

ThoughtWorks®

Open Day

ARKIT



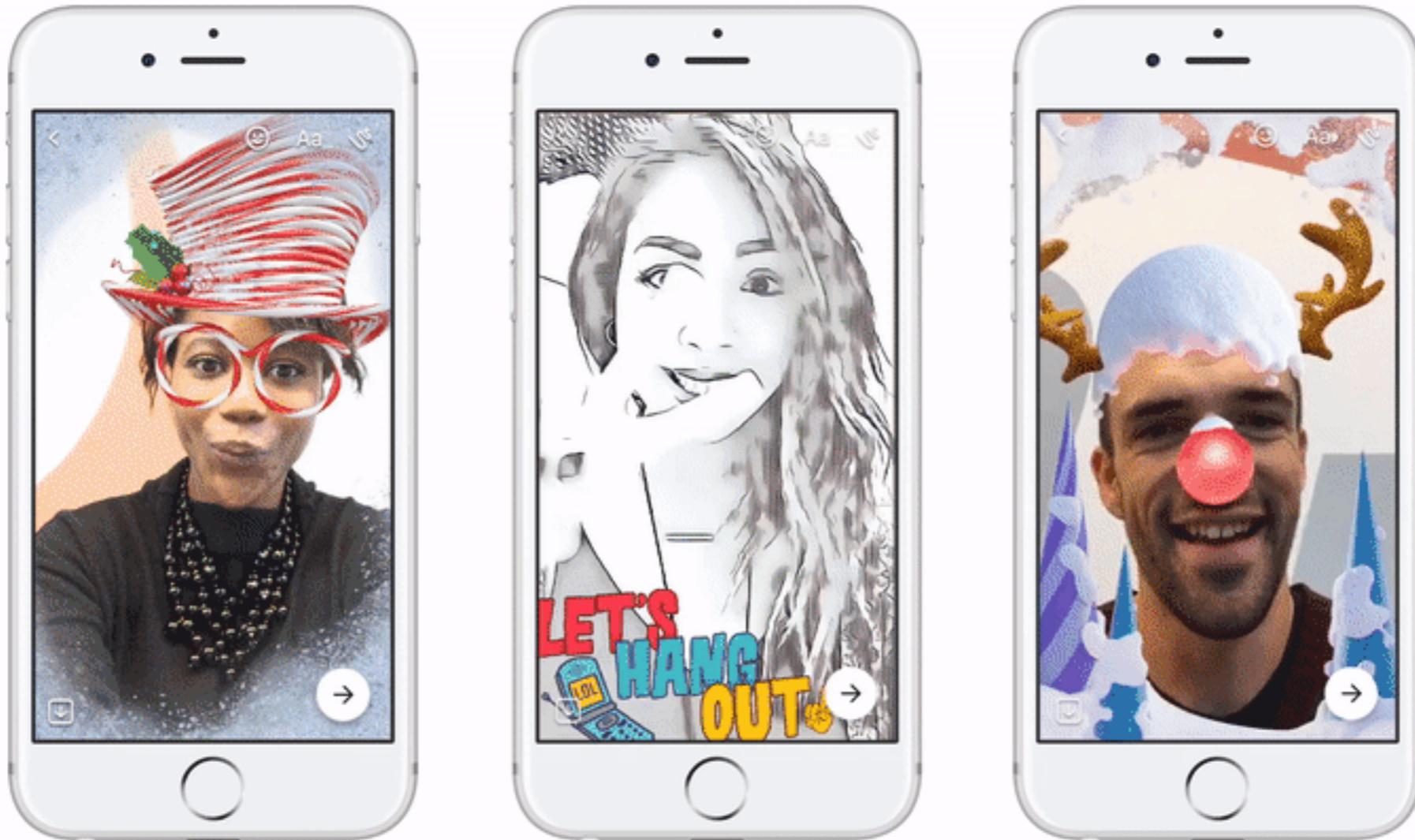
颜松柏

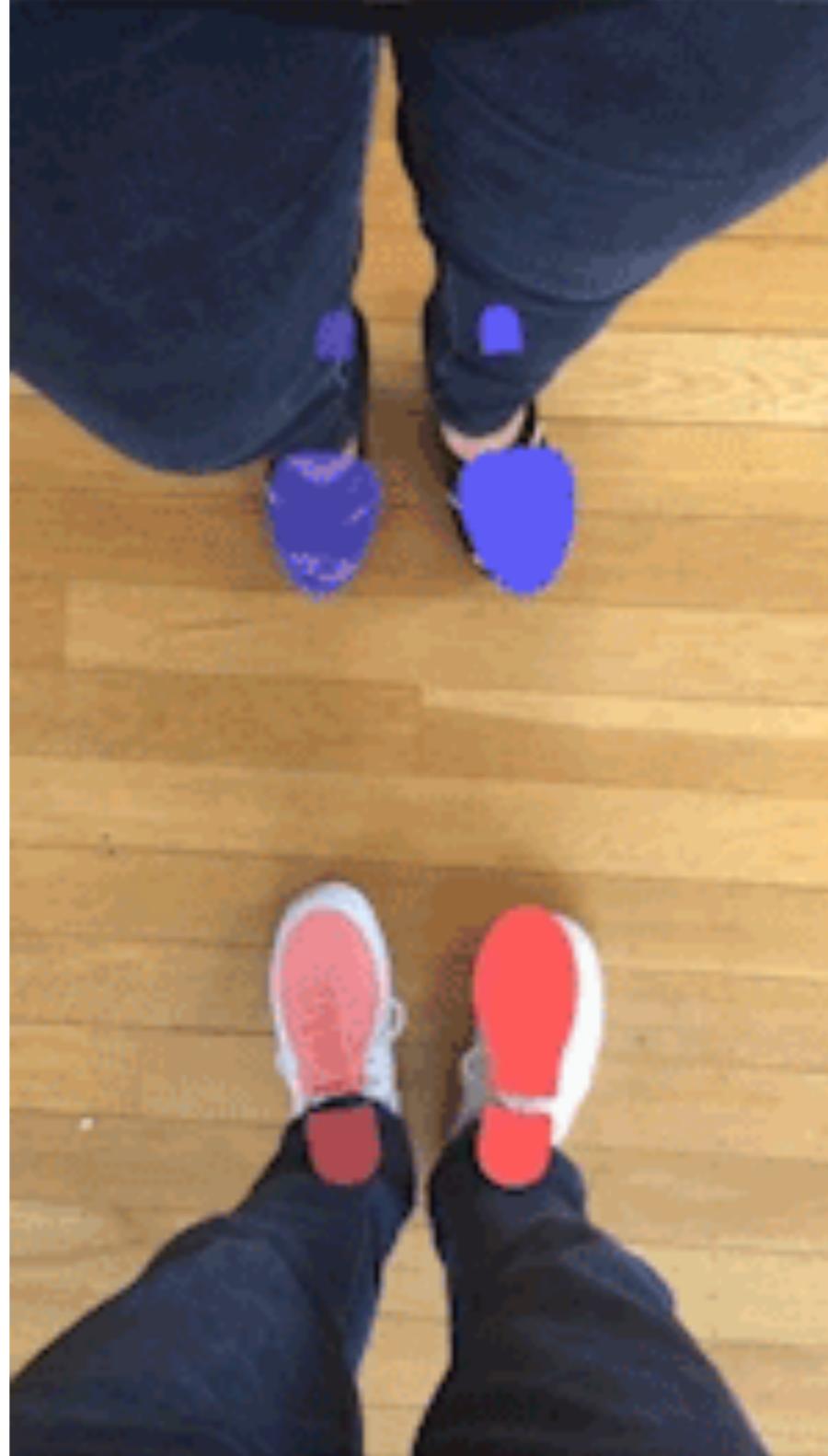
什么是ARKit?

