



## What is Tai-Chi

"Meditation in Motion": a complete martial art system, popular among seniors

### Benefits:

- Increased lower extremity strength
- Improved balance control
- Postural adaptation
- Reduced risk of falls
- ...



## Motivation

- Transition from in-person to virtual in the fitness industry.
- 72% of surveyed adults are using online fitness resources just as much, or even more than during pandemic.
- Drawbacks of current virtual Tai-Chi training:
  - + Not able to see all the angles of the instructor's body.
  - + Lack of real time feedback from the instructor.

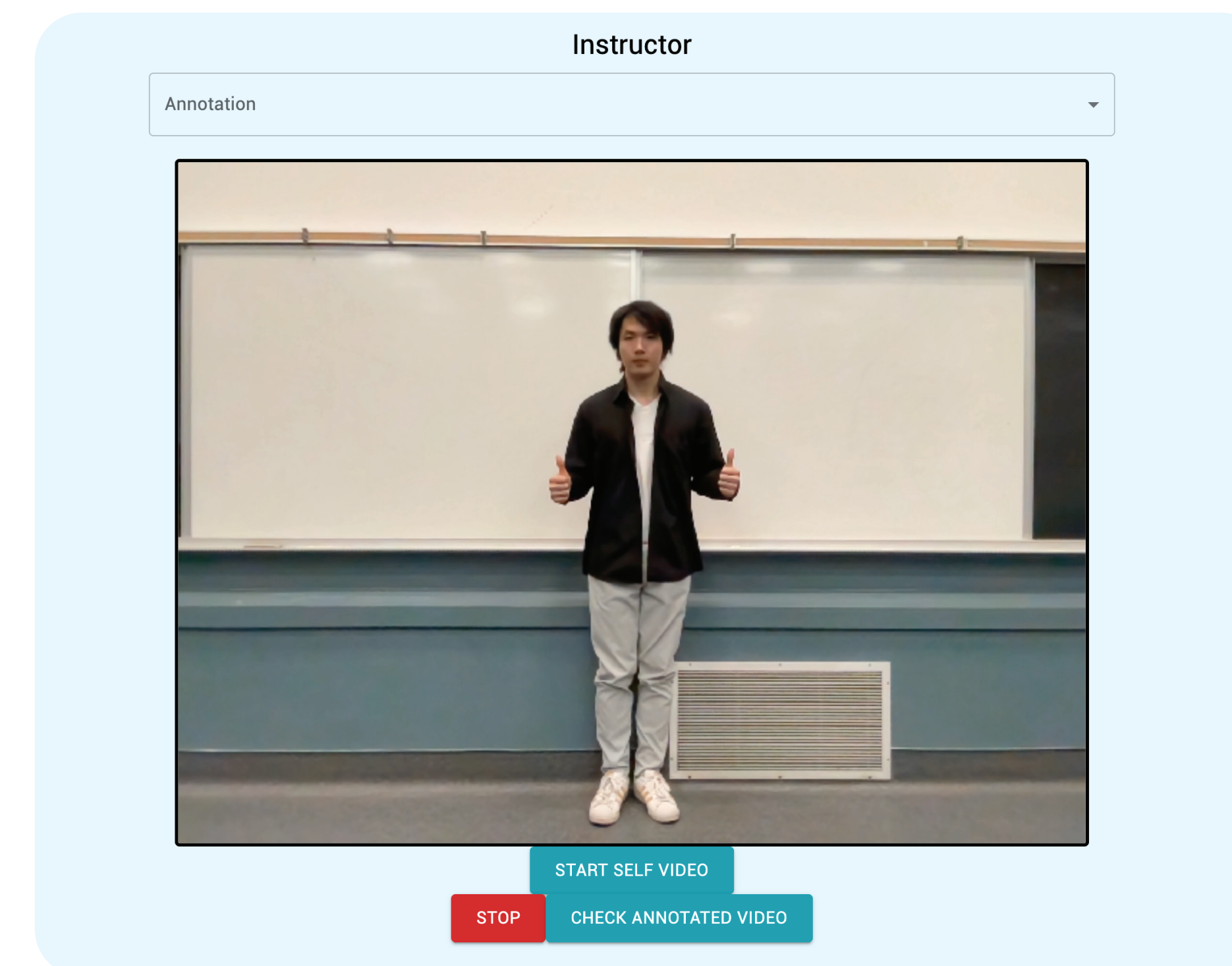
## Our Solution

Video conferencing platform for Tai-Chi instructors and practitioners with video annotations on:

- Human skeleton
- Footwork
- Center of mass
- ...

