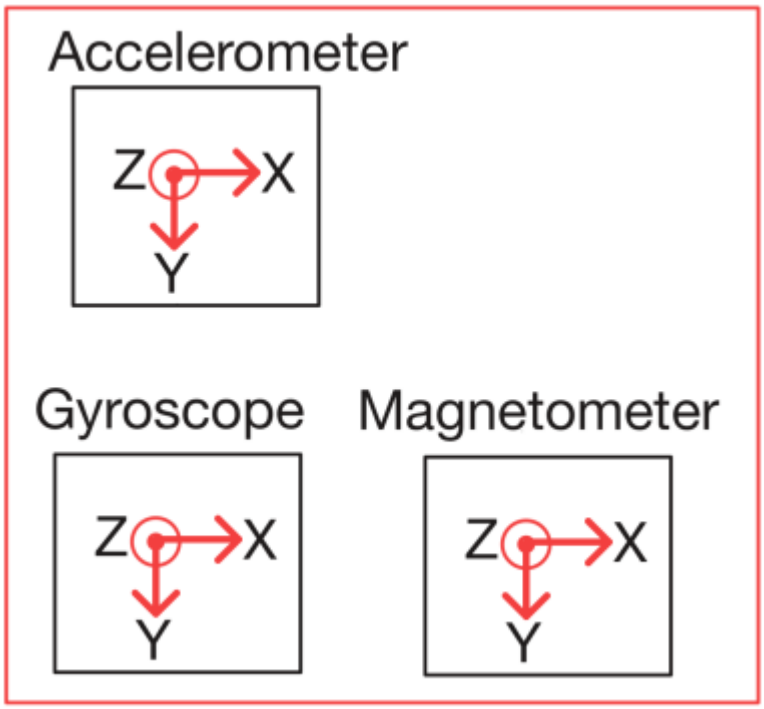
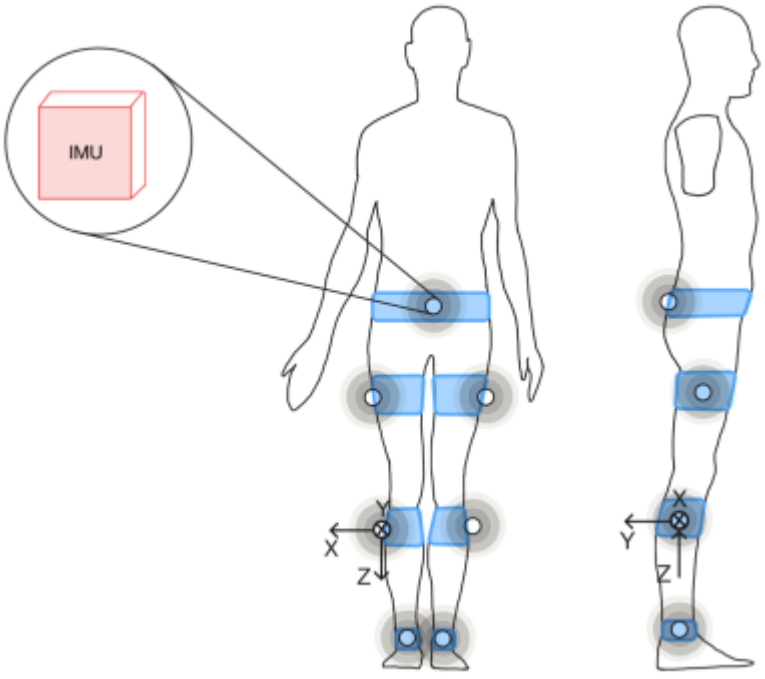
Inertial Measurement Units Overview

Inertial Measurement Units

Inertial measurement units are strapped to participants or otherwise worn and combine accelerometers, gyroscopes, and magnetometers.





Accelerometers measure linear acceleration in three axes (X, Y, Z), while gyroscopes are sensors that measure angular velocity around three axes (X, Y, Z). Magnetometers measure the strength of a magnetic field in three axes (X, Y, Z). Combined, you get position, translational and rotational information about a segment. These signals are fused to estimate the pose of the associated segment.

Note that the coordinate systems of individual IMUs are aligned in this diagram, which may not always be the case. The coordinate systems of the individual sensors would also be taken into account.

Visual3D extracts the pose information from IMU systems that write out an MVNX file. **It does not read in the raw IMU data.**

Check out the XSens page, which describes how Visual3D builds the model from the MVNX file.

Bring IMU Data into Motion Capture File