

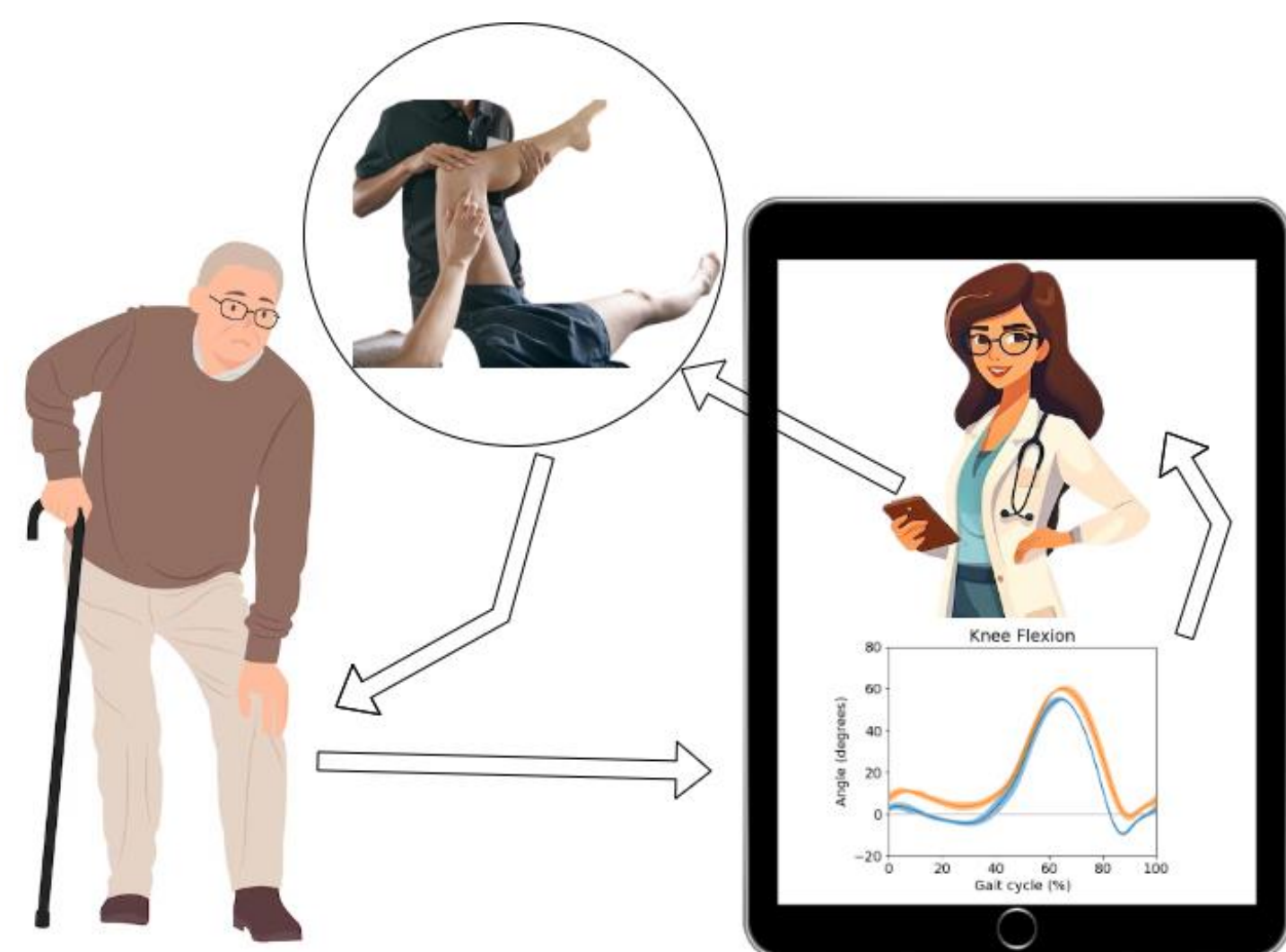
Towards revolutionizing Neurological and Orthopaedic Care with AI powered 3D Gait Analysis