A new framework that allows you to easily create unparalleled augmented reality experiences for iPhone and iPad.

- 营销
- LBS生活服务
- 教育/医疗
- 娱乐
- 游戏

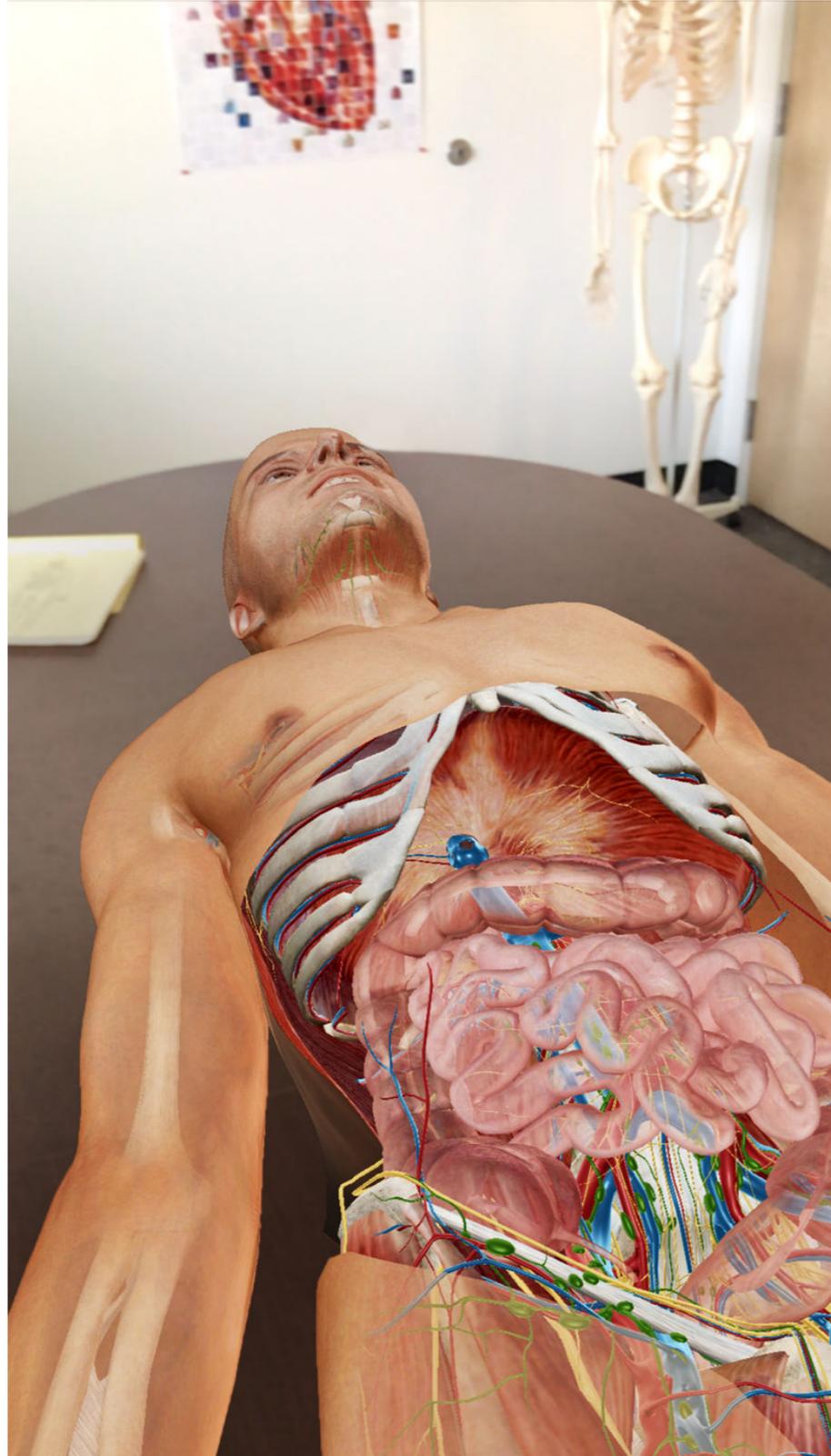