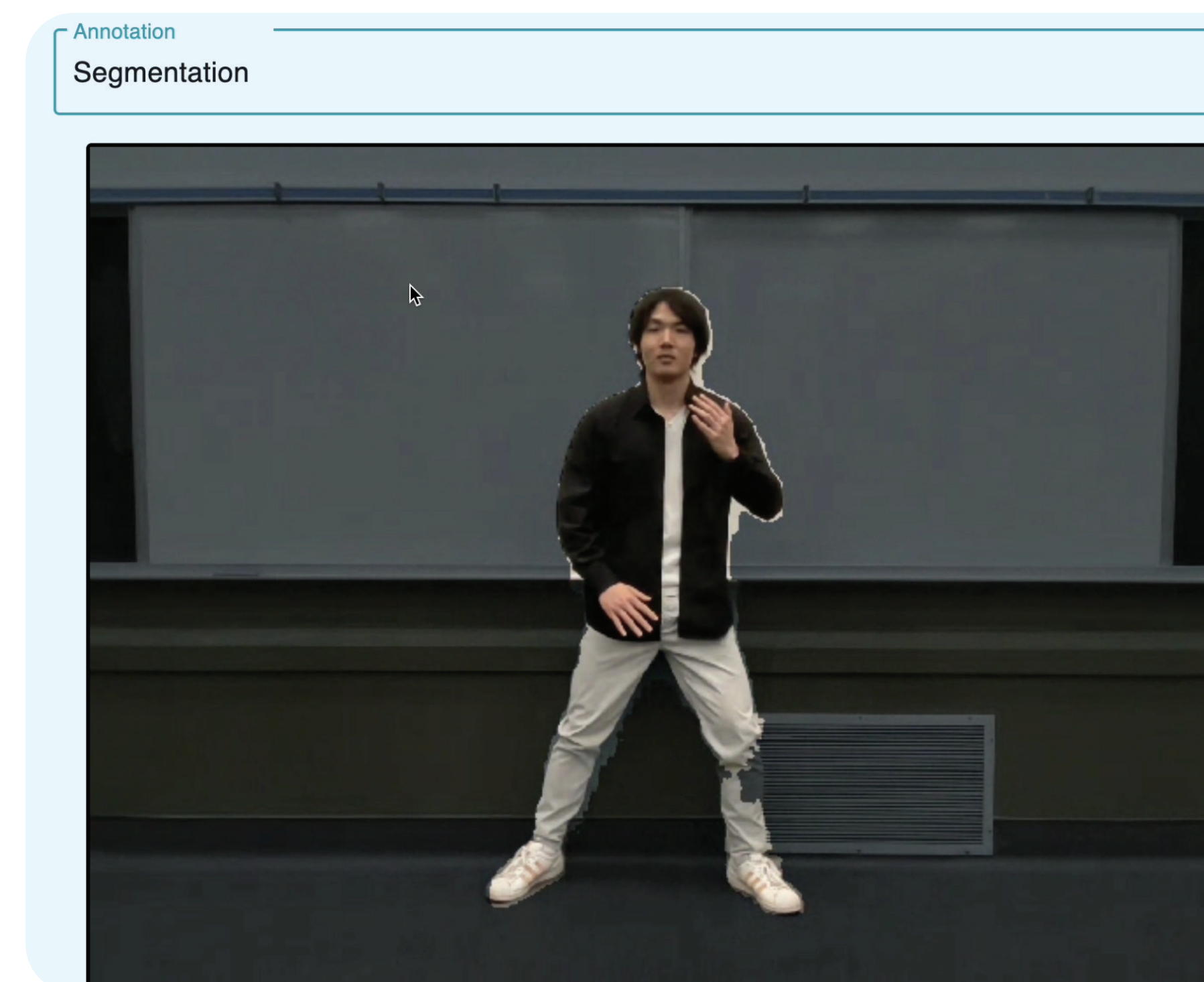
## Key Features

### Instructor Home Page



