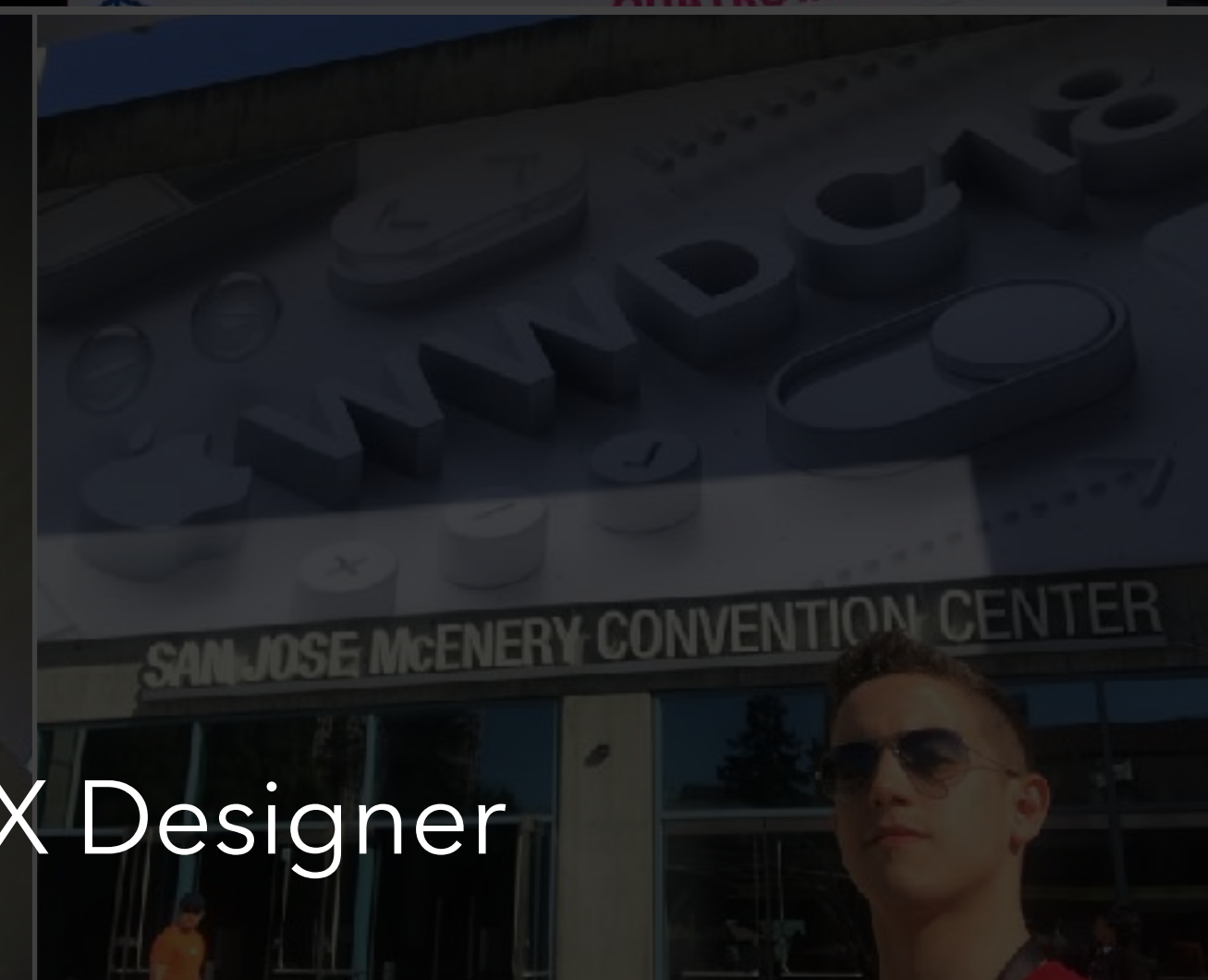
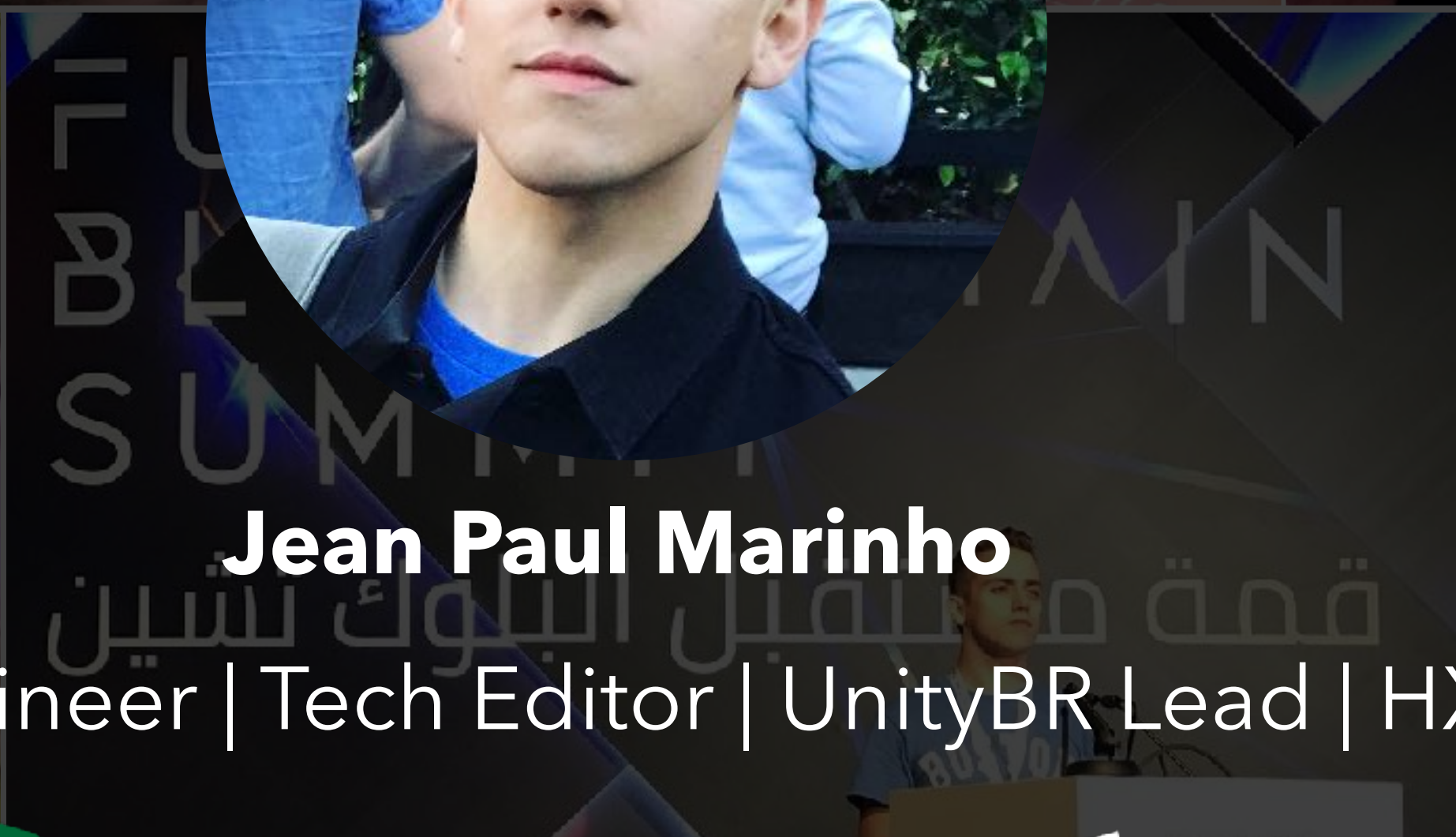
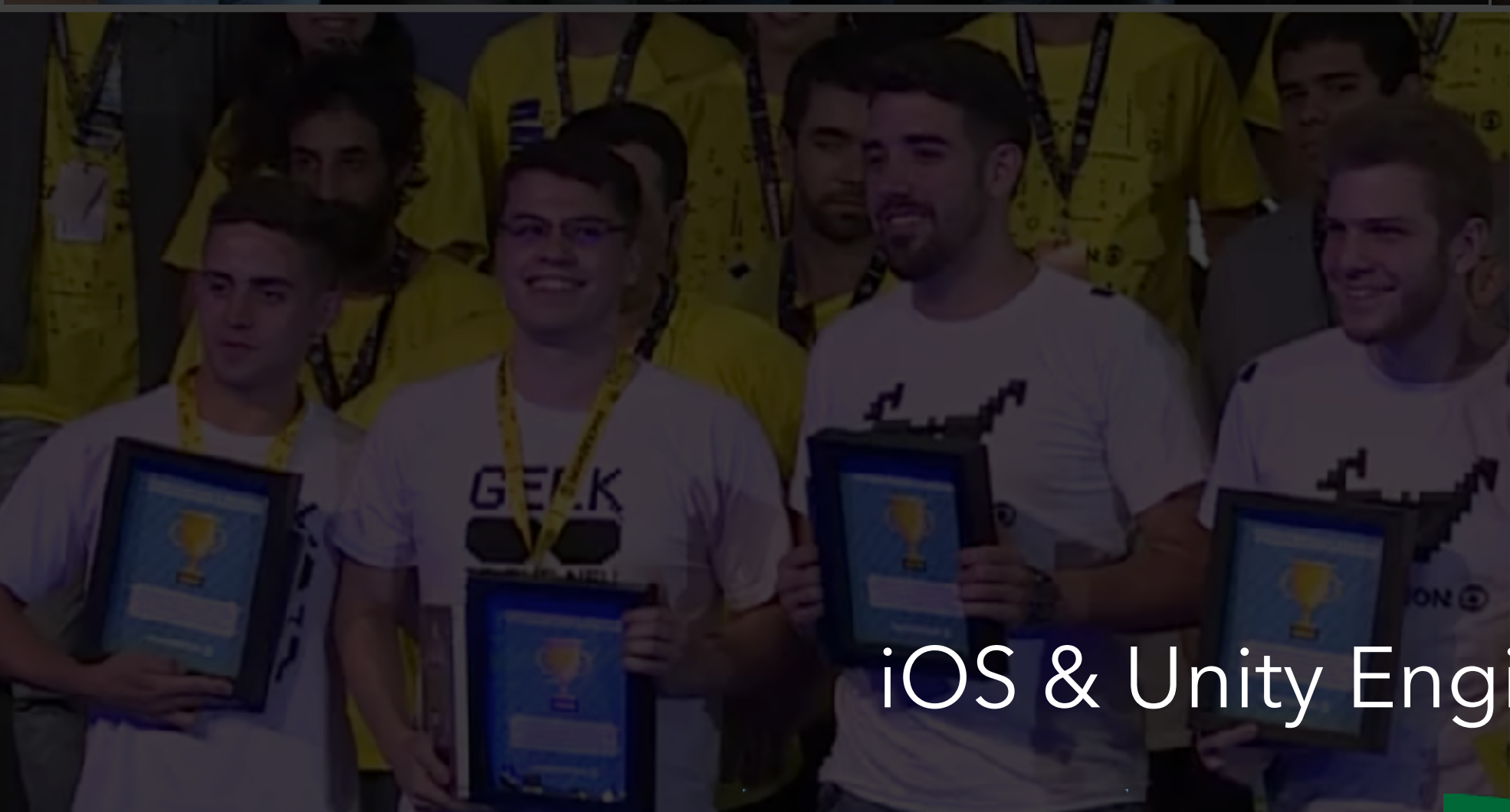


