing discipline already burdened by **exclusive**, **marginalizing cultures** and **practices** that further harms minoritized people and communities.
- Our work attends to these dimensions of inequity within **AI education** by developing an understanding of how to equip learners to **recognize and rectify issues of AI** within an **inclusive** and **culturally sustaining experience**.

danceON: dance Object Notation

- **danceON** is an open-access **creative coding environment** that enables learners to create code to engage authentically with **dance** and **body motion**.
- Learners code virtual animations over video data that can bind and respond to body positions and be statically and dynamically positioned in space.
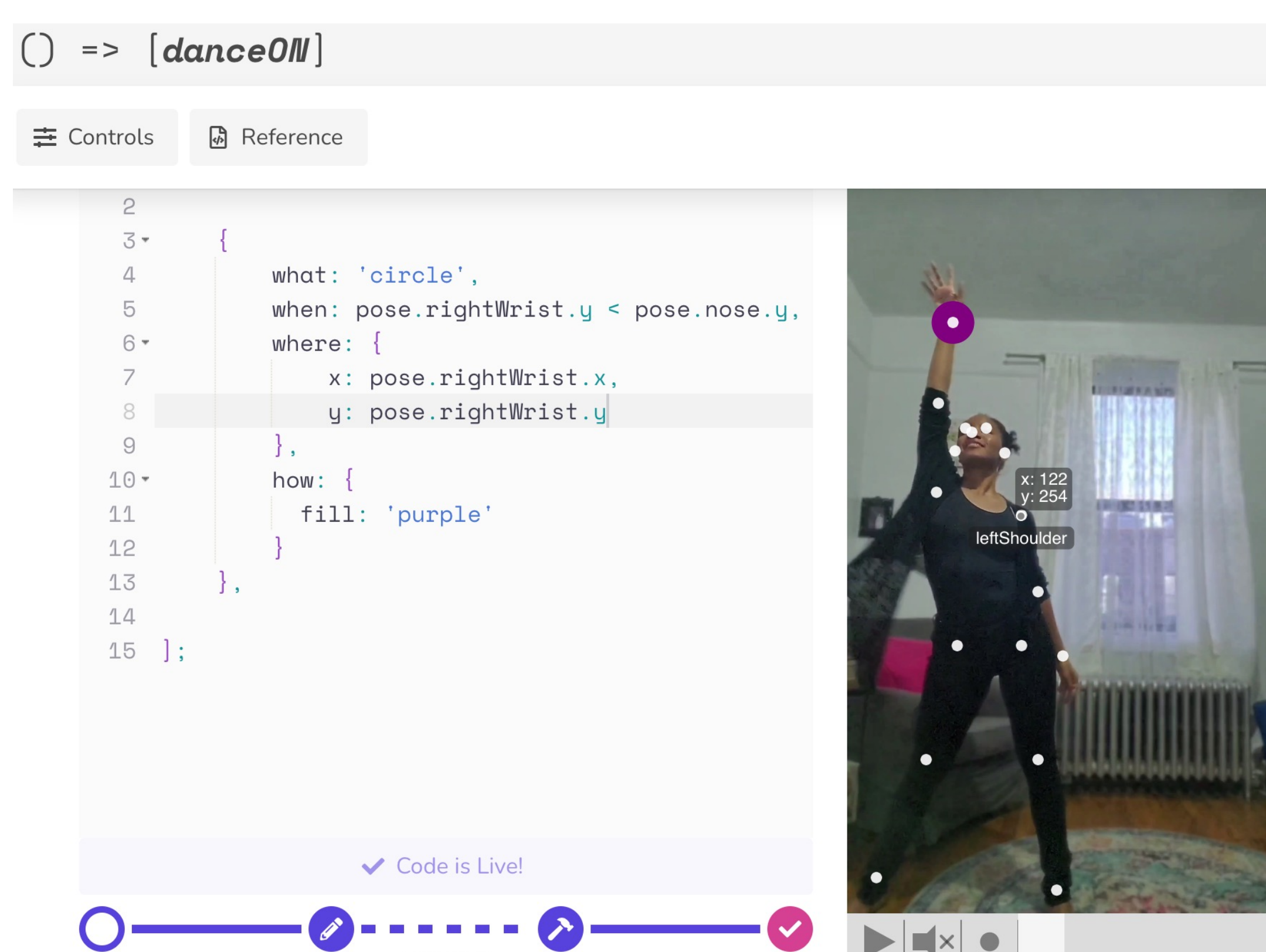

Partnership with STEM From Dance

- We partnered with **STEM From Dance**, a non-profit organization that supports young women of color in **creative production with dance**, **computer science**, and **STEM**, to co-design **culturally sustaining AI resources** and engage teachers and students in developing resources across **dance**, **CS**, **AI**, **machine learning**, and **ethics**.

