Algorithm implemented on a pre-processed vertical acceleration signal recorded on lower back. This signal is first detrended and then low-pass filtered (FIR, fc=3.2 Hz). The resulting signal is numerically integrated (cumtrapz) and differentiated using a Gaussian continuous wavelet transformation (CWT, scale 9, gauss2). The initial contact (IC) events are identified as the positive maximal peaks between successive zero-crossings.

The algorithm is implemented in the main function StepDetection.m. The script example\_GSD\_SD.m contains an exemplary application of the algorithm, using input data in the standardized format adopted by MobiliseD project [4]. The algorithm requires also the start and end of each gait sequence, in the format provided by the Gait Sequence detection algorithm.

Note that this algorithm is referred as **ICDA** in the validation study [3].

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