Measurement of human movements with inertial sensors

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3D Motion Analysis System

Goniometers

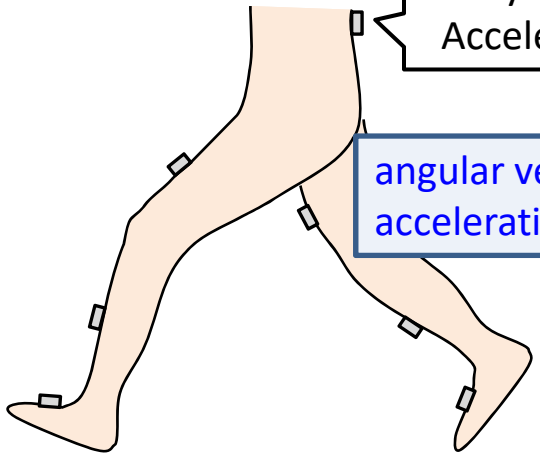
portable walkways

○ high accuracy

× inconvenient, time-consuming set up process

× mainly limited to laboratory use

× expensive



Inertial Sensors
Gyroscope
Accelerometer

angular velocity
acceleration

Signal Processing

joint angle, walking speed, stride length, etc…

○ low cost
○ shrinking in size
○ wearable
⇒not limited to laboratory use

× difficulty in signal processing

Let's calculate an index to evaluate human movements from inertial sensor signals!