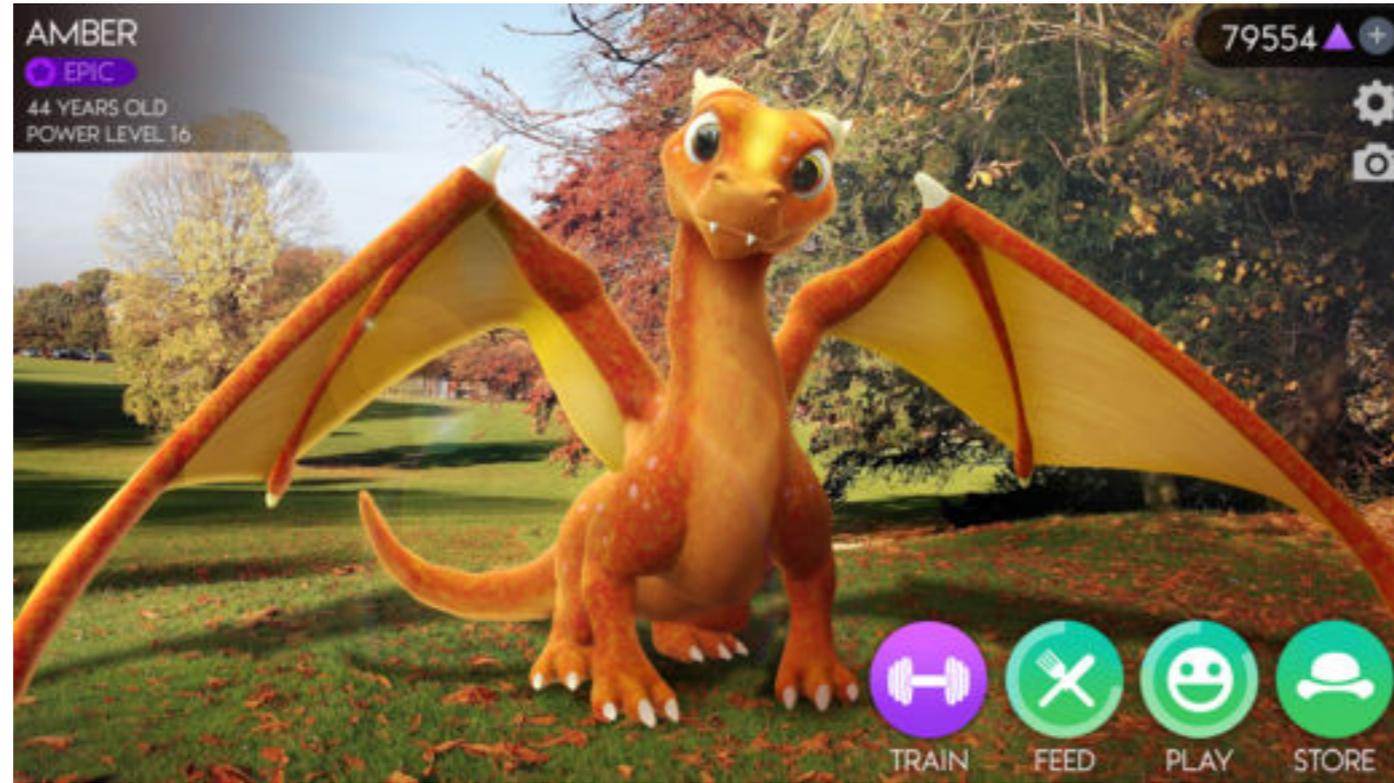




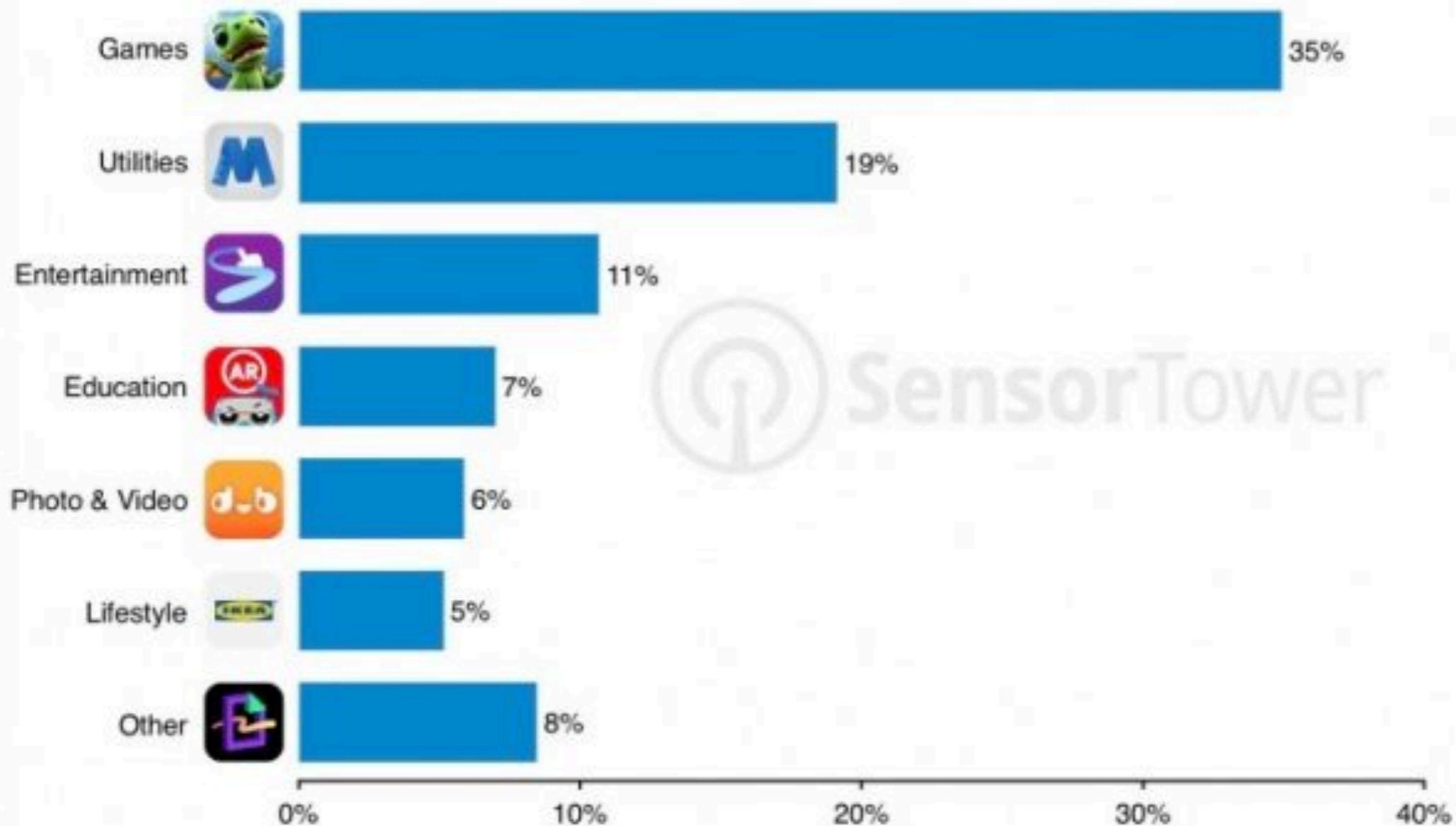








Category Breakdown of Available ARKit-only Apps (Worldwide)



Includes only apps that feature ARKit as their primary functionality.