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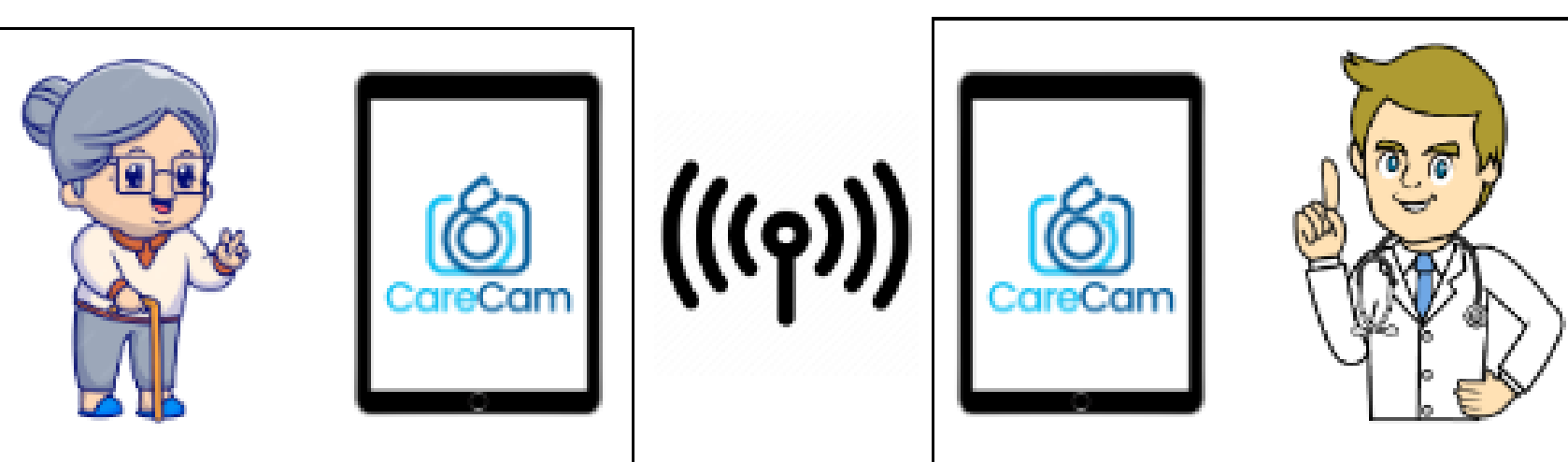
Motivation

'Measure what can be measured and make measurable what cannot be measured.' - Galileo Galilei