AUGMENTED REALITY

for iOS



Jean Paul Marinho

iOS & Unity Engineer | Tech Editor | UnityBR Lead | HX Designer



aKANJ



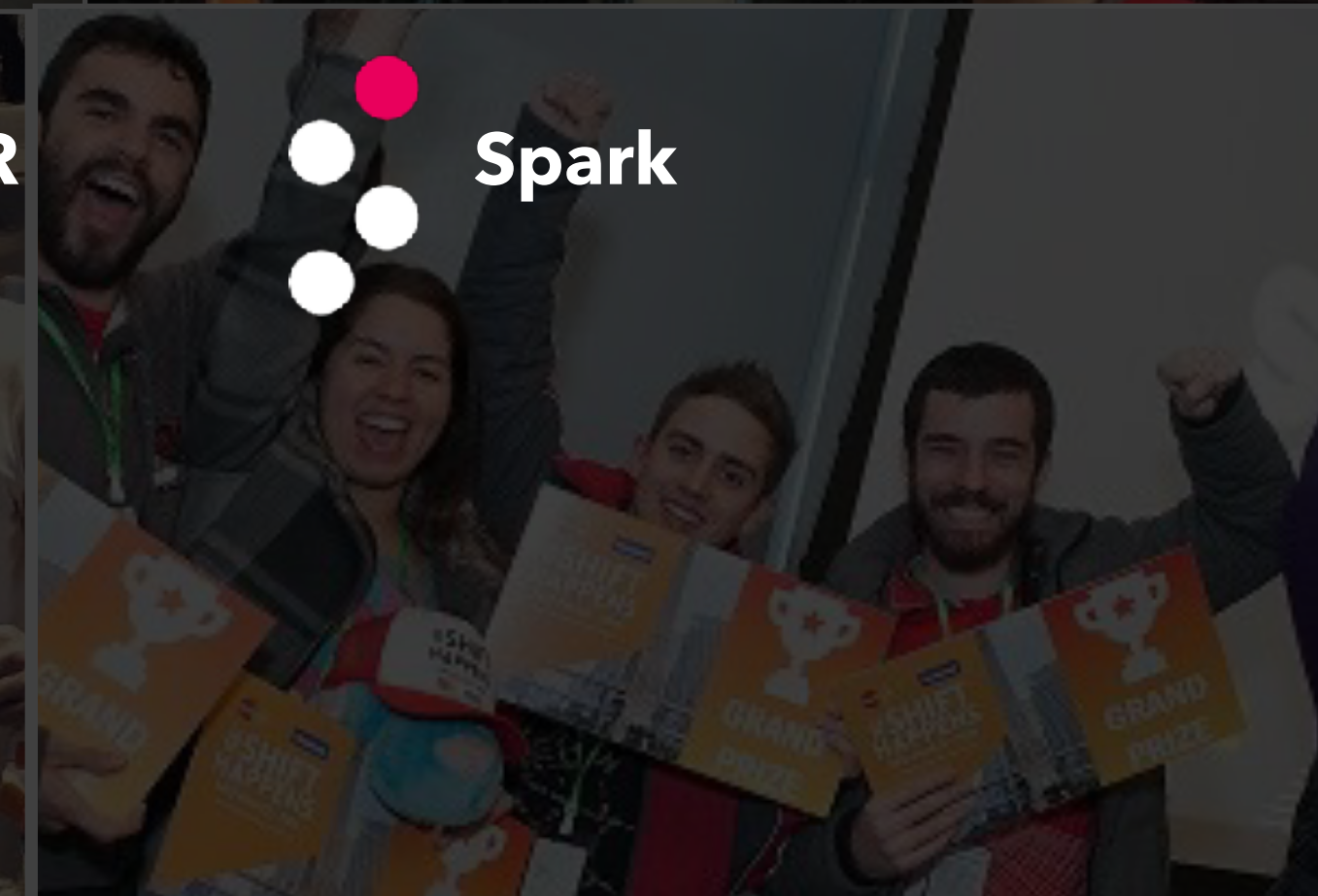
Ray Wenderlich



UnityBR



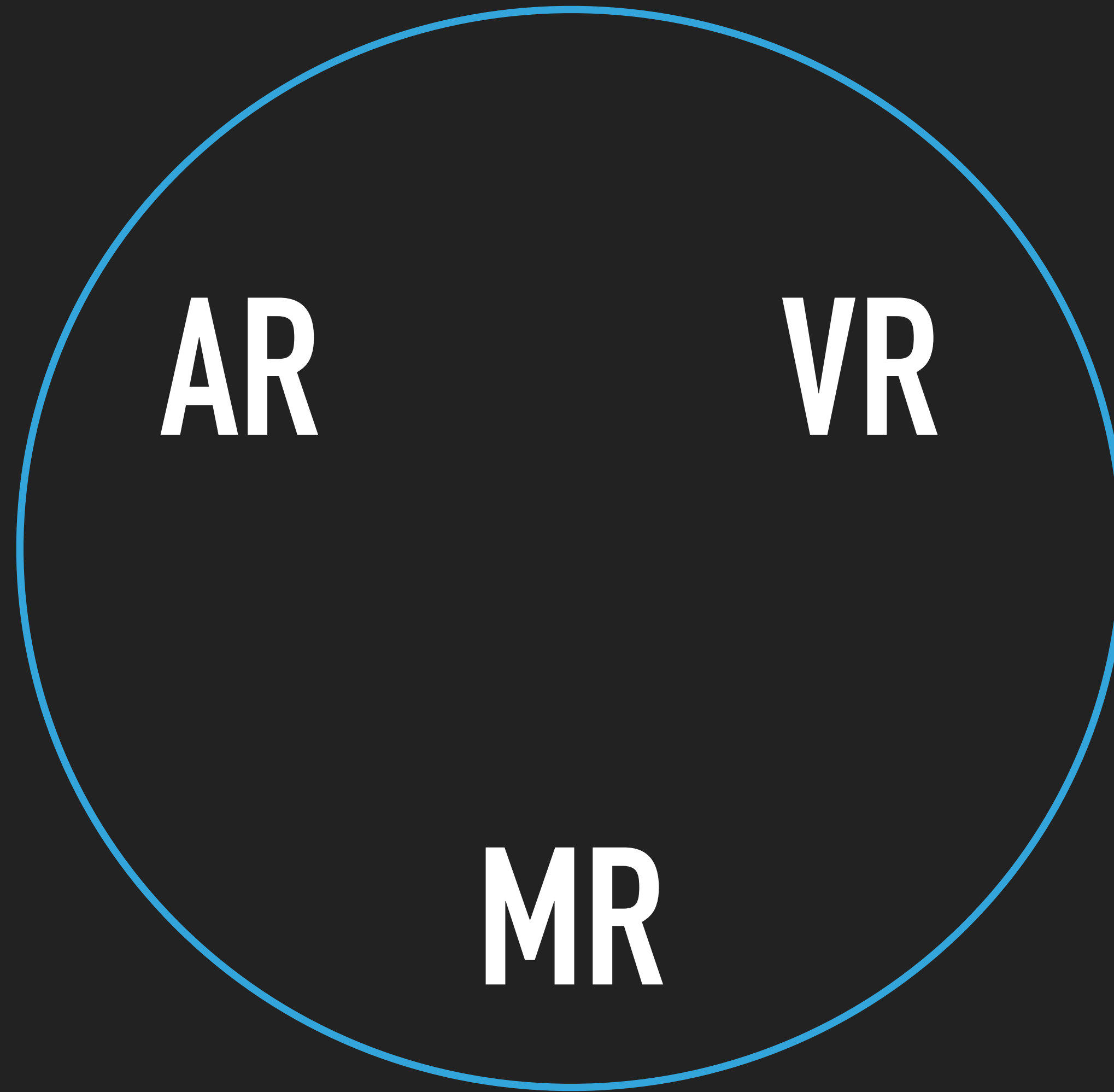
Spark





AR is like a lens to a virtual world merged into our real one.

EXTENDED REALITY (XR)



EXTENDED REALITY (XR)

Reality

Fewer

A Lot

Virtuality



VR SETUP





PLAYSTATION VR



AR SETUP







ARKit



 WWDC17



ARKit 2

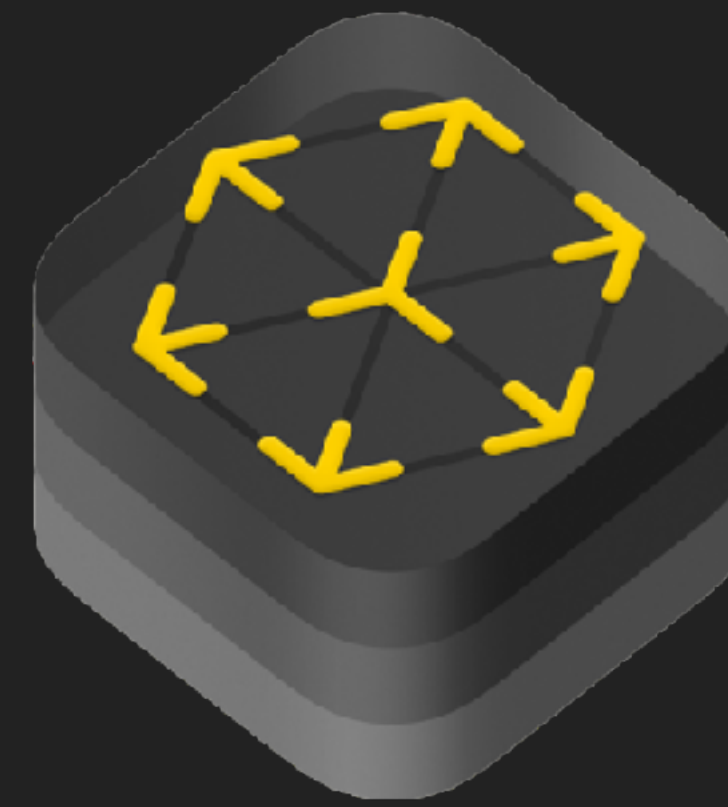


AR Quick Look





ARKit 1 & 2



ARKit 3

How it works?



