

# AI Real-Time Feedback in Sports

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# AI Real-Time Feedback in Sports



# System Requirements

**WHO + WHAT + HOW**

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How are they training?

How can they improve?

# System Requirements

**WHO + WHAT + HOW**

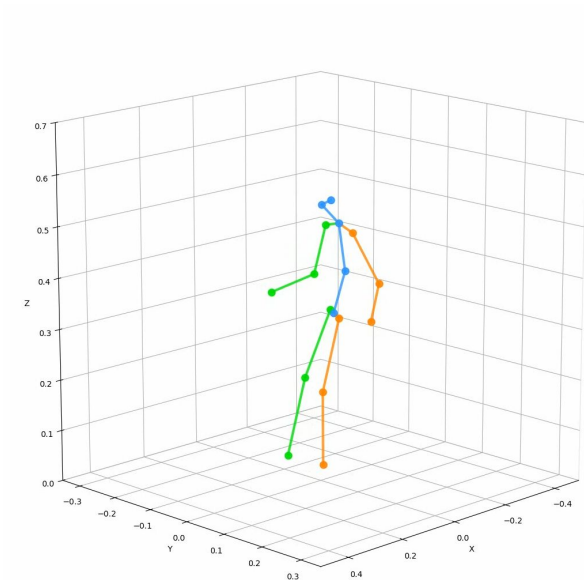
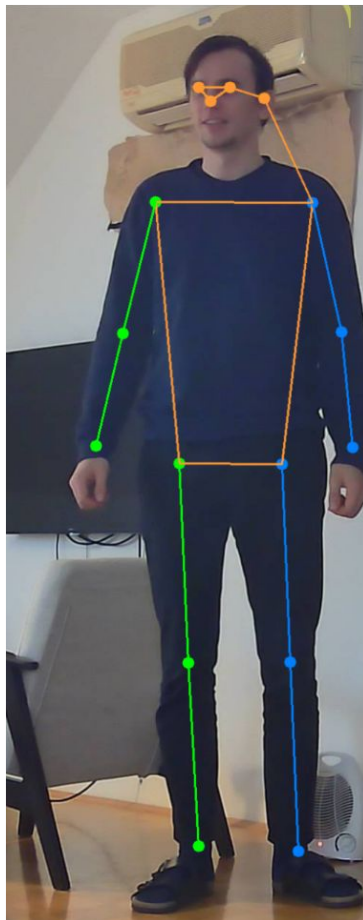
How are they training?

How can they improve?