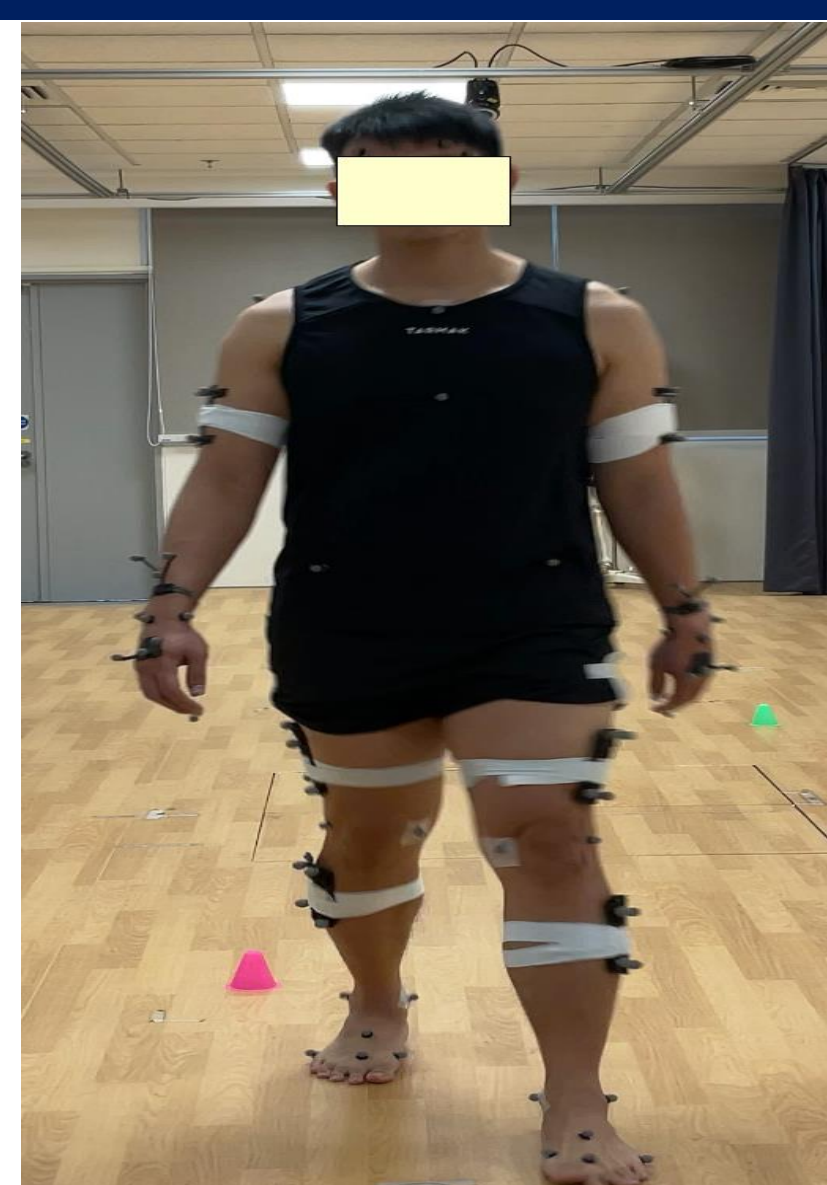


Personalized Rehabilitation

Remote monitoring and Real-time feedback
Patient's Home Doctor's Clinic



Gaps in State-Of-The-Art



Mocap

Cumbersome wearables

Specialized Lab setup

High cost



OpenCap

Calibration & Synchronization of cameras

No comparison with prior trials