Creating Meaning from Dance, Computing, and AI

- Within **danceON**, simple animations take on **multi-layered meaning** —e.g., learners superimposed circles onto dance videos to represent a sun and moon and color change of dark to bright to signify hope.

- Prior work showed that students connected their **understanding of AI** to **personal experiences** and **publicized instances of bias**.
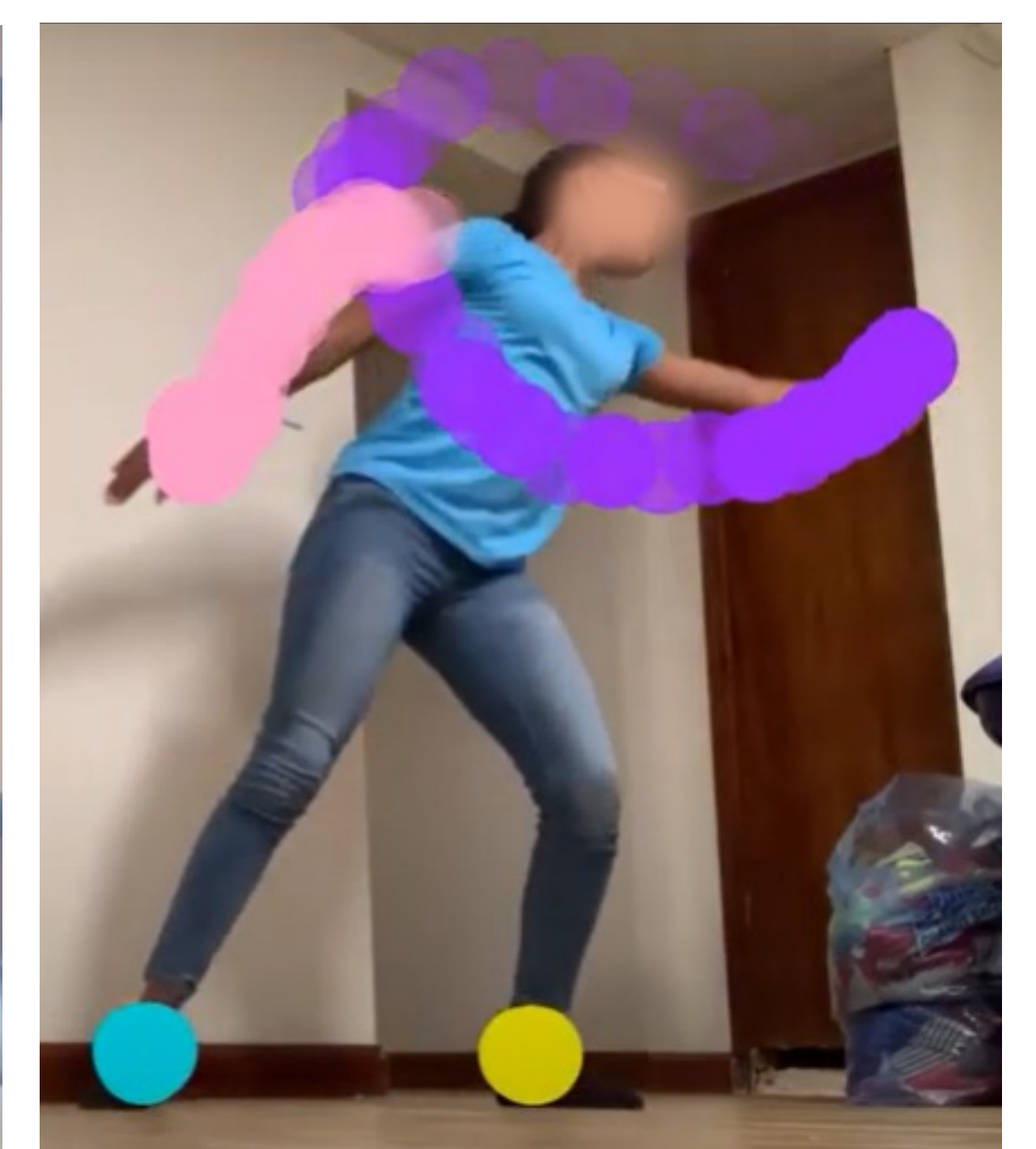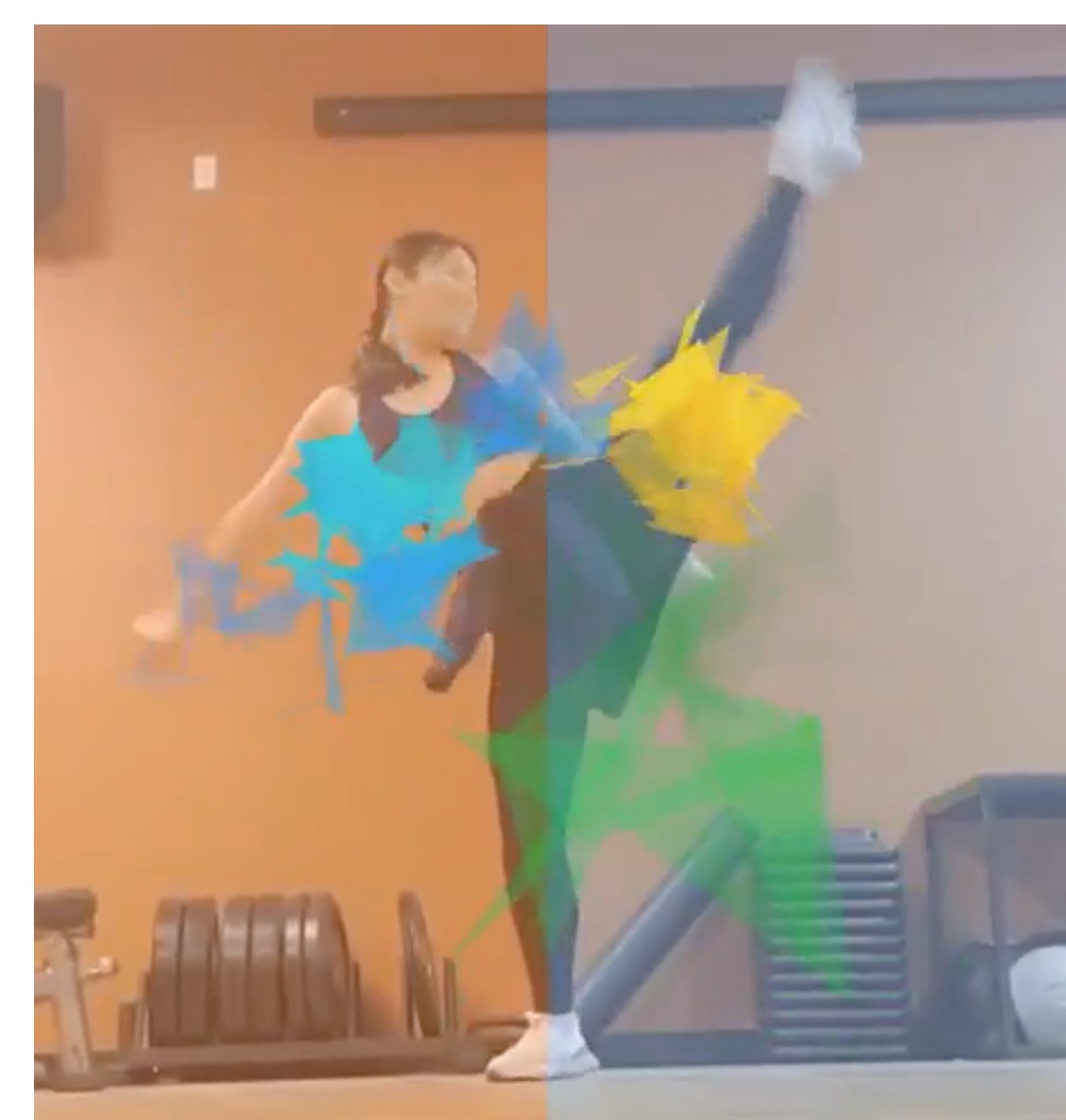
> **"I never fully processed the lack of representation in technology. I usually attribute the mislabeling or not being able to recognize me as a computer error but never technology not being coded to include me."**