Tracking



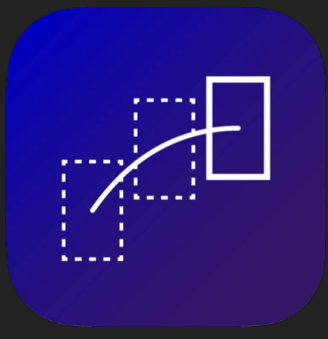
Scene Understanding



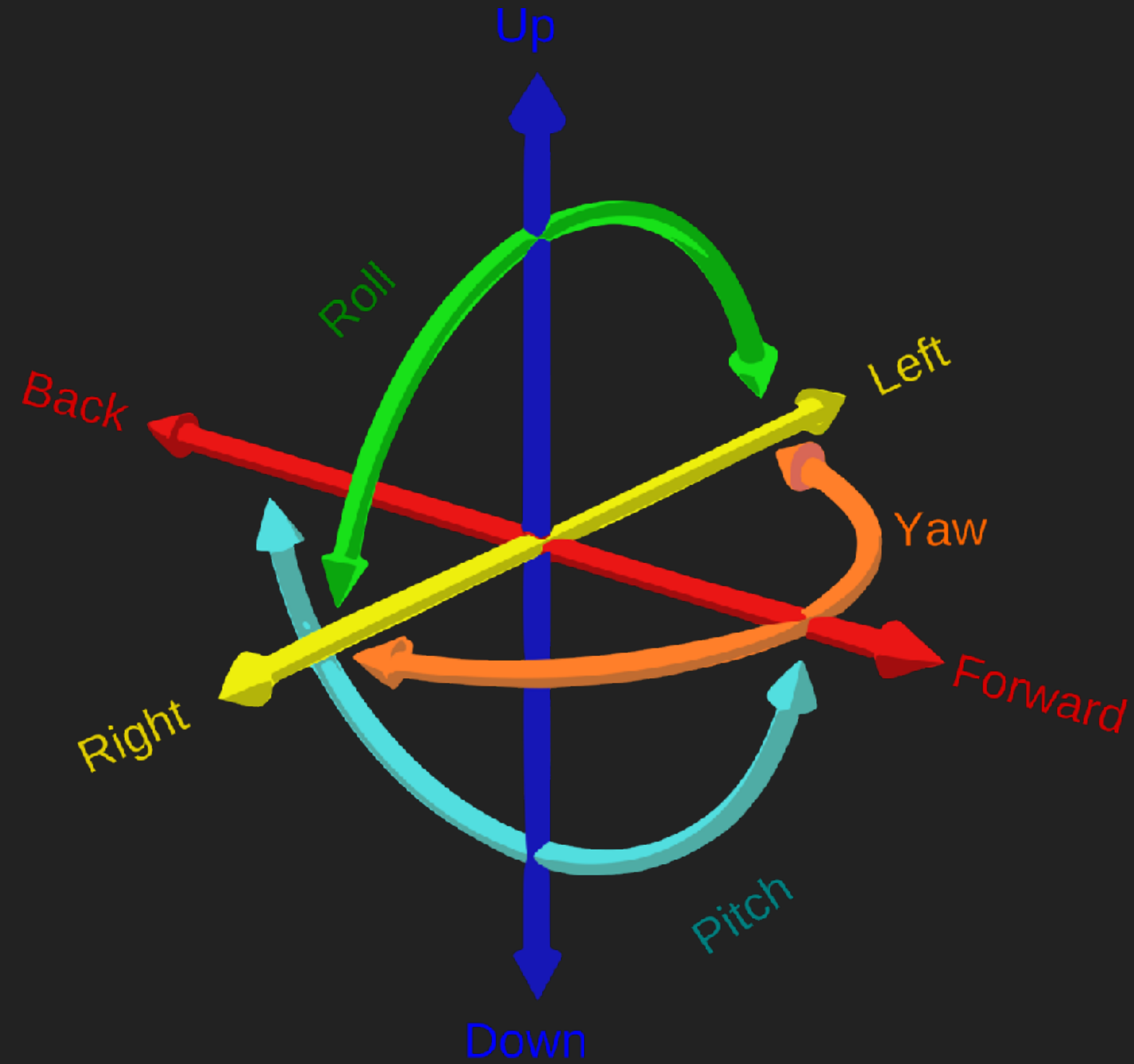
Tracking



Scene Understanding



DEGREES OF FREEDOM (DOF)

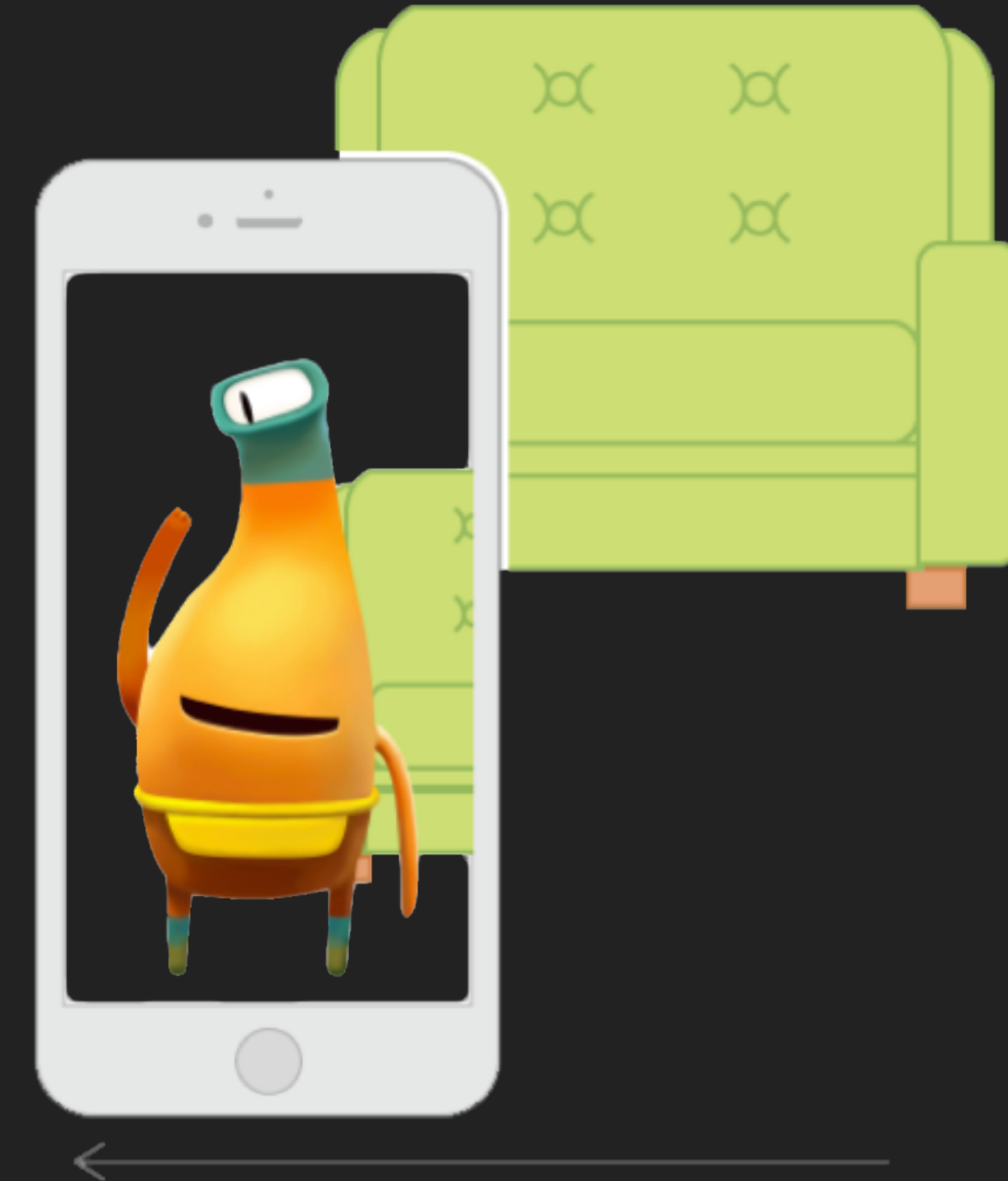
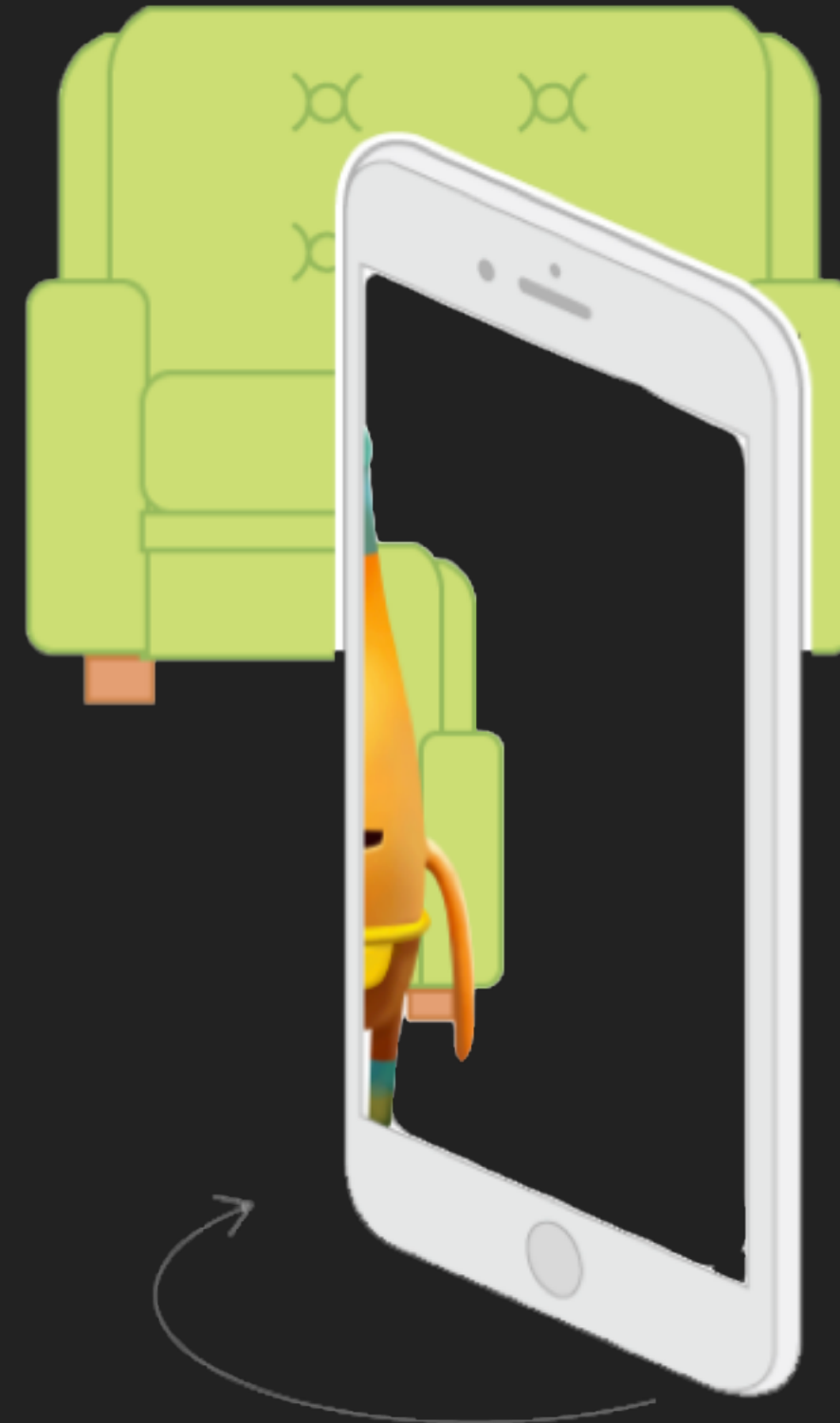
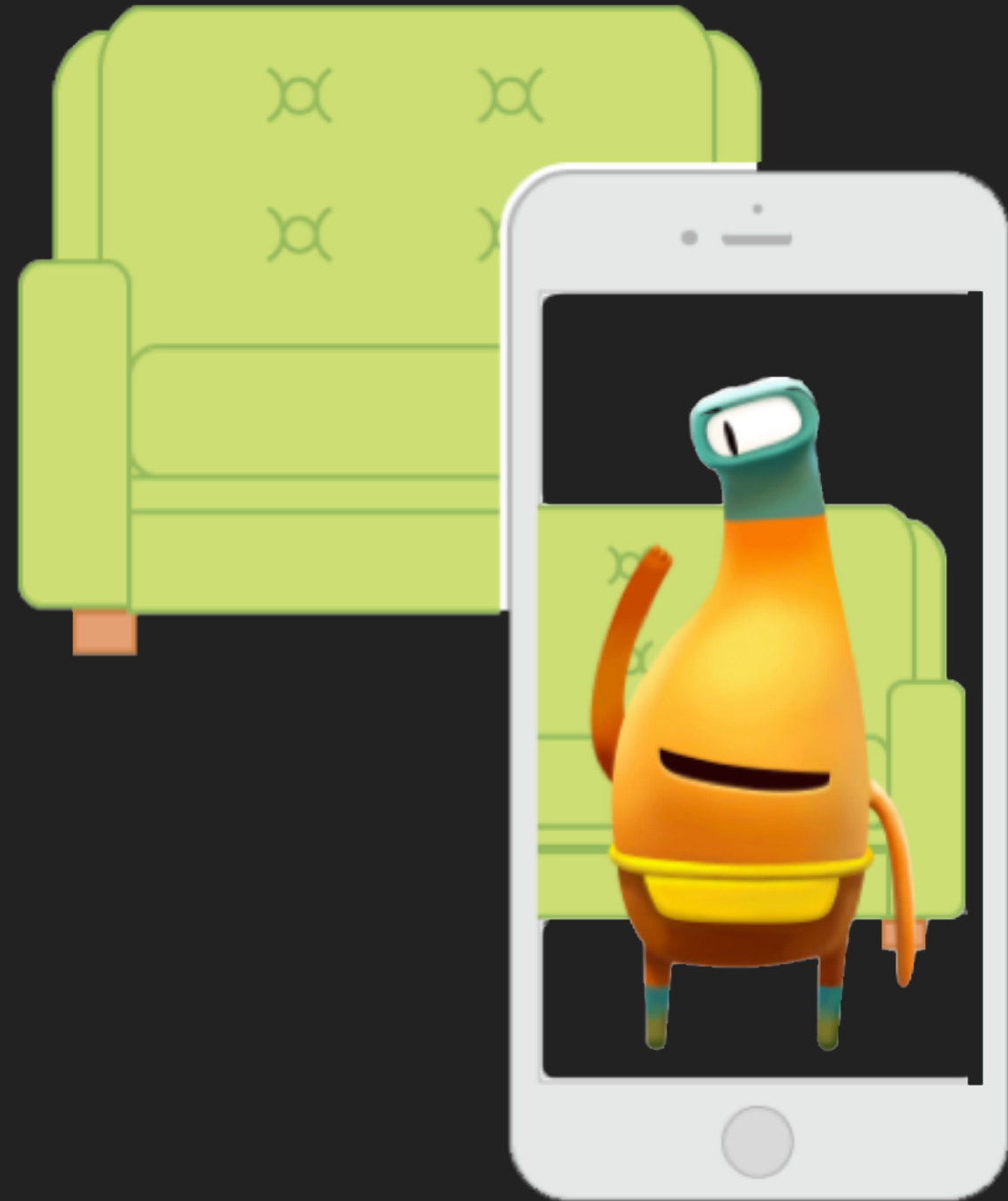




