This dataset provides the magneto-inertial signals from six MIMU (2 Xsens, 2 APDM, 2 Shimmer) and orientation from 8 reflective markers (VICON) at 3 different speeds (slow, medium, fast). Proprietary orientations from MIMU vendors are also included. All data are synchronized at 100 Hz.

Xsens - MTx = XS1, XS2

APDM - Opal = AP1, AP2

Shimmer - Shimmer3 = SH1, SH2

For each MIMU dataset (XS1, XS2, AP1, AP2, SH1, SH2):

columns 1 = time vector (or packet counter vector)

columns 2:4 = accelerometer data (x,y,z) (m/s^2)

columns 5:7 = gyroscope data (x,y,z) (rad/s)

columns 8:10 = magnetometer data (x,y,z) (a.u.)

columns 11:14 = proprietary orientation

Rotations sequence are in the timeframe contained in indz (first rotation), indx (second rotation), indy (third rotation), and indarb (3D rotation).

Qs (q0, qx, qy, qz) is the orientation obtained by applying the SVD technique to eight marker position data [A. Cappozzo, A. Cappello, U. D. Croce, and F. Pensalfini, “Surface-marker cluster design criteria for 3-d bone movement reconstruction,” IEEE Trans. Biomed. Eng., vol. 44, no. 12, pp. 1165–1174, 1997]

wVicon is the angular velocity obtained by Qs [Chardonnens, J.; Favre, J.; Aminian, K. An effortless procedure to align the local frame of an inertial measurement unit to the local frame of another motion capture system. J. Biomech. 2012,45, 2297–300.]

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