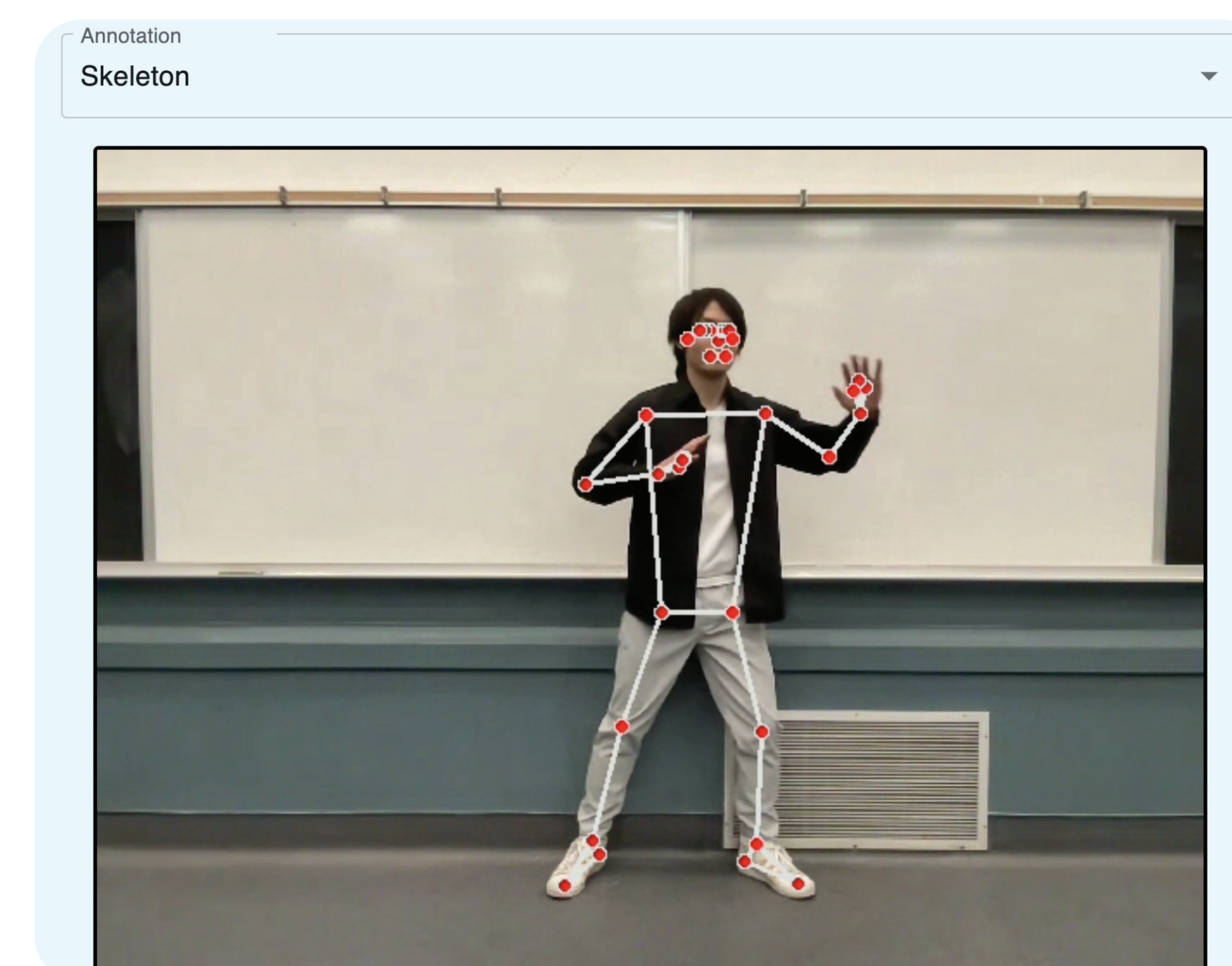
Basic functions include start/stop broadcasting, check annotated video