GPU servers



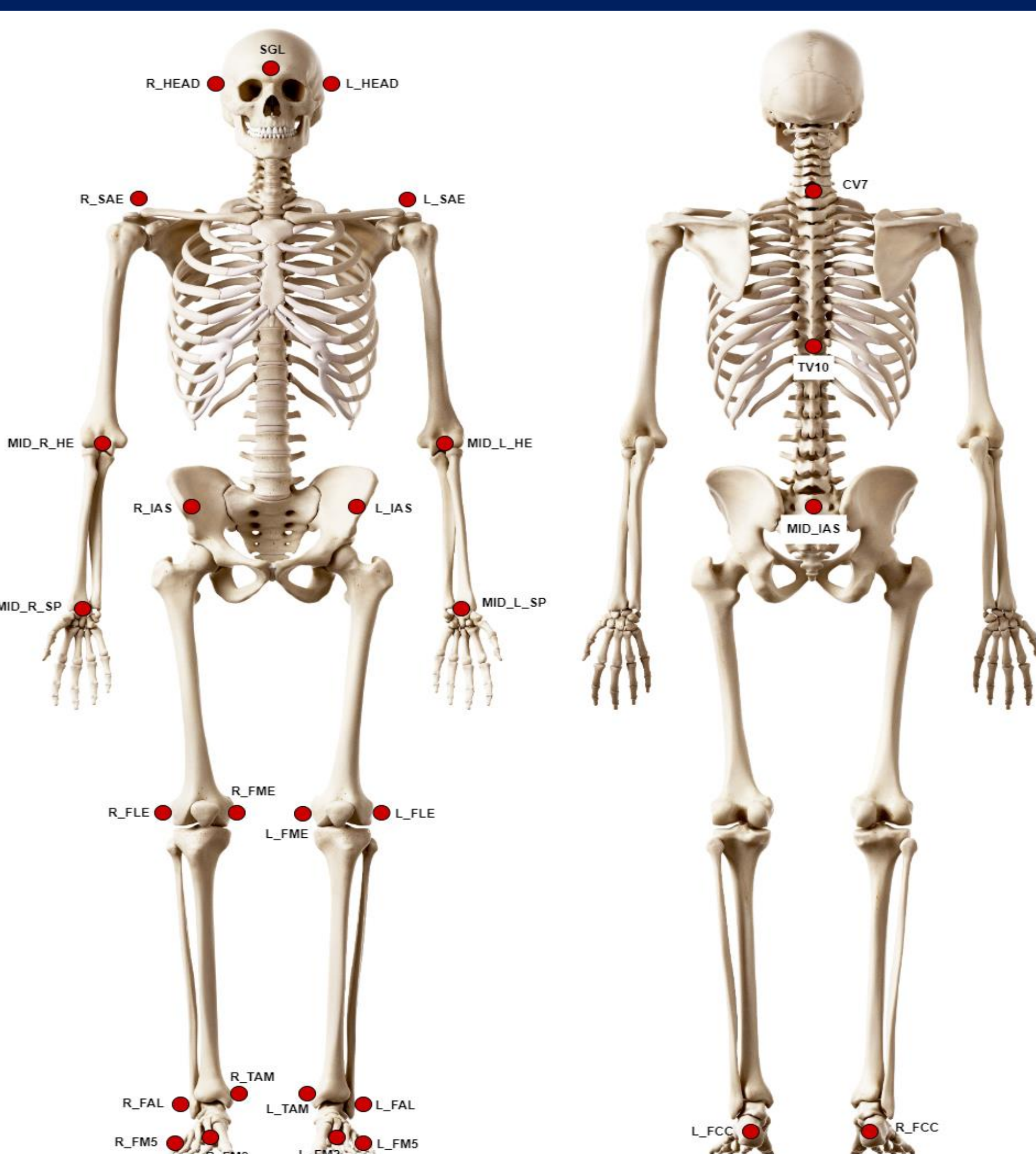
Theia3D

Calibration & Synchronization of cameras

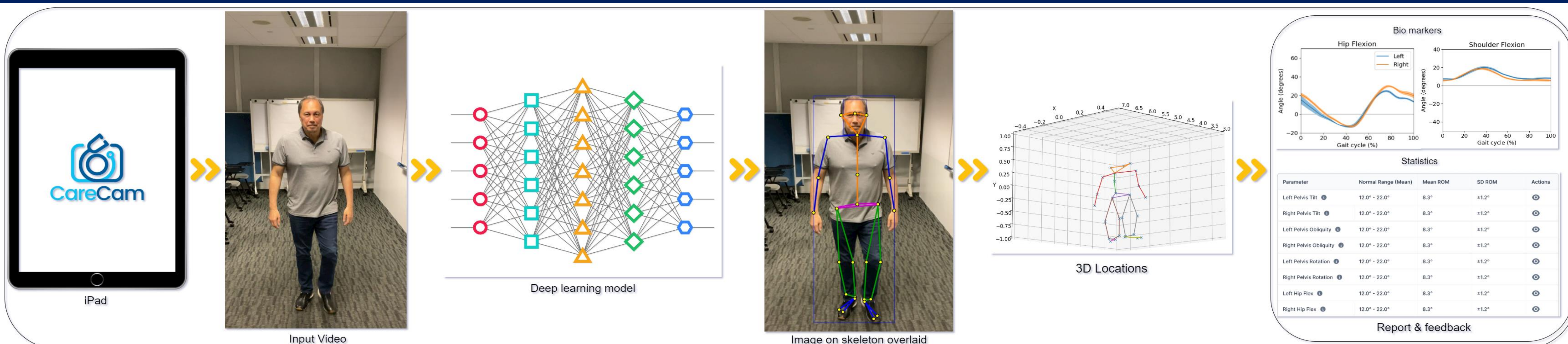
No outdoor usage

No portability

Key Points Used



How Carecam's 3D Gait Works



Gait Analysis Report Generated using Carecam's Technology

Patient Profile (Kendrick Lim #482)