- + real-time
- + streamlined for the end user

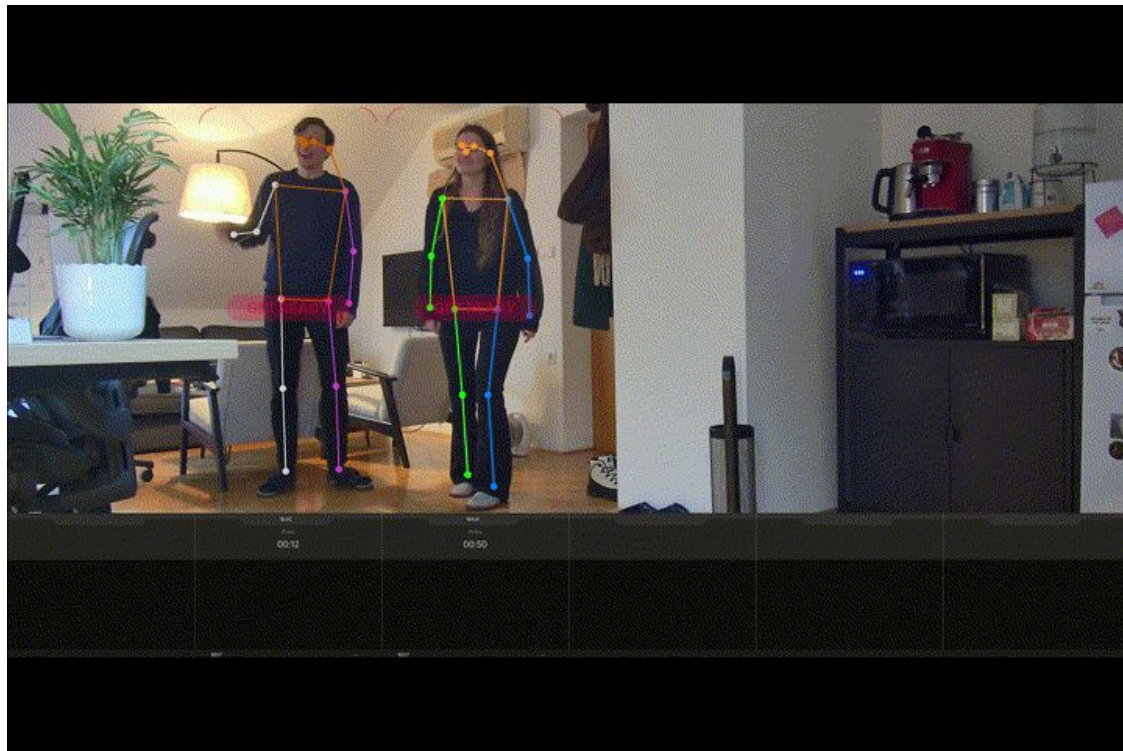
01

## Pose Estimation (2D and 3D)



02

## Person Recognition & Tracking



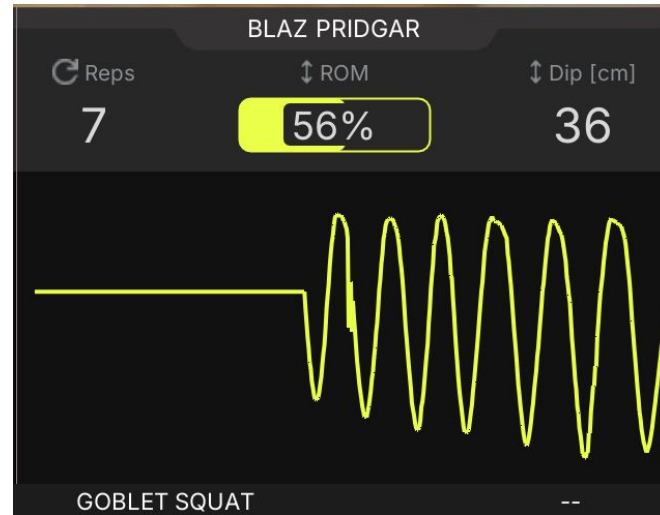
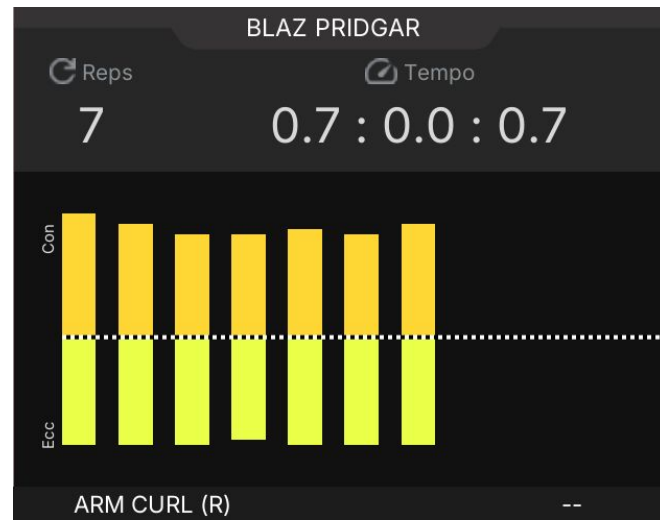
# 03

## **Movement Recognition**

- exercise classification (squat, deadlift, biceps curl, ...)
- unilateral/bilateral movement
- gesture recognition (as user control), e.g. cross hands to show training plan

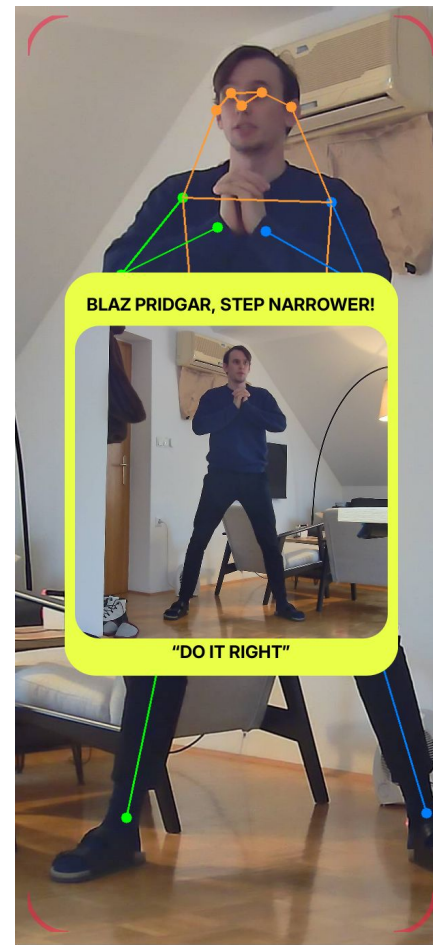
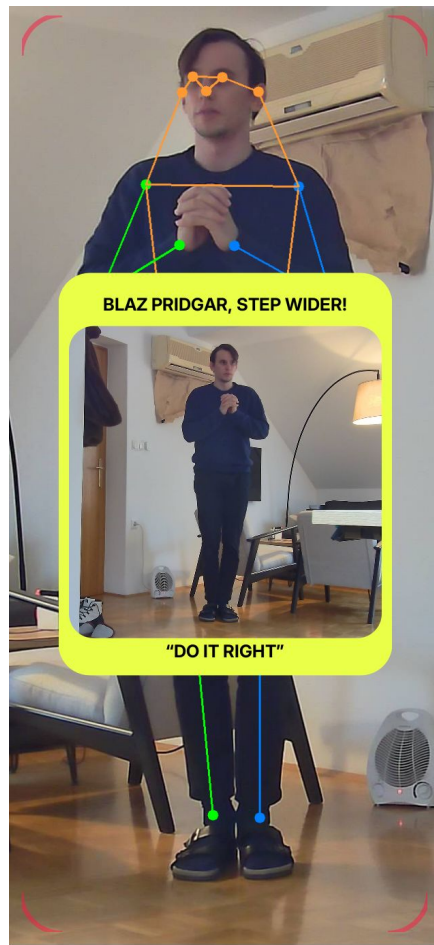
04

## Performance & Technique Feedback



04

# Performance & Technique Feedback



05

# Equipment Detection



# What Did We Learn?

- **Small errors compound**
- **Real-time changes everything**
- **Model orchestration is the real challenge**
- **Messy reality → Robust systems**

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