Source: Sensor Tower App Intelligence

软件

- iOS 11
- MacOS 10.12.4
- Xcode9

硬件

- 处理器为 A9 及以上的 iPhone 或 iPad 设备
 - iPhone 6s and 6s plus
 - iPhone 7 and 7 plus
 - iPhone 8 and 8 plus
 - iPhone X
 - iPhone SE
 - iPad (2017)
 - iPad Pro

- 视觉惯性测量
- 场景识别和光线评估
- 高效硬件和渲染优化
- 深度摄像机

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ARKIT 实现原理

3DOF (DEGREE OF FREEDOM)



Yaw



Pitch



Roll

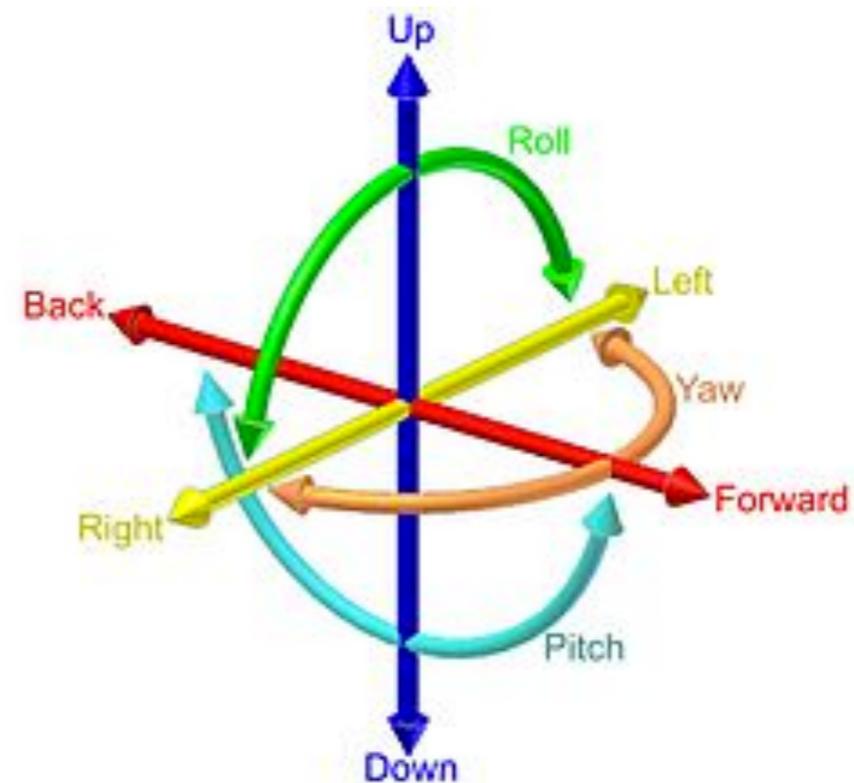
6DOF (DEGREE OF FREEDOM)