ORIENTATION TRACKING – 3DOF

✓ Device Rotation

✗ Device Position

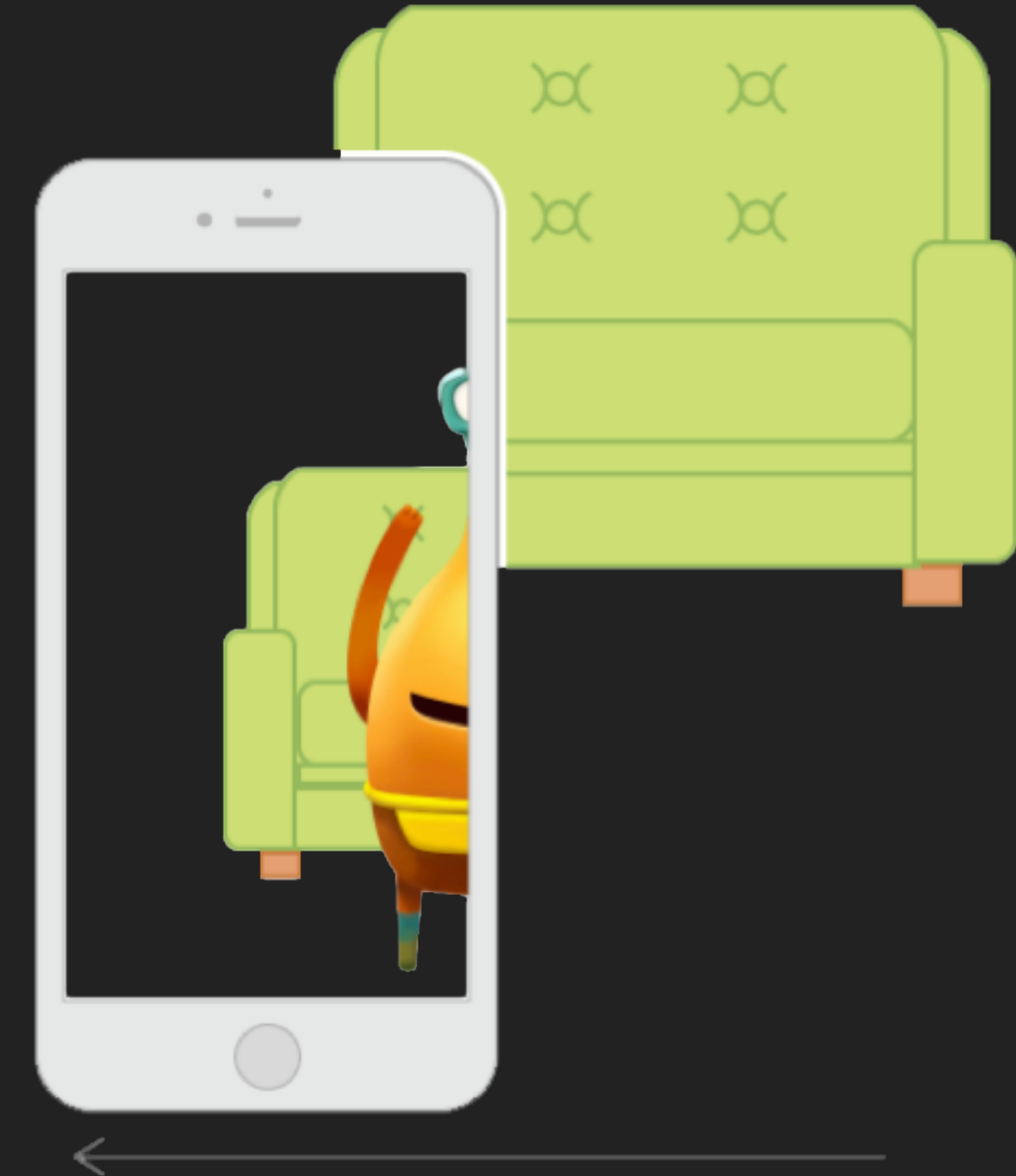
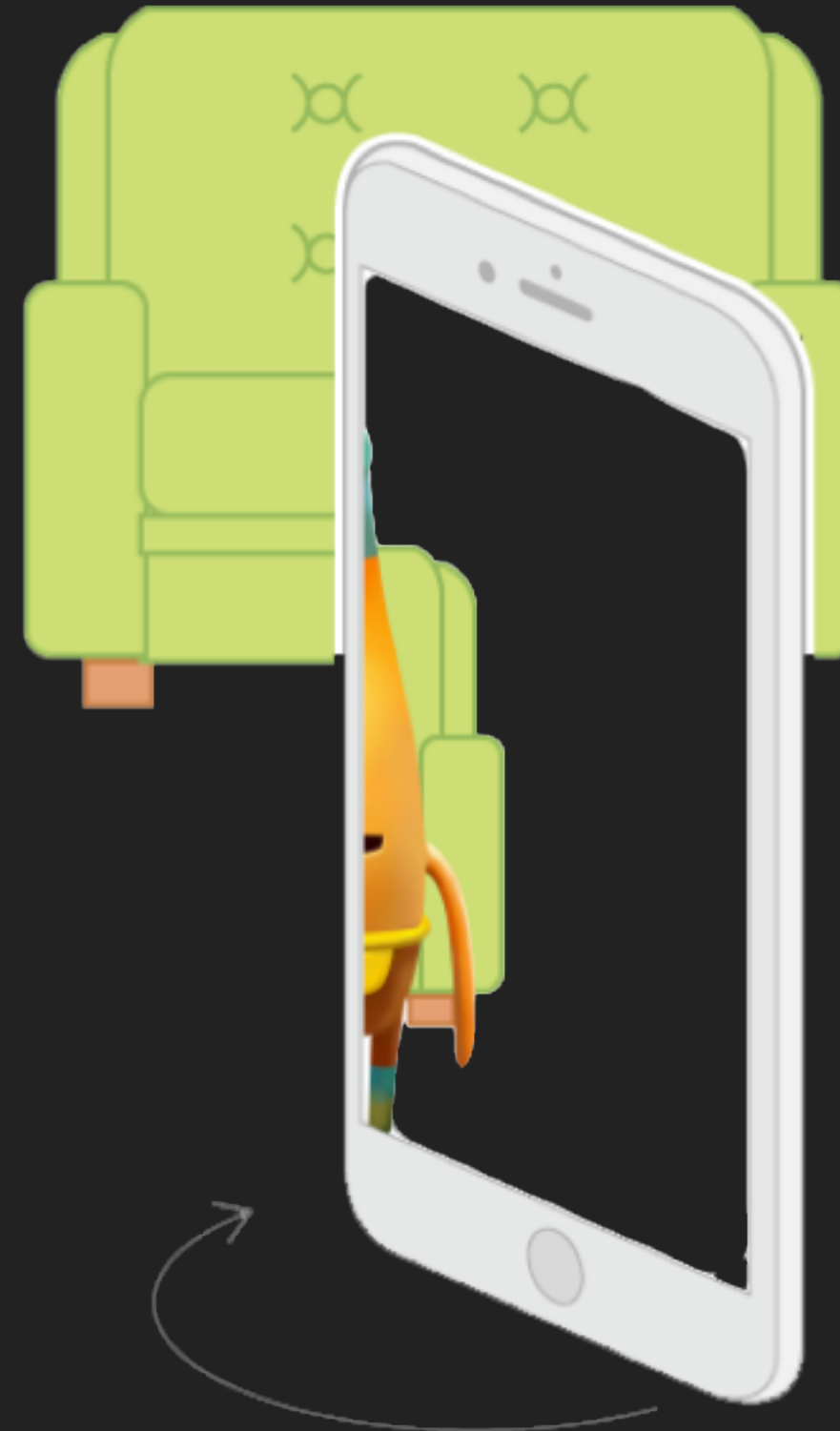
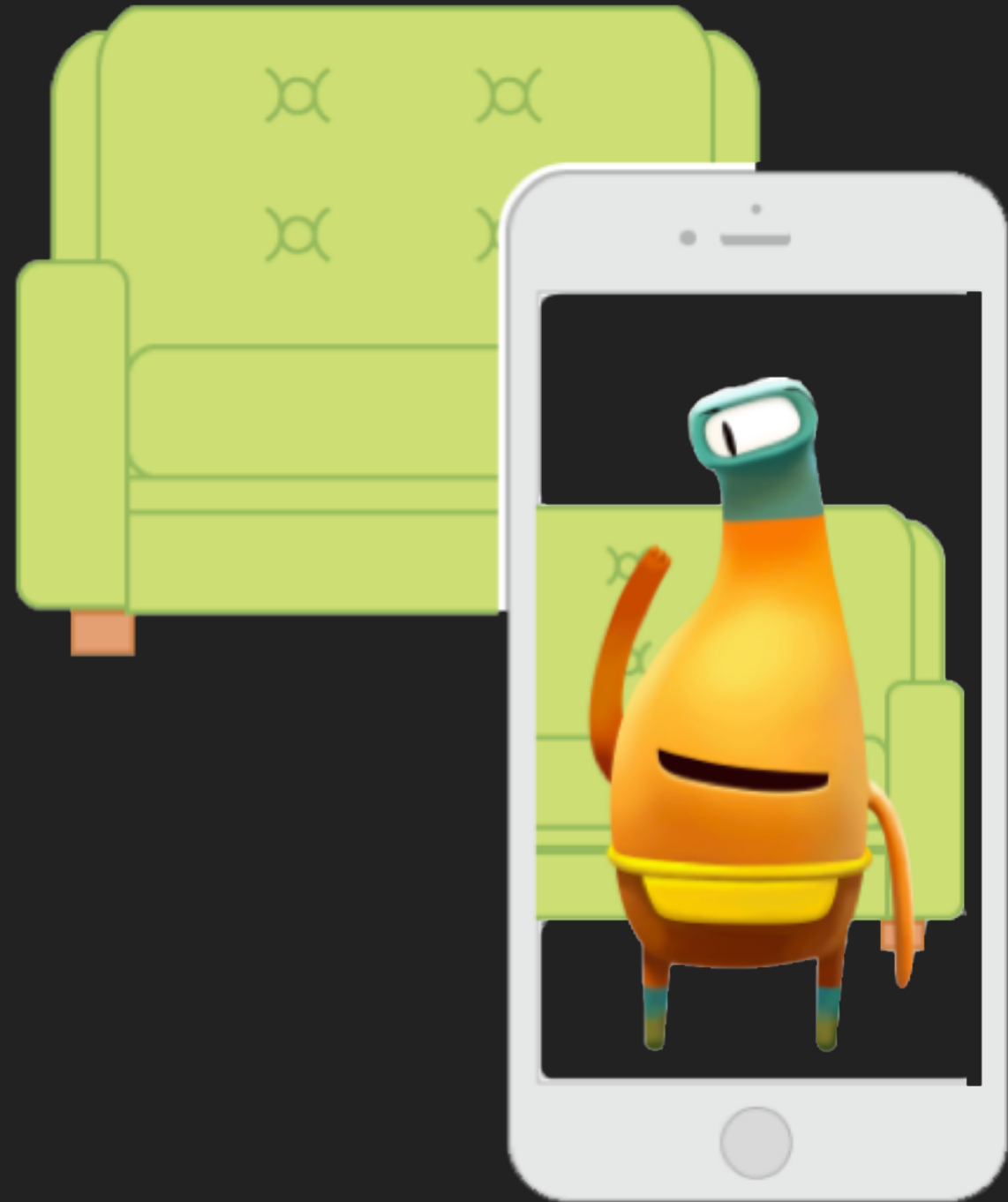