Ongoing Work: Co-design Process

Stage 1
Co-design of curricular modules and resources with **STEM and dance teachers** to support **embodied**, **culturally sustaining** explorations of AI/ML concepts through **dance and creative production using danceON** and engaging in **discussions of ethics** through dance and AI.
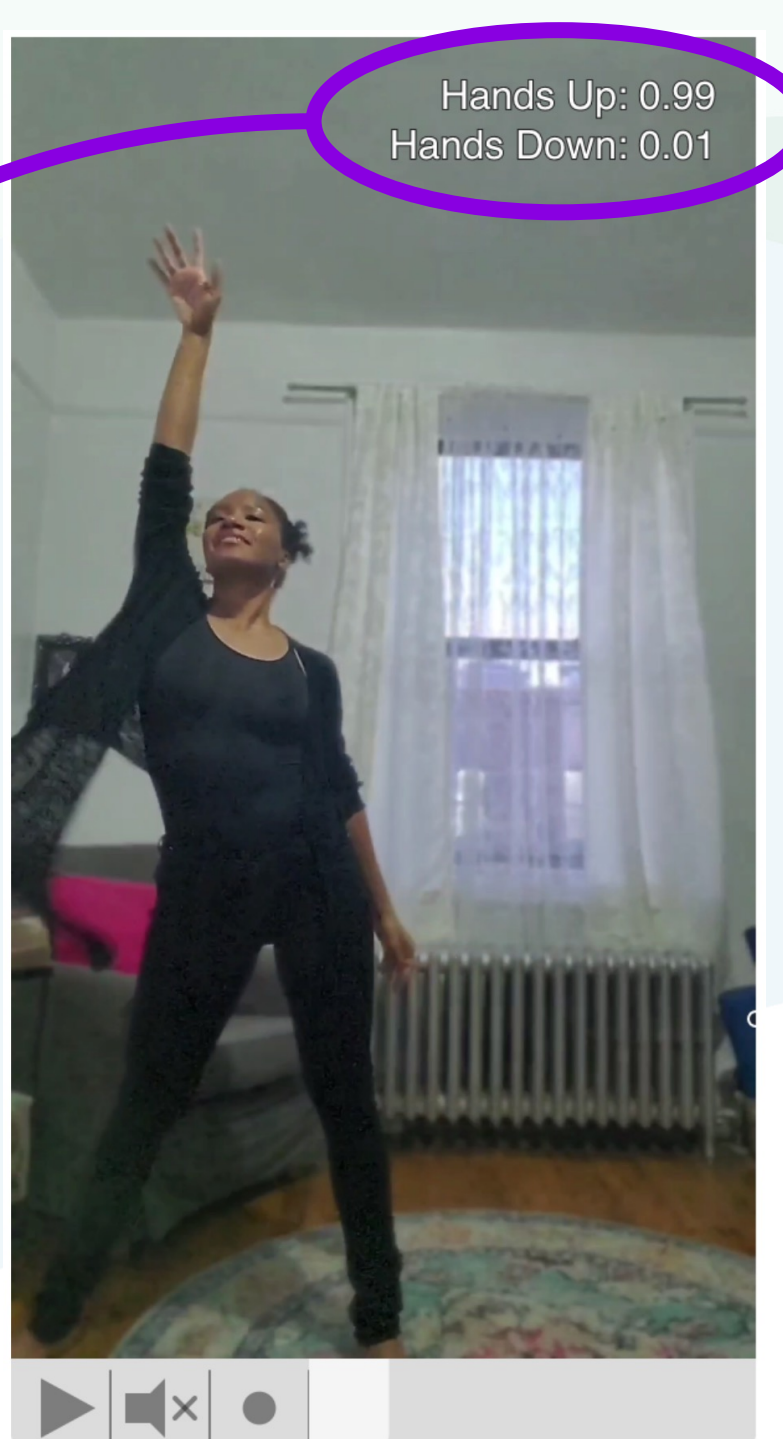
Stage 2
Implementation of curricular resources with STEM From Dance students. Students create **dance computing performances** with danceON, connecting across topics of **CS**, **AI**, **ML**, and **ethics**. Students and teachers provide feedback on the curricula to ground the qualitative contextual analysis of curricular modules.