■ 平移

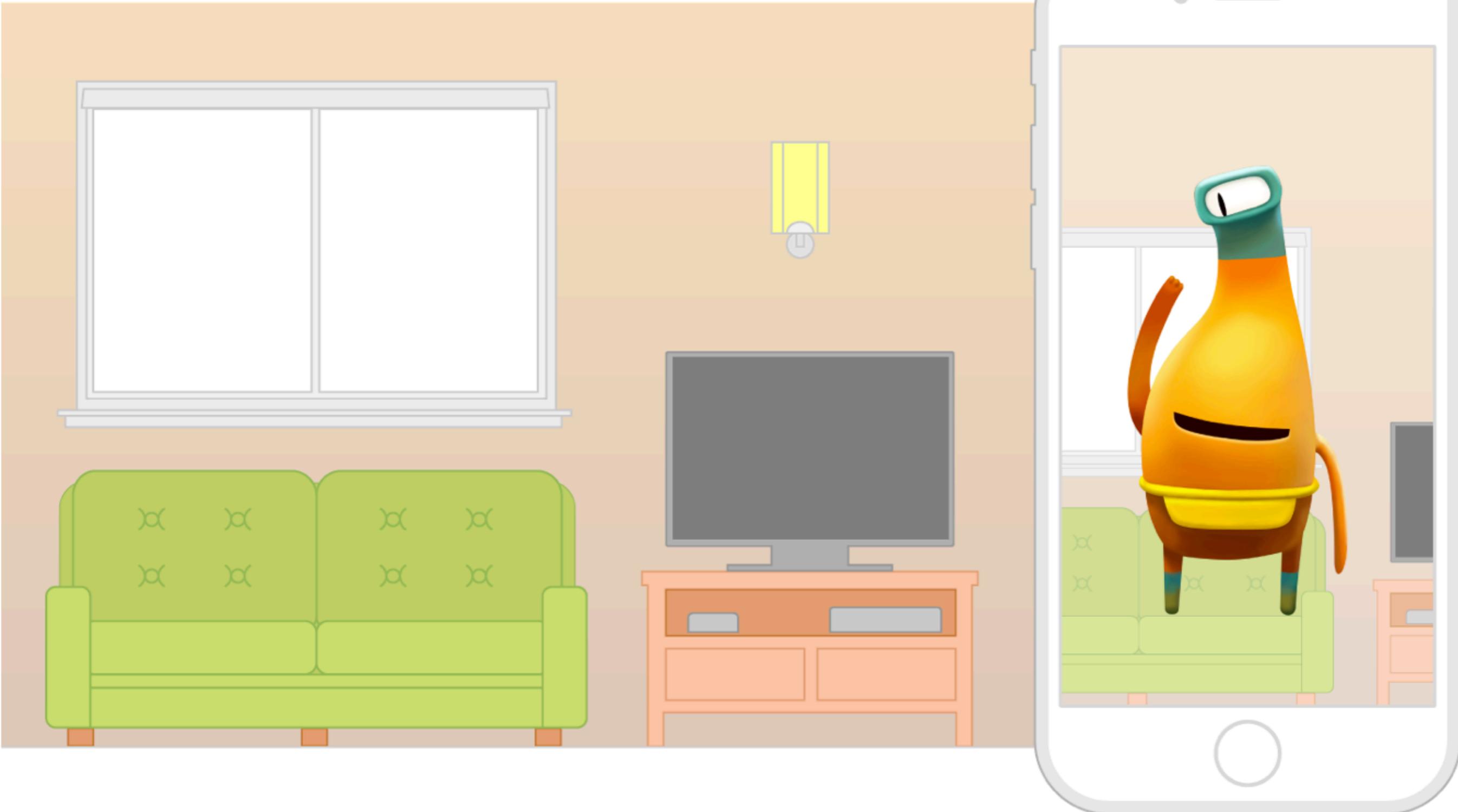
- 上下移动
- 左右移动
- 前后移动

■ 旋转

- Yawing
- Pitching
- Rolling



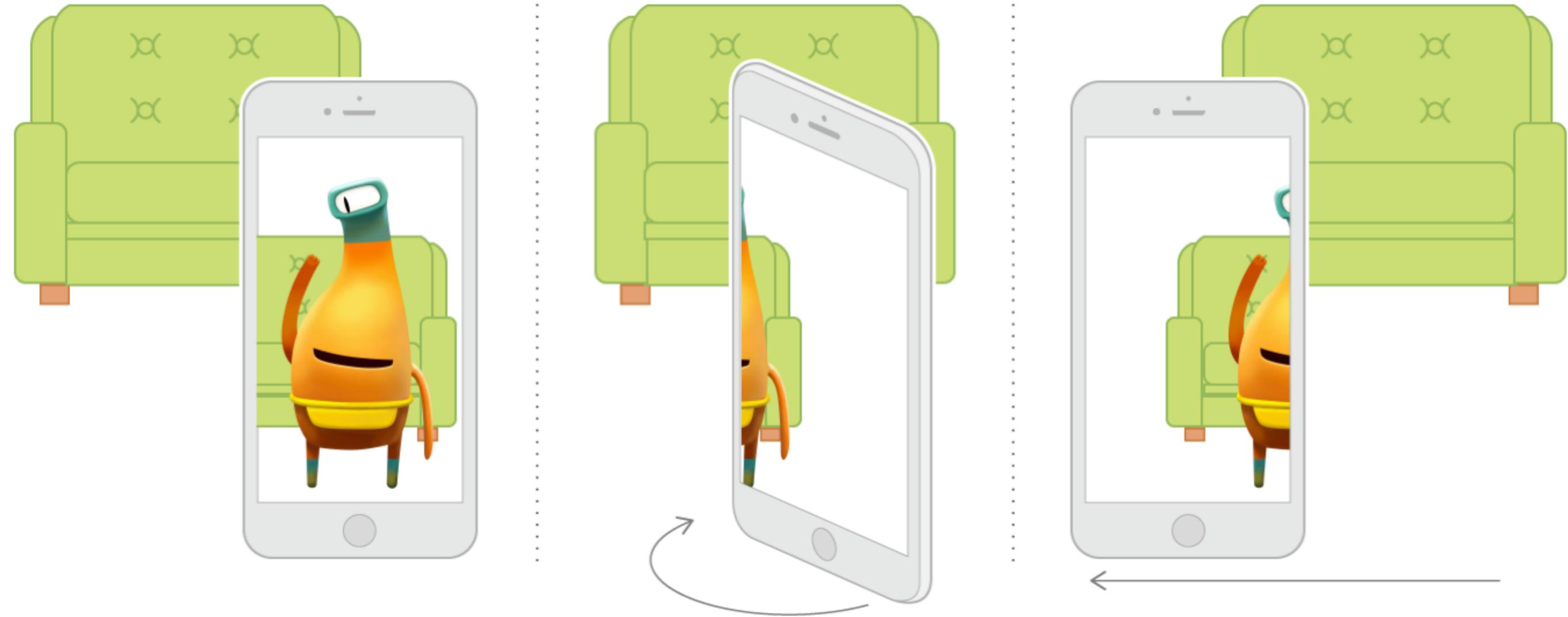
追踪 (TRACKING)



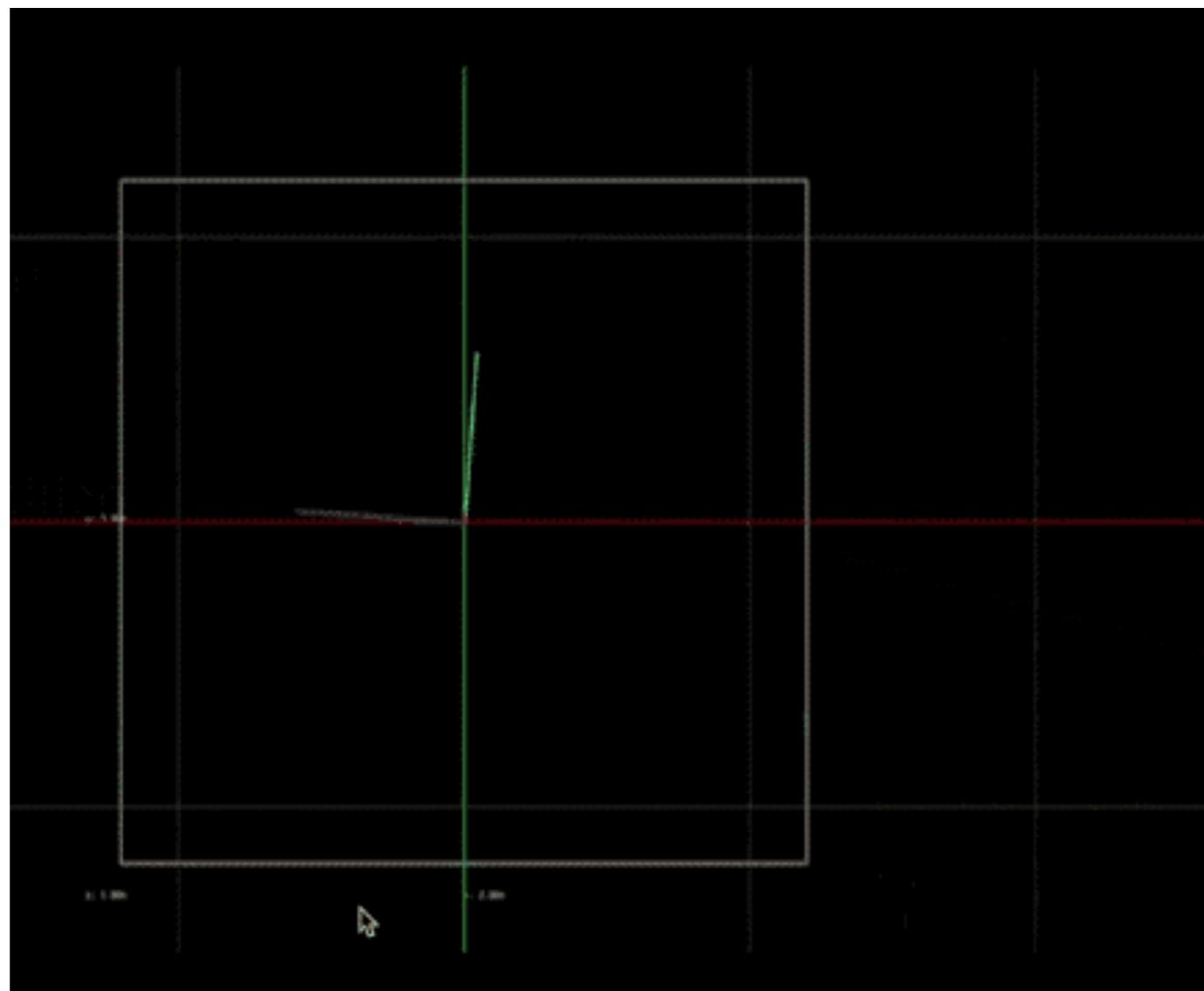
追踪 (TRACKING)