### Semantic Segmentation



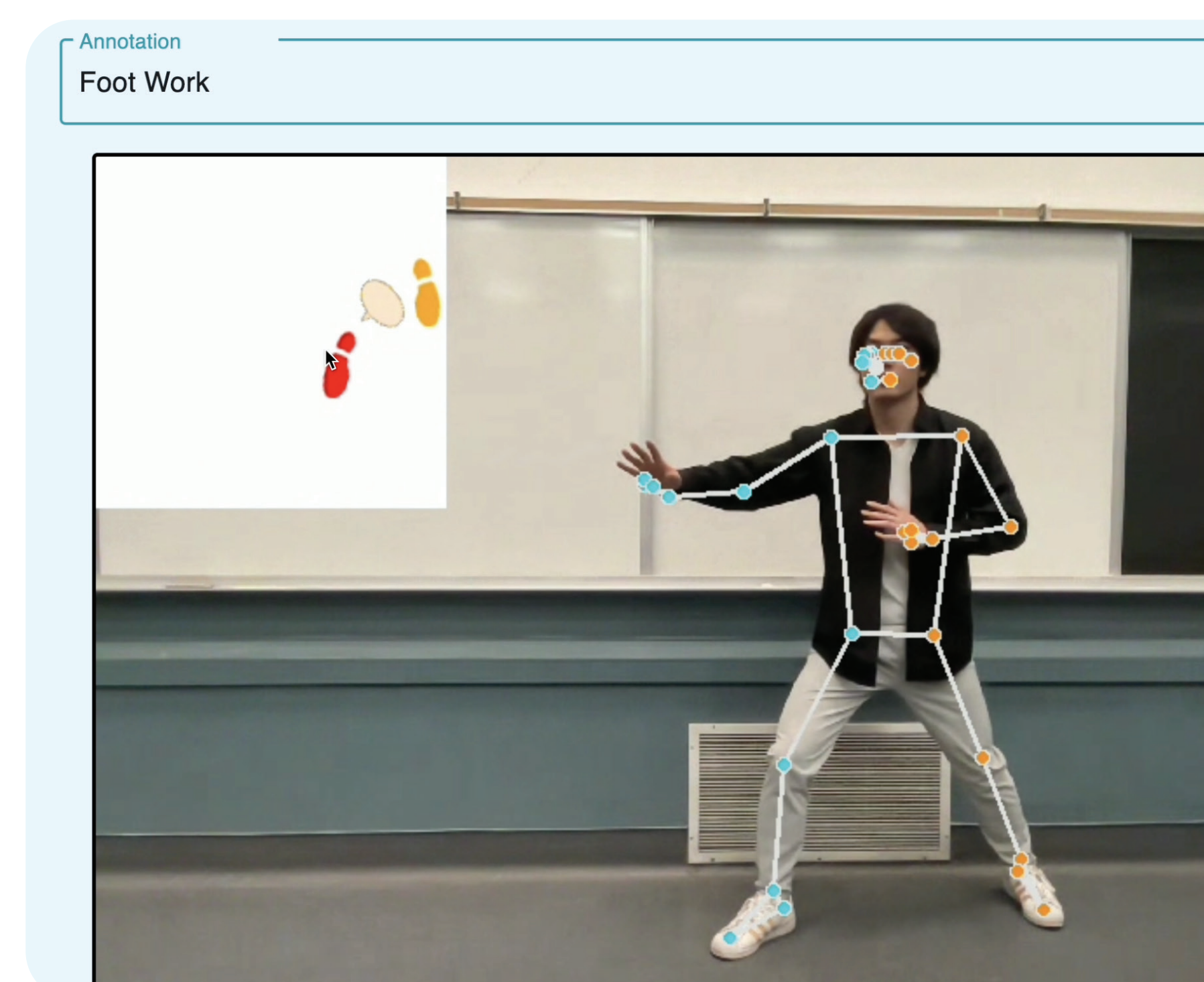
Dims the background, naturally draws attention towards the instructor