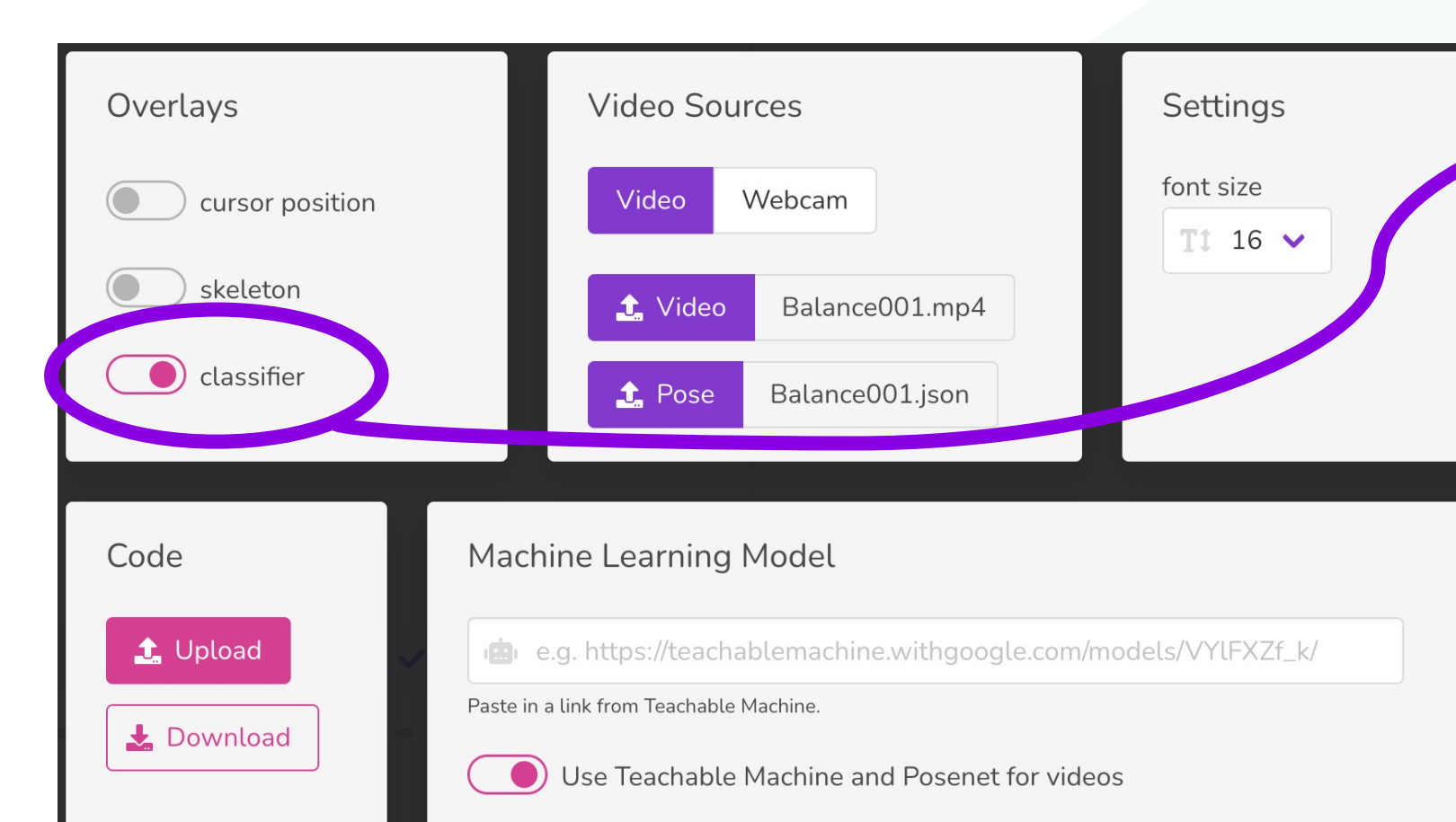
Stage 3
Refine curricular resources with STEM From Dance teacher partners based on student and teacher experiences and qualitative analysis. Curricular resources are publicly hosted to broaden access to modules and danceON and for use in **teacher professional development** training.

Partners and Collaborators

Elevate LAB **NYU | STEINHARDT**

University of Colorado Boulder **STEM FROM DANCE**

CRA Computing Research Association

CCC Computing Community Consortium Catalyst

NSF

Scan me! Try out danceON, download this poster and our papers, and check out danceON videos.

@DrFrancisCastro