✓ Device rotation

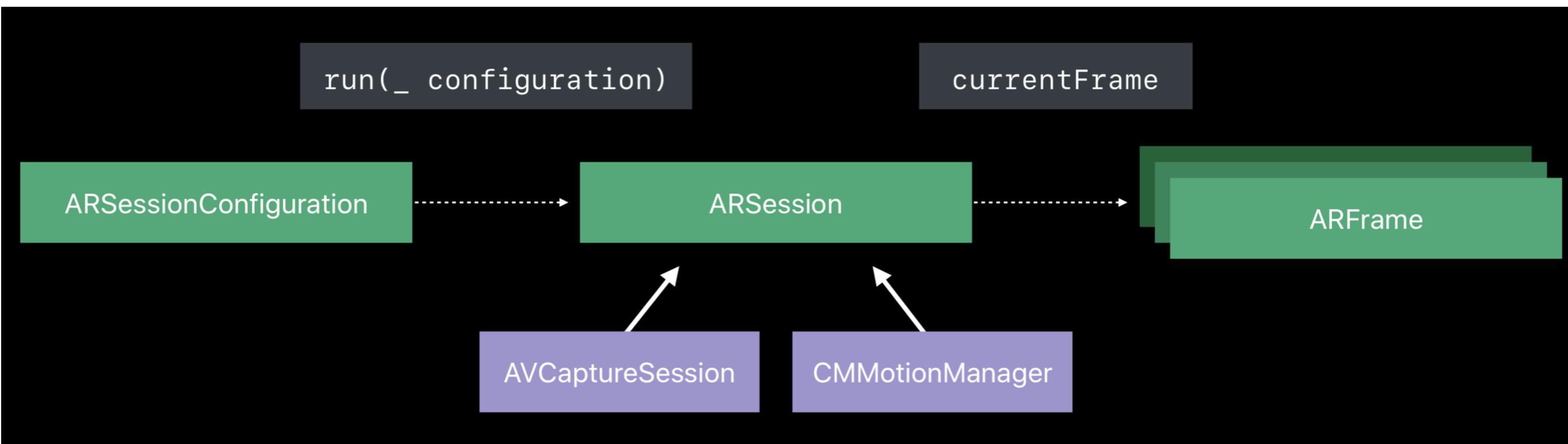
✓ Device position



追踪 (TRACKING)



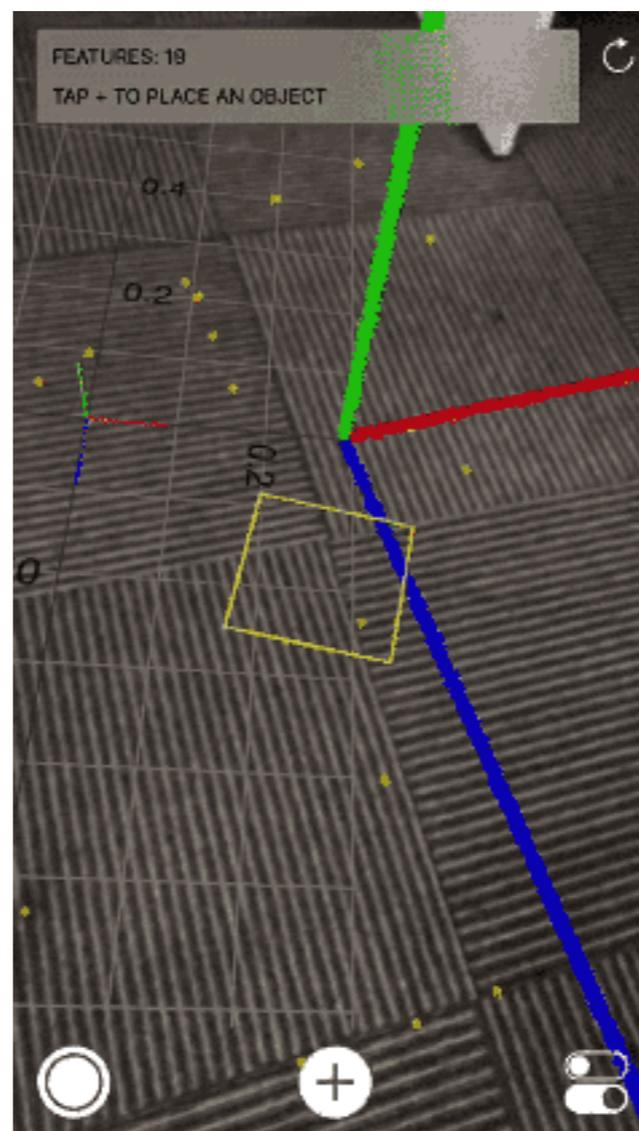
追踪 (TRACKING)