### Skeleton Annotation



Visualizes the instructor's movement with a skeleton overlay

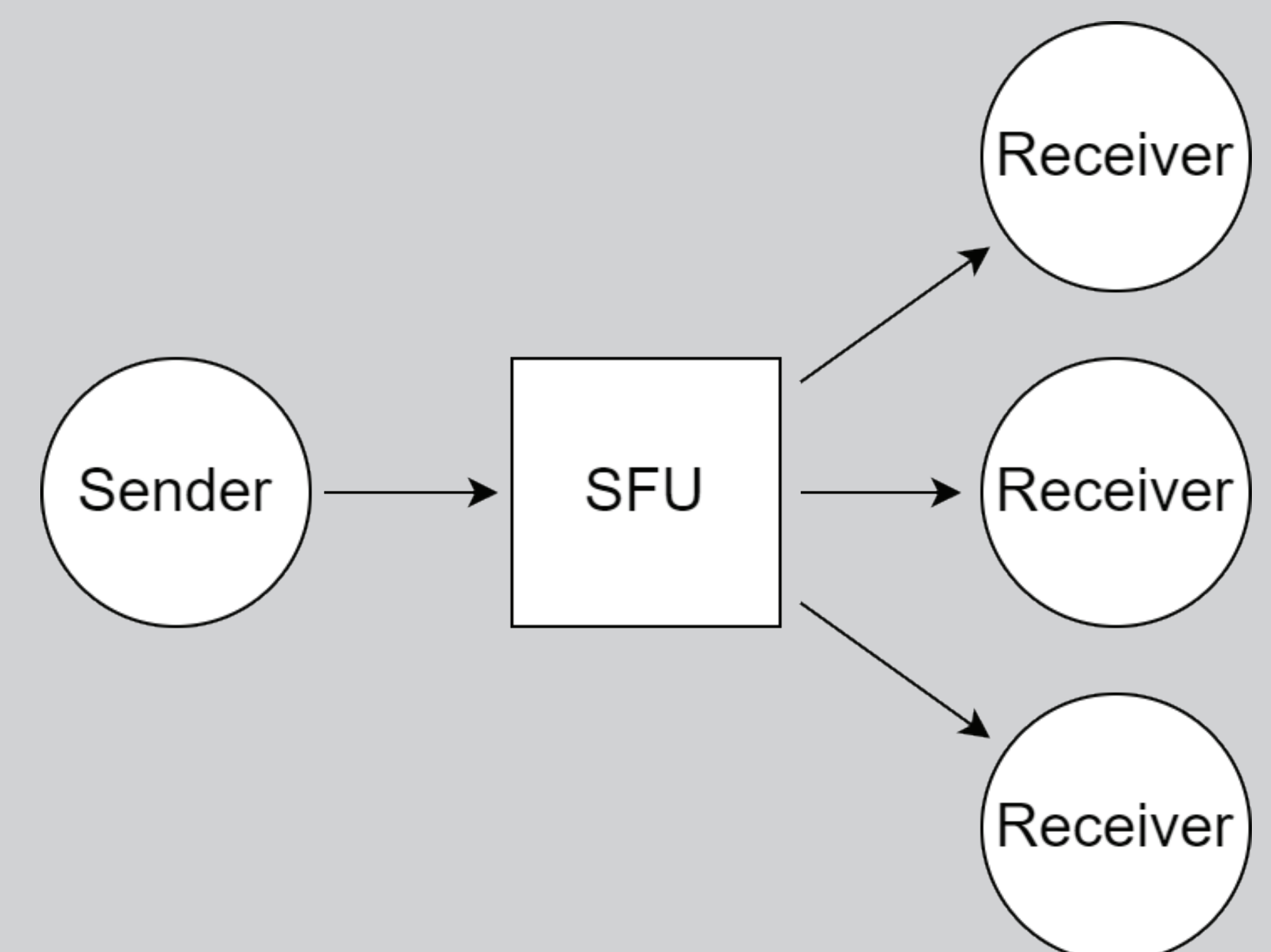
### Footwork Annotation



Visualizes foot placements and highlights the supporting foot in red

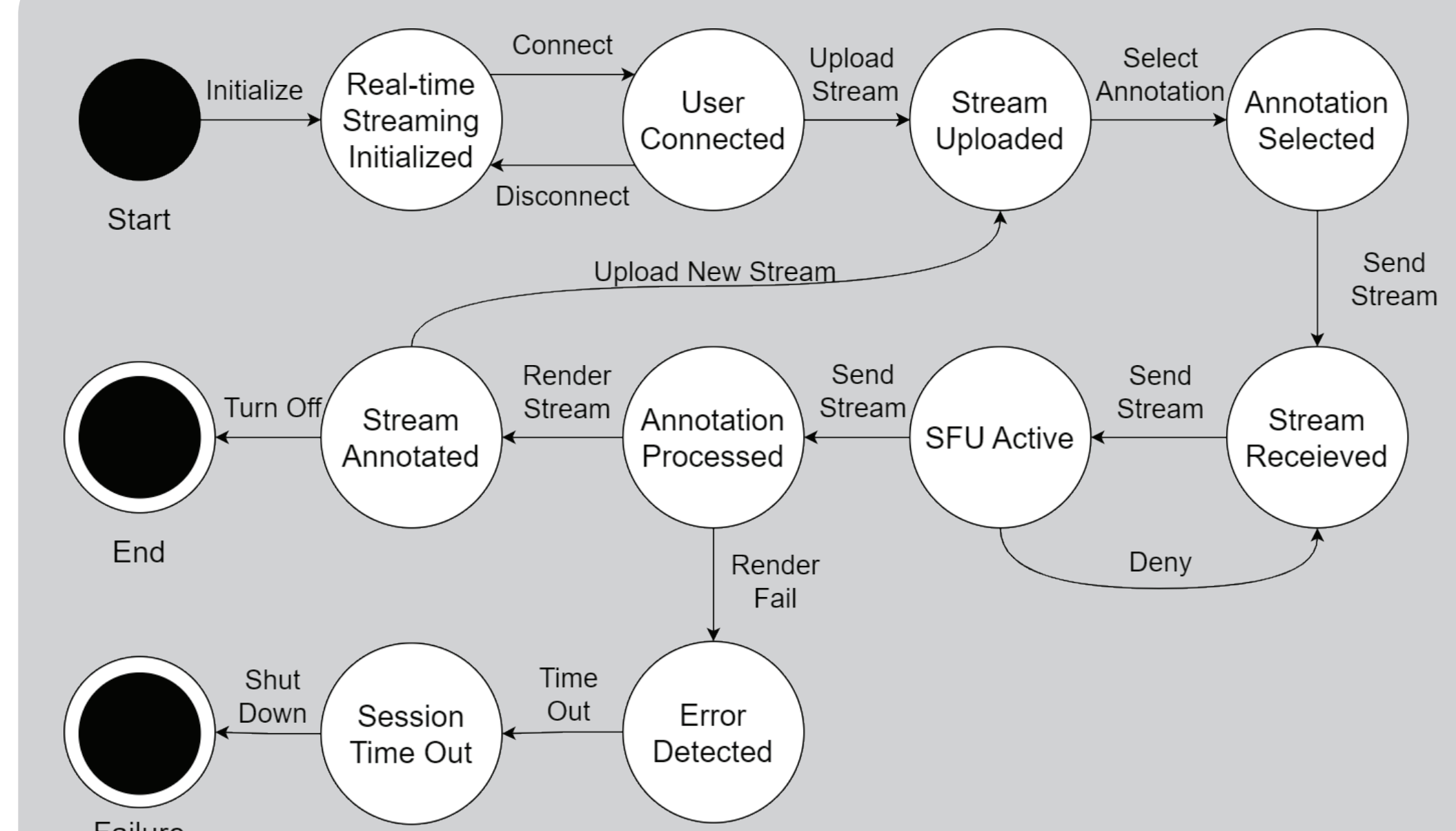
## Product Highlights

- Optimized performance for all devices, including cell phones and tablets.
- Flexible architecture built for easy integration of future enhancements.
- User-centric interface design focuses on simplicity and ease of use for all age groups, especially seniors.



## Engineering Overview

WebRTC: P2P real-time communications  
 Selective Forwarding Unit architecture  
 3D Human Pose Estimation  
 Pipelined annotation generation  
 Cross-platform compatability



### Engineering Team

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### Special Thanks To

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