Gait Report

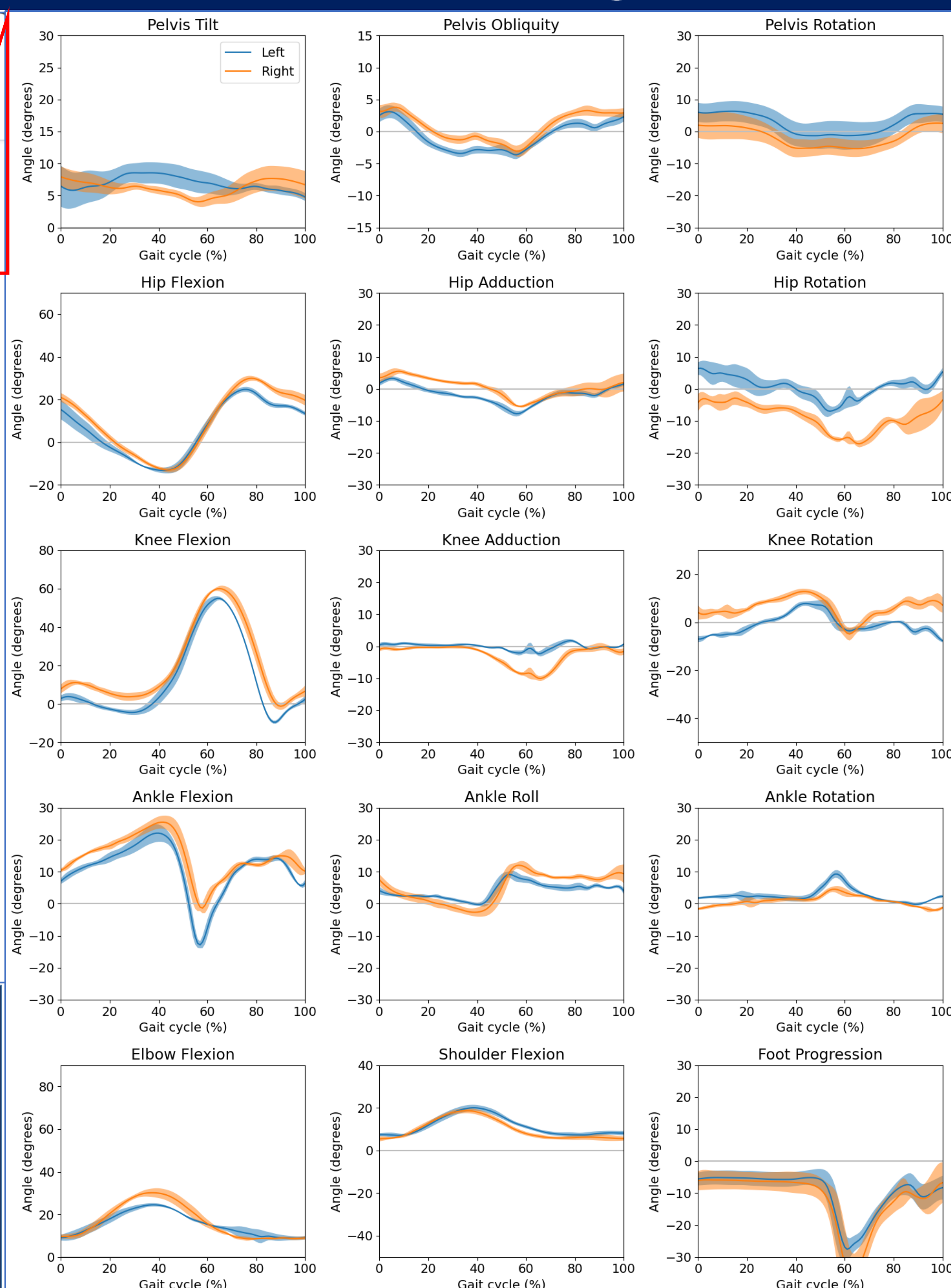
Report Overview Gait Video Upper Body Kinematics Lower Body Kinematics Temporal &...

Upper Body Kinematics

Parameter	Normal Range (Mean)	Mean ROM	SD ROM	Actions
Left Shoulder Flex	12.0° - 22.0°	8.3°	±1.2°	⊕
Right Shoulder Flex	12.0° - 22.0°	8.3°	±1.2°	⊕
Left Elbow Flex	12.0° - 22.0°	8.3°	±1.2°	⊕
Right Elbow Flex	12.0° - 22.0°	8.3°	±1.2°	⊕

Lower Body Kinematics

Parameter	Normal Range (Mean)	Mean ROM	SD ROM	Actions
Left Pelvis Tilt	12.0° - 22.0°	8.3°	±1.2°	⊕
Right Pelvis Tilt	12.0° - 22.0°	8.3°	±1.2°	⊕
Left Pelvis Obliquity	12.0° - 22.0°	8.3°	±1.2°	⊕
Right Pelvis Obliquity	12.0° - 22.0°	8.3°	±1.2°	⊕
Left Pelvis Rotation	12.0° - 22.0°	8.3°	±1.2°	⊕
Right Pelvis Rotation	12.0° - 22.0°	8.3°	±1.2°	⊕
Left Hip Flex	12.0° - 22.0°	8.3°	±1.2°	⊕
Right Hip Flex	12.0° - 22.0°	8.3°	±1.2°	⊕
Left Hip Adduction	12.0° - 22.0°	8.3°	±1.2°	⊕
Right Hip Adduction	12.0° - 22.0°	8.3°	±1.2°	⊕



Feedback (WIP):

- ❑ Limited pelvic Tilt → Lower back pain, muscle imbalances, and hip flexor tightness.
- ❑ Abnormal pelvic obliquity → Gait abnormalities, hip and lower back pain, and an increased risk of falls.
- ❑ Abnormal foot progression → Deviations in foot alignment can increase tension on the plantar fascia, contributing to plantar fasciitis and heel pain.

Conclusion

- ❑ Addressed limitations of traditional motion capture & multi-camera setup.
- ❑ Setup done within 2 minutes.
- ❑ Single camera technology with full processing done on device.
- ❑ Emphasis on cost-effectiveness, simplicity, and accessibility.
- ❑ Ideal for comparative analysis
- ❑ Developed a portable platform for 3D gait analysis anytime, anywhere.

Mean Absolute Error (Biomarkers)

Angular → 3.44°

Temporal → 0.02s

Spatial → 9.00 mm