6DOF

✓ Device Rotation

✓ Device Position



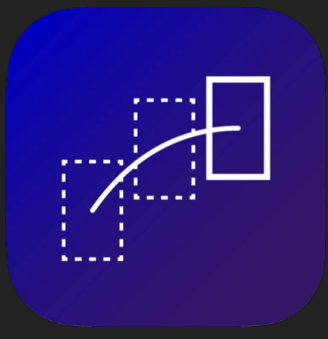


IMAGE TRACKING - 6DOF





ARKIT TRACKING MODES

Orientation Tracking

Image Tracking



ARKIT TRACKING MODES

Orientation Tracking

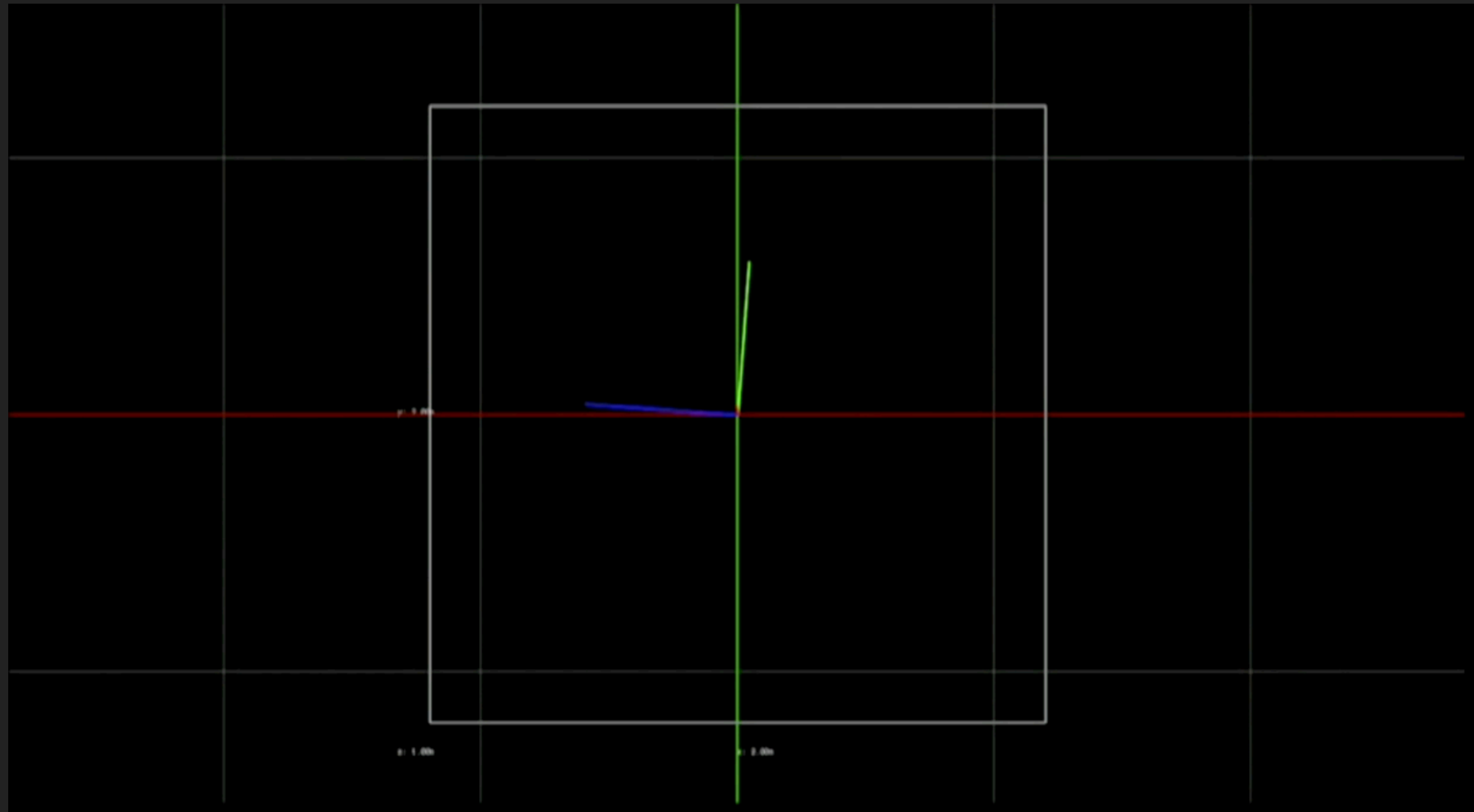
Image Tracking

World Tracking



WORLD TRACKING - 6DOF

Markerless



COMPUTER VISION + MOTION DATA = VISUAL INERTIAL ODOMETRY
AVFoundation & CoreML CoreMotion **SLAM**