- 设备的位置以及旋转
- 物理距离(以“米”为单位)
- 我们手动添加的希望追踪的点

- 运动传感器不能停止工作
- 真实世界的场景需要有一定的特征点可追踪
- 设备移动速度不能过快
- 环境光线会影响追踪质量

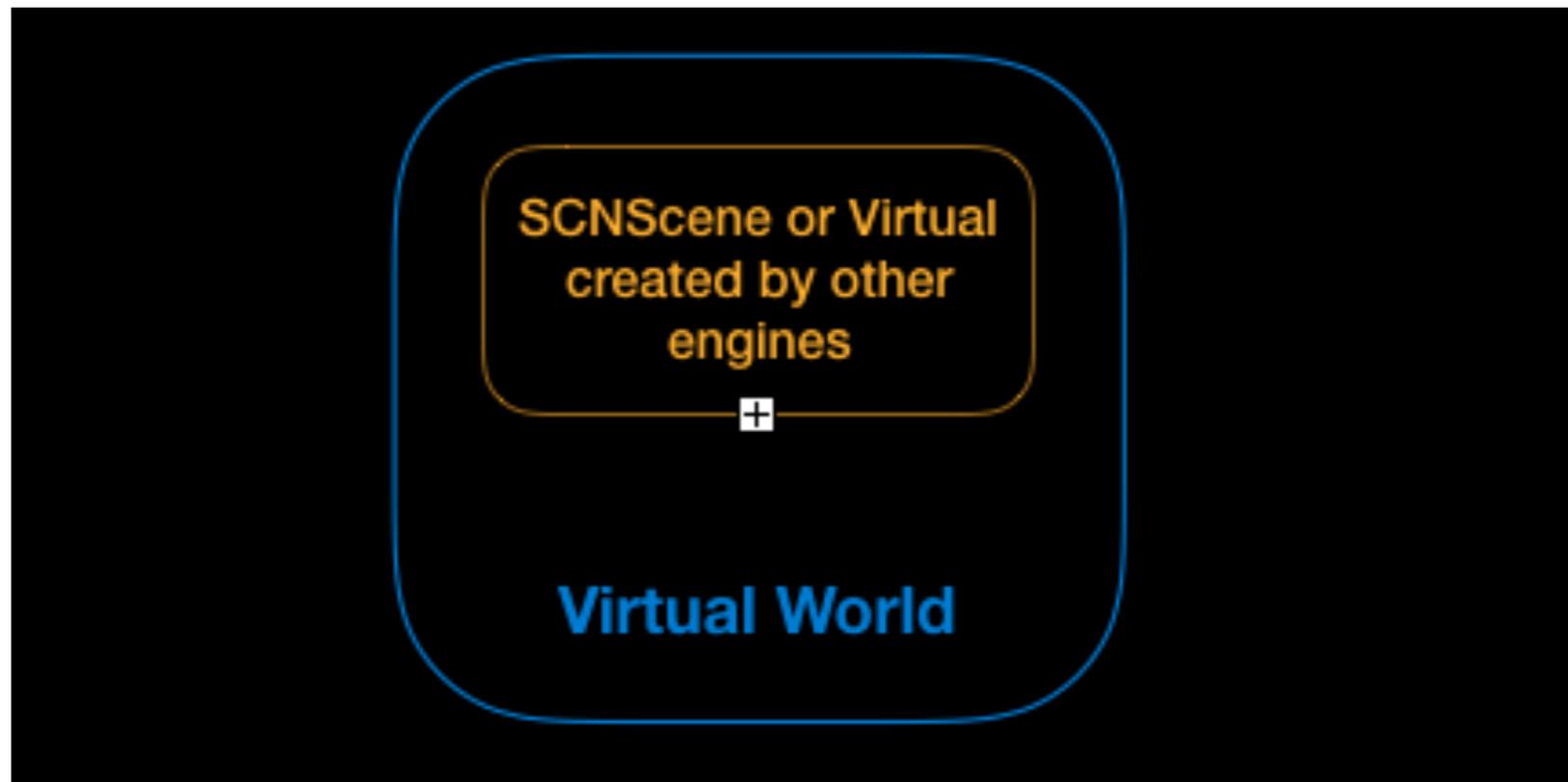
场景理解



点击测试



虚拟世界



处理和渲染

Application

Processing

ARKit

Rendering

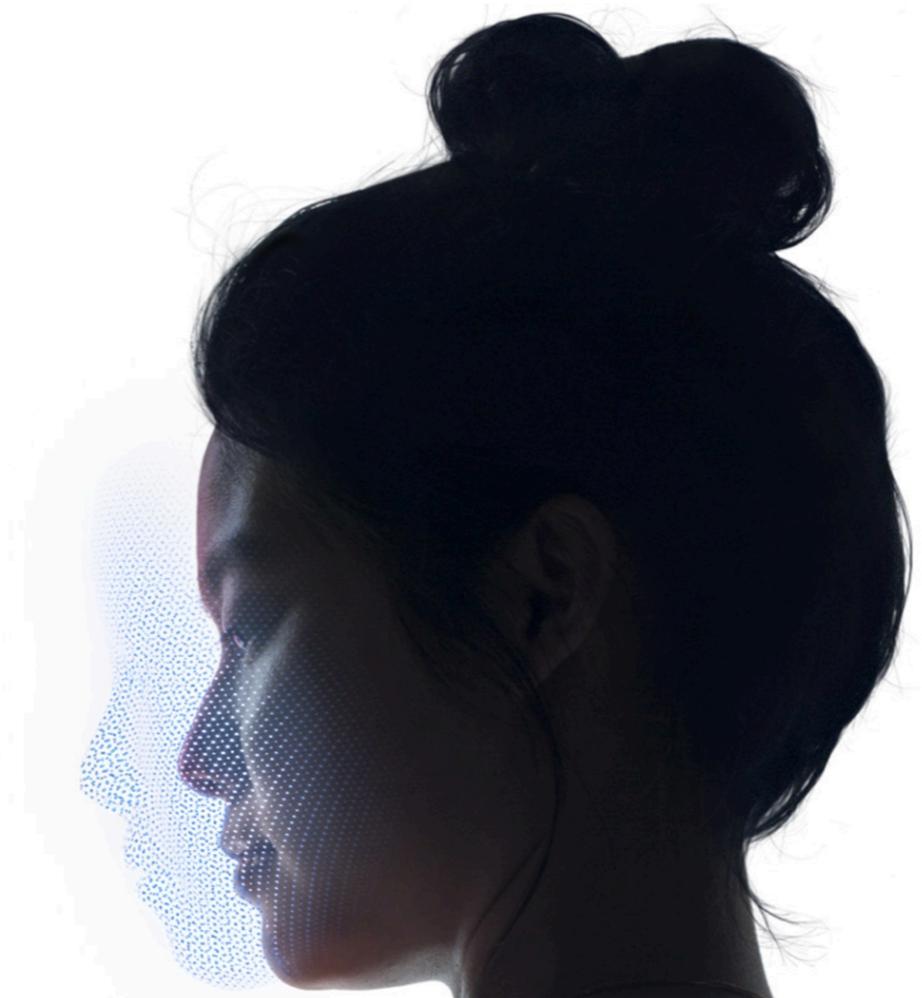
SceneKit

SpriteKit

Metal

FACE ID

The TrueDepth camera system is composed of multiple innovative technologies. Working together in real time, they use a detailed depth map of your face to recognize you in an instant.



FACE TRACKING

点阵投影器

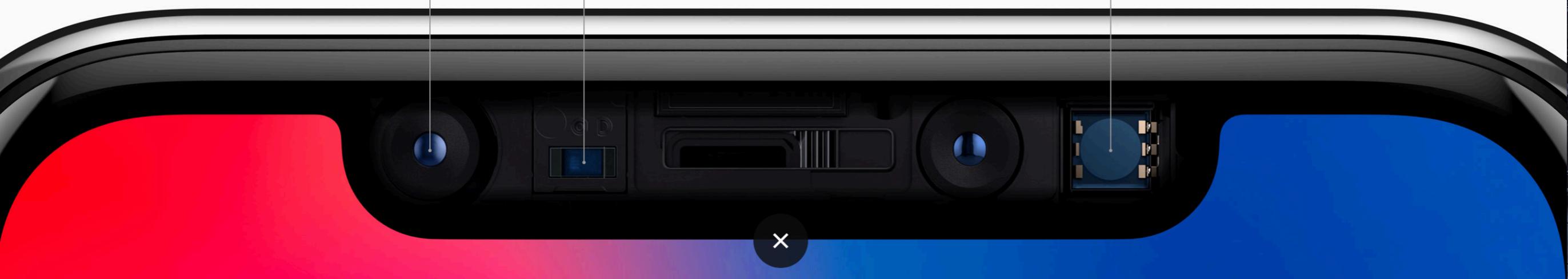
通过将 30,000 多个肉眼不可见的光点投影在你脸部, 绘制出你独一无二的面谱。

红外镜头

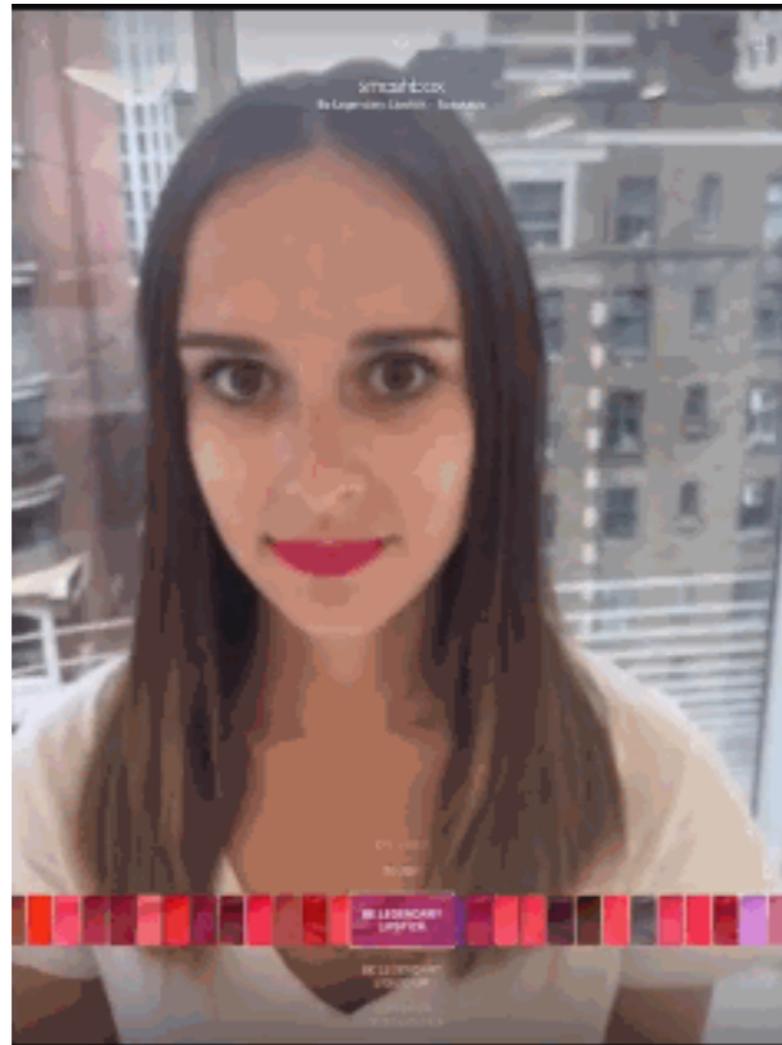
红外镜头会读取点阵图案, 捕捉它的红外图像, 然后将数据发送至 A11 仿生这款芯片中的安全隔区, 以确认是否匹配。

泛光感应元件

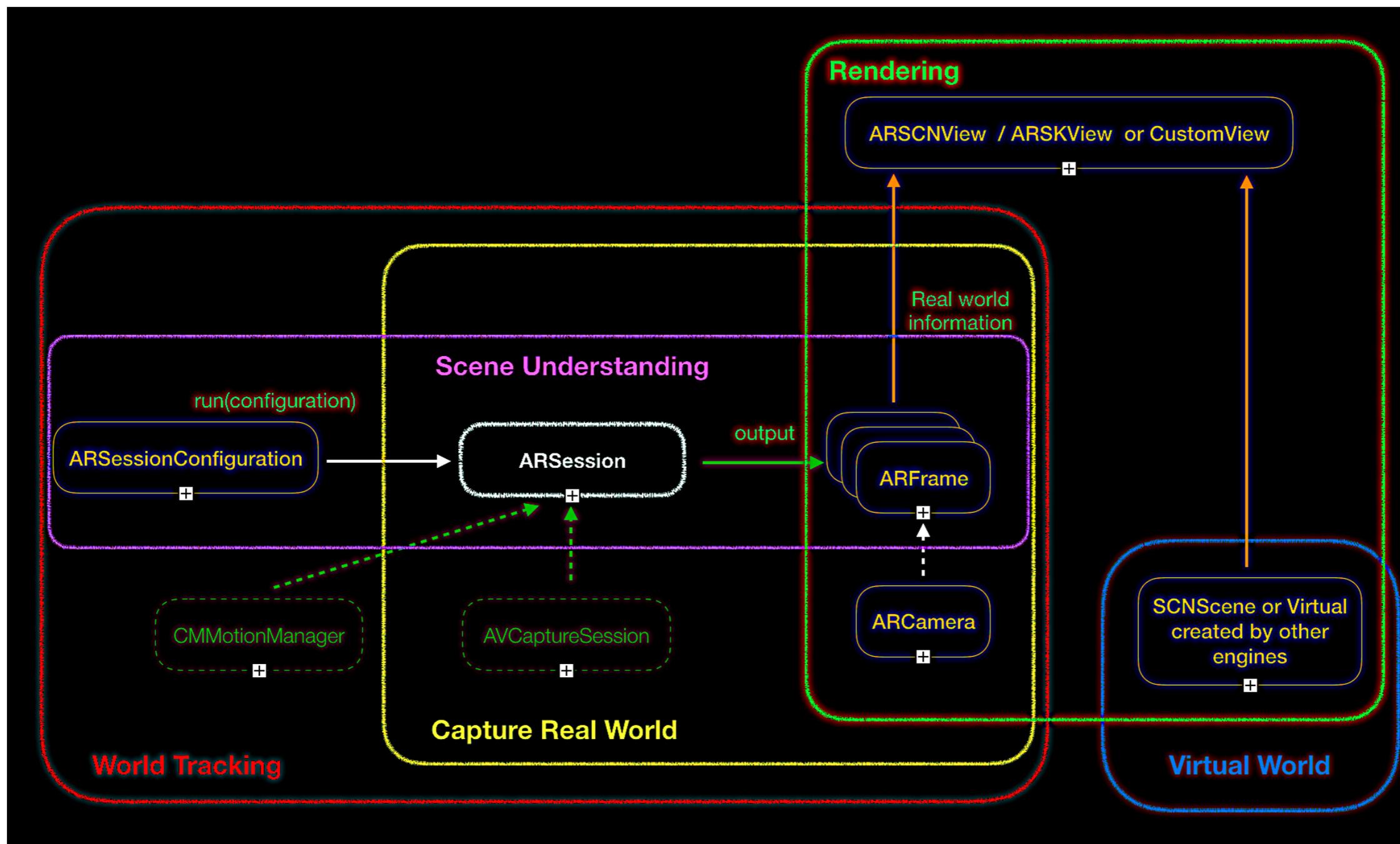
借助不可见的红外光线, 即使在黑暗中也能识别你的脸。



FACE TRACKING



ARKIT 架构



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DEMO

- 不需要购买额外的AR设备
- 上亿的潜在用户群体
- 易于上手
- 前置深度摄像头支持人脸的AR应用
- Unity/Unreal支持

- 没有竖直面检测
- 追踪质量不稳定
- 没有后置深度摄像头的强力支持
- 沉浸感不足



ARKit是连接Mobile和AR的桥梁
把我们从Mobile时代带入到了后Mobile时代



THANKS!

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