DEMO



FACE TRACKING – 6DOF

Depth Camera





Tracking



Scene Understanding

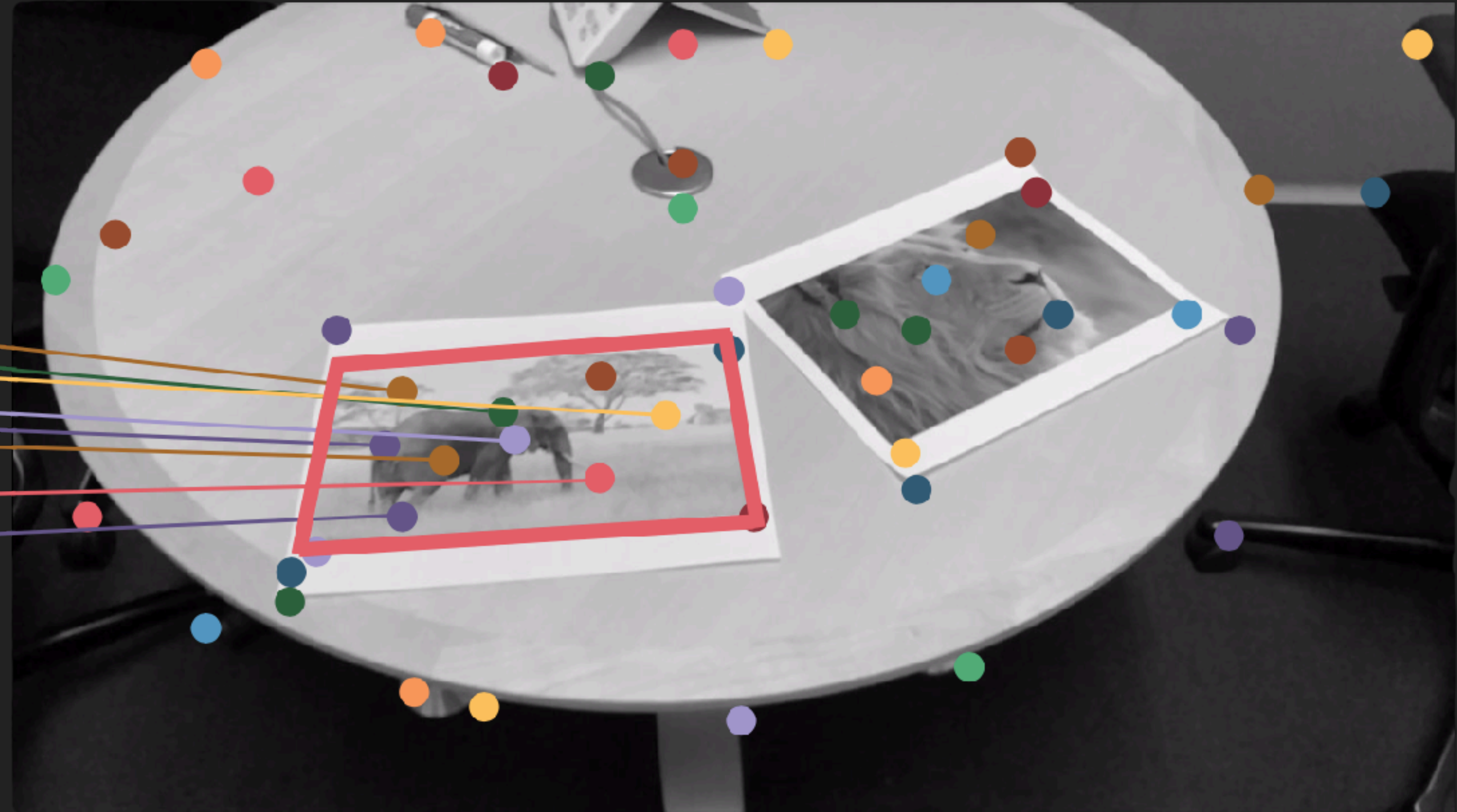


DETECT HORIZONTAL AND VERTICAL PLANES



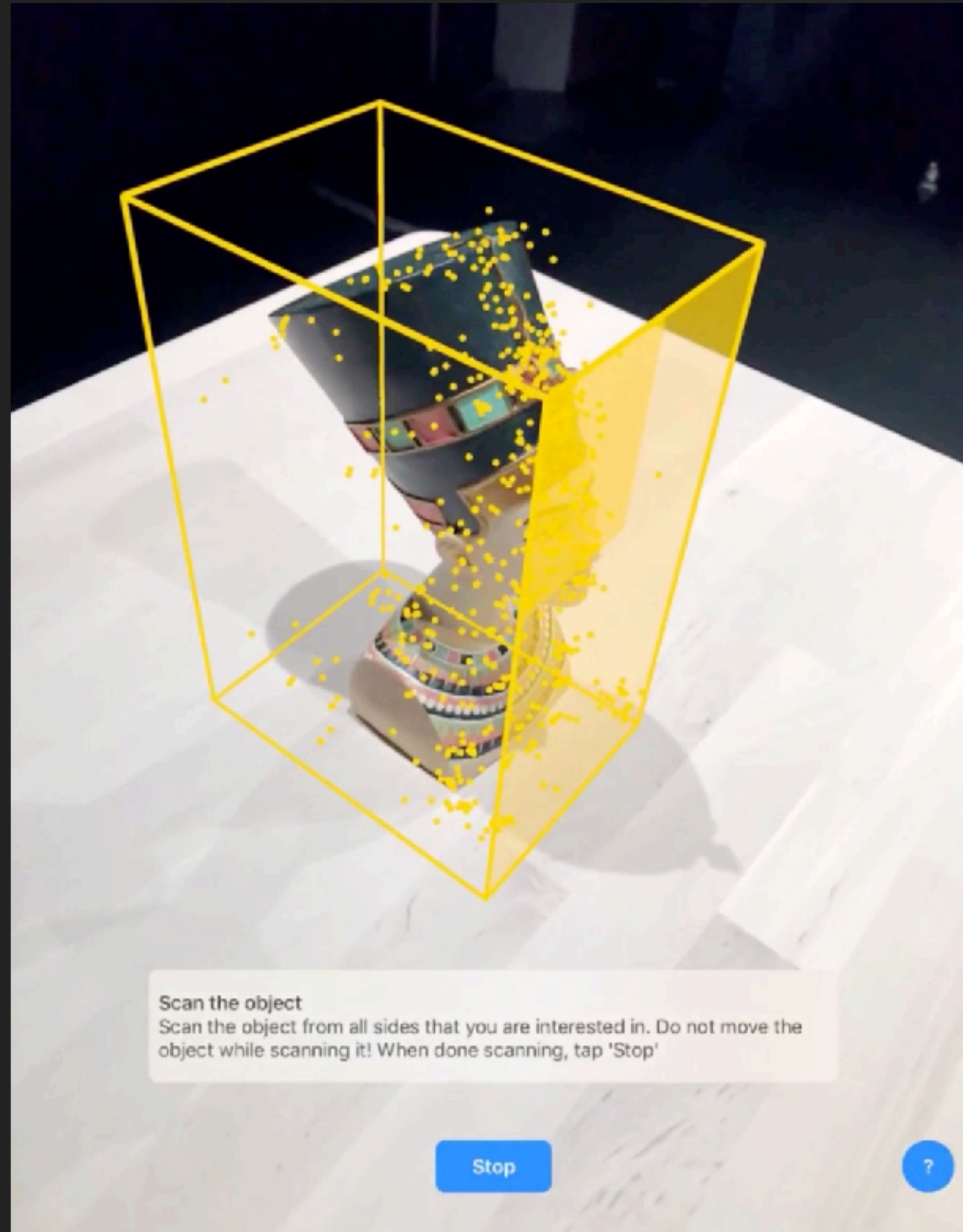


DETECT IMAGES

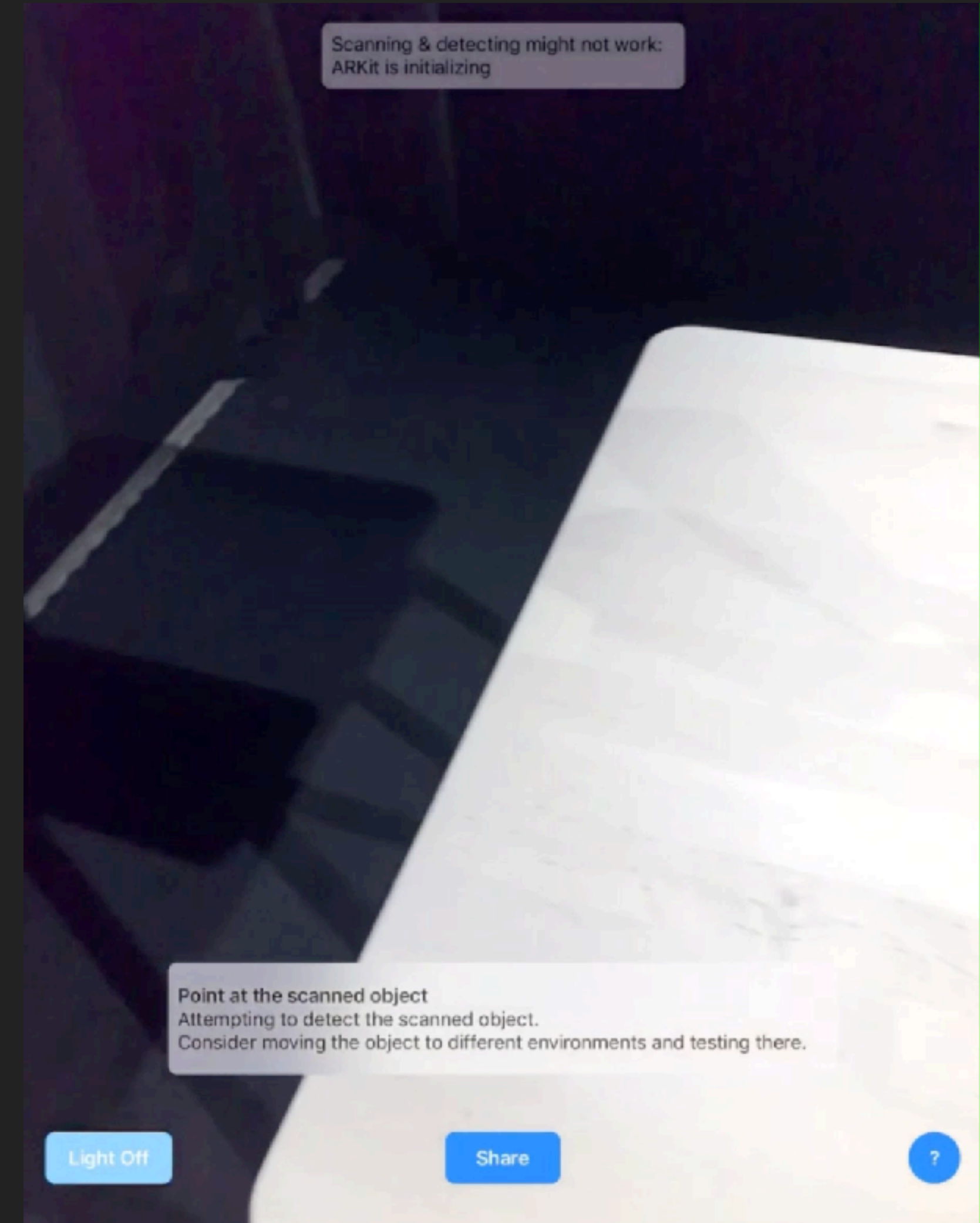




DETECT OBJECTS



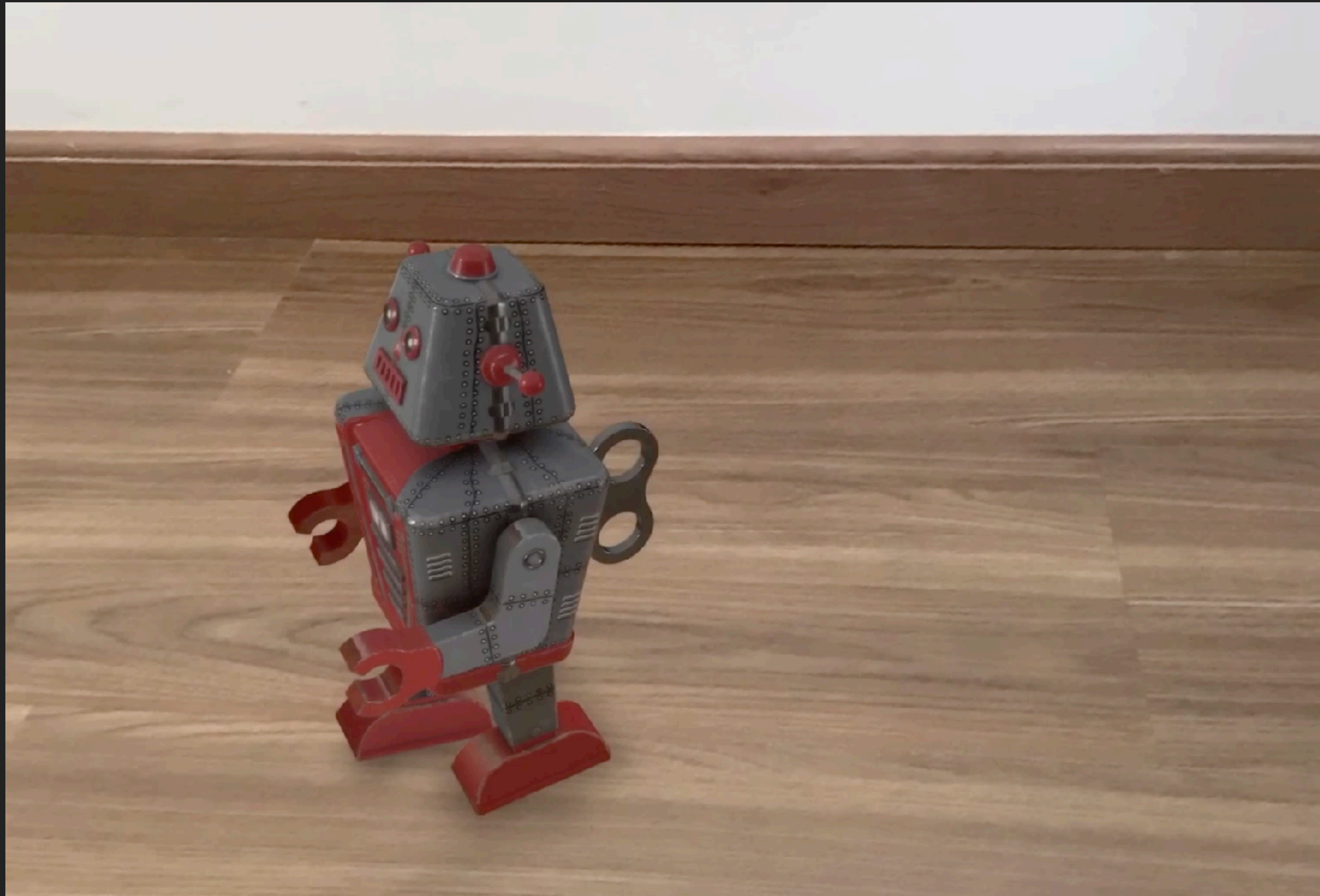
Scan



Detect



LIGHT ESTIMATION





ARKIT TRACKING MODES

Orientation Tracking

Image Tracking

World Tracking

Object Scanning

Face Tracking

Body Tracking



RealityKit



Rendering



Object Behaviors



Swift API



PHYSICALLY-BASED RENDERING (PBR)



Simulation of lighting and material to produce a realistic appearance



CAMERA EFFECTS



Film Grain

Shadowing
Motion Blur
Depth of Field



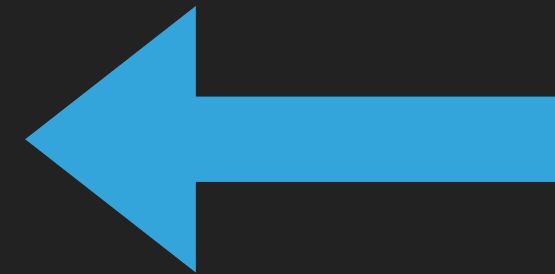
ENTITY-COMPONENT SYSTEM



Entity is like an empty box



ENTITY-COMPONENT SYSTEM



Anchoring Component

Model Component

Physics Component

Entity is like an empty box



ENTITY-COMPONENT SYSTEM

Can show something visual (a model)

Can anchor in something



Can collide with something

Full box with behaviors defined

MUCH MORE FEATURES...



RealityKit

Animation

Physics

Synchronization

Audio

DEMO



Reality Composer

DEMO



Motion Capture



People Occlusion



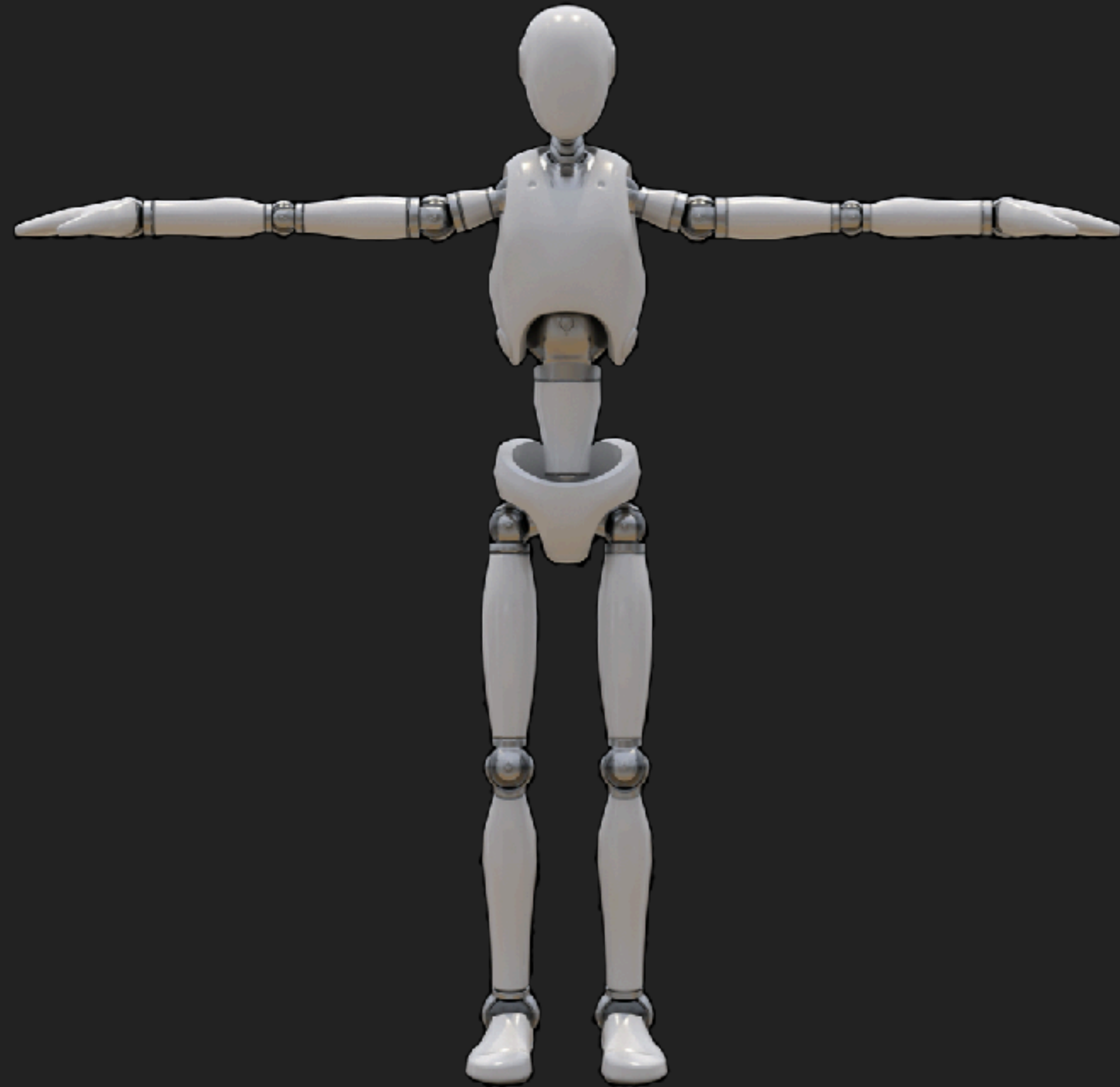
AR Coaching UI



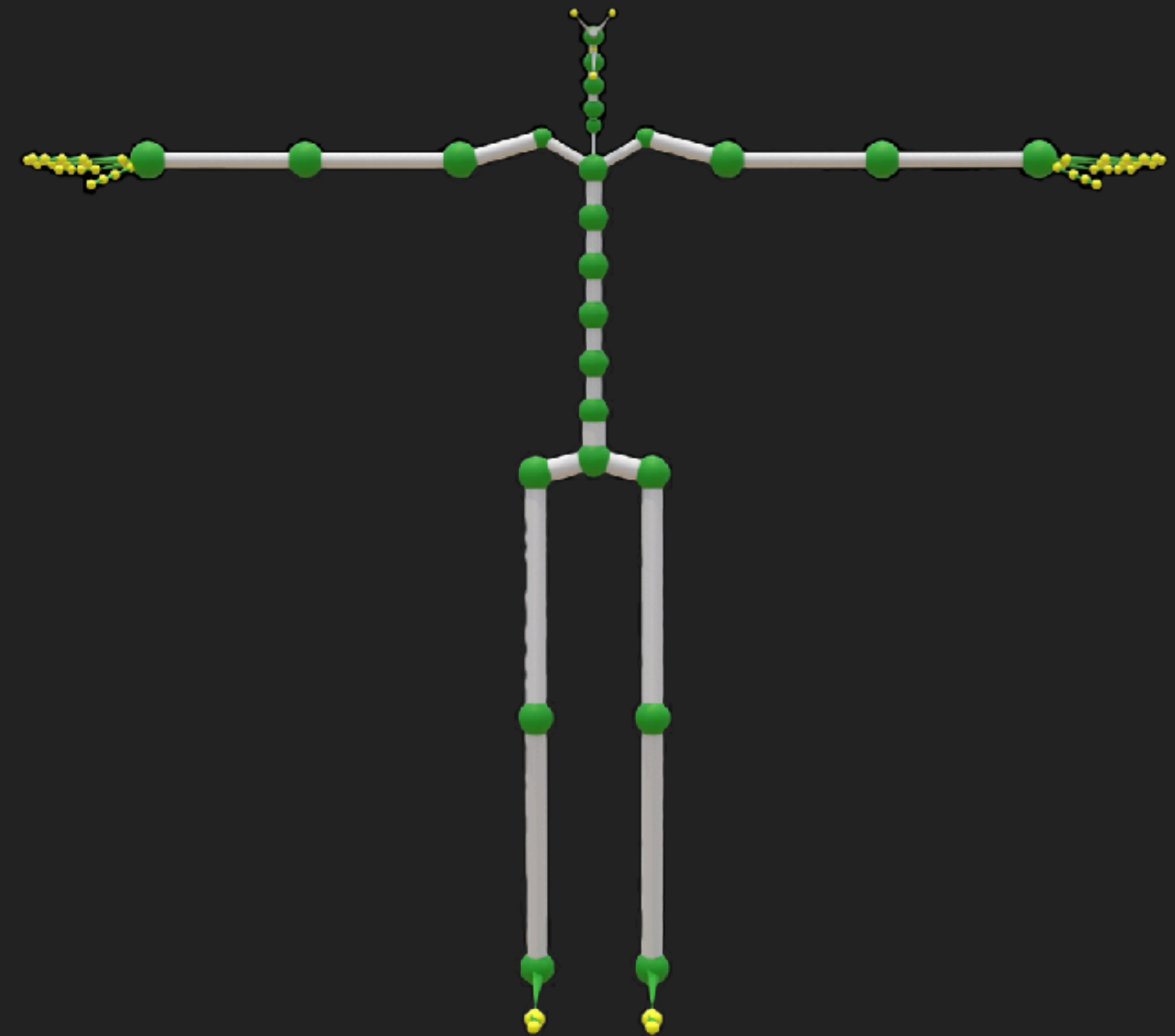
Record and Replay



MOTION CAPTURE



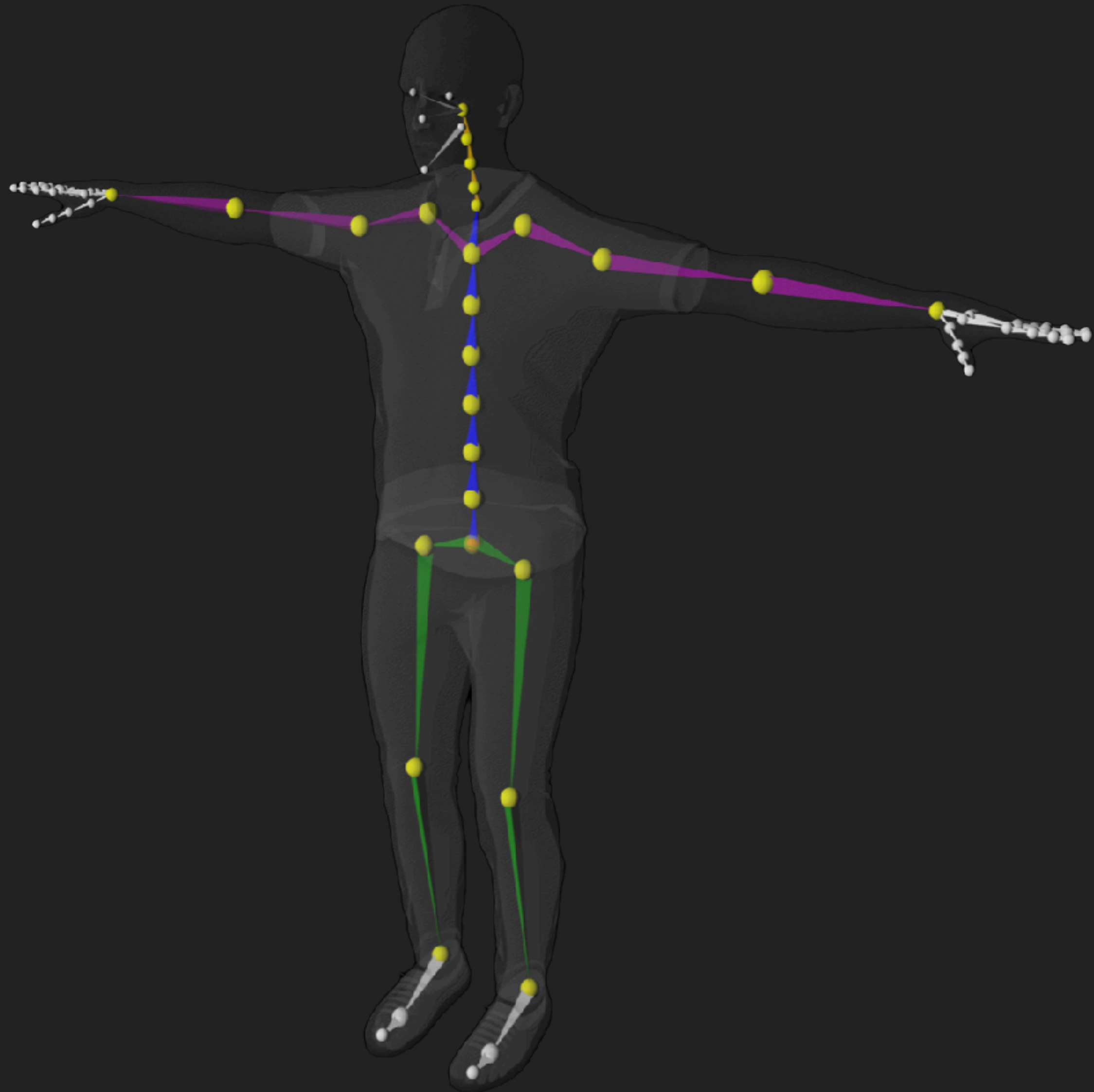
Mesh



Skeleton



ARKIT BODY TRACKING CAPABILITIES



92 Inferred and Tracked Joints

2D and 3D

DEMO

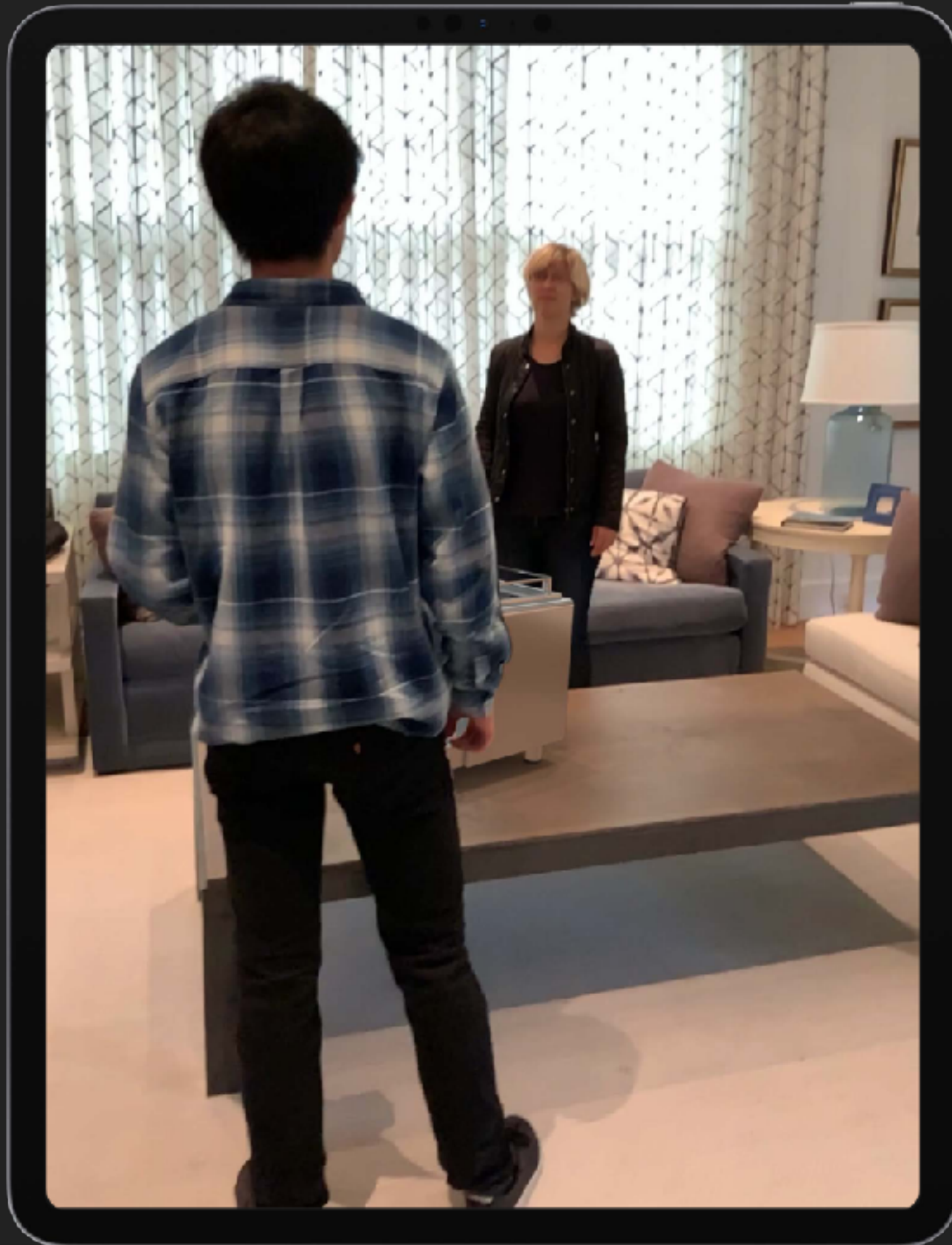


TRACEUR (WIP)





PEOPLE OCCLUSION



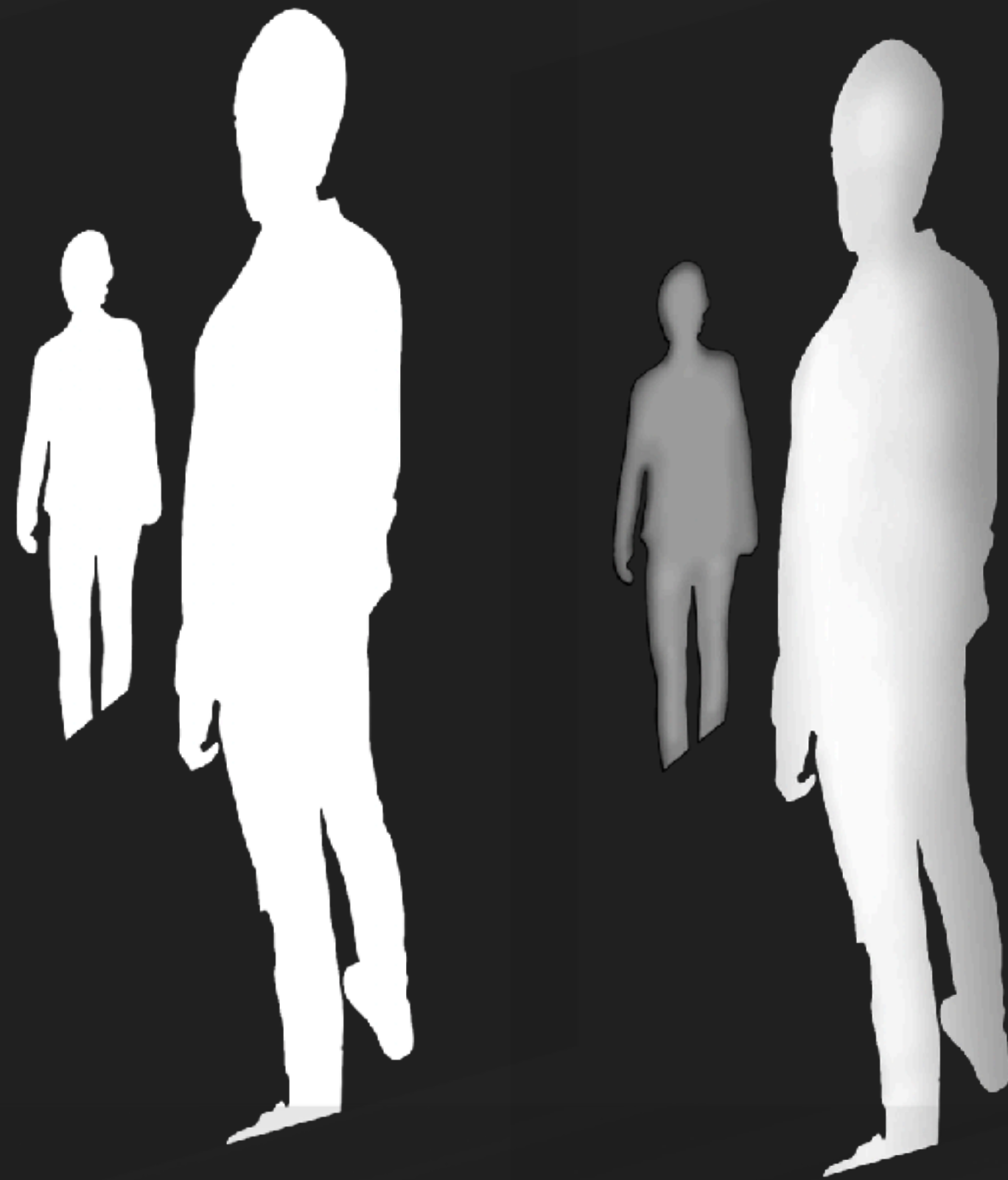
Without People Occlusion quickly the illusion of the virtual object is broken



PEOPLE OCCLUSION



Segmentation



Depth



People

DEMO



AR Coaching UI

DEMO



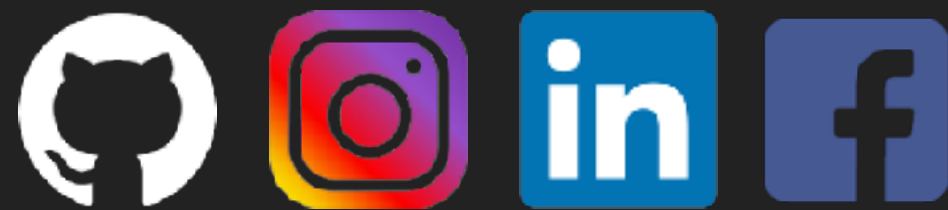
Record and Replay

DEMO



Jean Paul Marinho

@aKANJx



THANKS

