**Benchmark datasets for bilateral lower limb neuromechanical signals from wearable sensors during unassisted locomotion in able-bodied individuals**

**ENABL3S**

(**EN**cyclopedia of **A**ble-bodied **B**ilateral **L**ower **L**imb **L**ocomotor **S**ignals)

**Overview of file structures and formats**

The data are organized by subject according to their identification code (*e.g.* AB185). In each subject folder, there are three folders: “Raw Data,” “MVC,” and “Features.” The “Raw Data” folder contains in Excel format the post-processed data from each circuit trial. Details of file organization are described below.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Filename** | **SubjectID\_Circuit\_Trial.xls**  Mode (labeled with key fob):   |  |  | | --- | --- | | S = Sitting | St = Standing | | LW = Level ground walking | | | RA = Ramp ascent | RD = Ramp descent | | SA = Stair ascent | SD = Stair descent |   Odd-numbered trials:  Sit 🡪 Stand 🡪 LW 🡪 SA 🡪 LW 🡪 RD 🡪 LW 🡪 St 🡪 S  Even-numbered trials:  S 🡪 St 🡪 LW 🡪 RA 🡪 LW 🡪 SD 🡪 LW 🡪 St 🡪 S |
| **Columns**  **A-AZ** | Post-processed data from each channel (labeled in row 1) |
| **Column**  **BA** | Mode (labeled with key fob):   |  |  | | --- | --- | | 0 = Sitting | 6 = Standing | | 1 = Level ground walking | | | 2 = Ramp ascent | 3 = Ramp descent | | 4 = Stair ascent | 5 = Stair descent | |
| **Column**  **BB-BI** | Indices for heel contact/toe off gait events for each leg  Triggers (4-digit number):  Previous Mode Previous Phase Current Mode Current Phase  Mode (labeled with key fob):   |  |  | | --- | --- | | 0 = Sitting | 6 = Standing | | 1 = Level ground walking | | | 2 = Ramp ascent | 3 = Ramp descent | | 4 = Stair ascent | 5 = Stair descent |   Phase:   |  |  |  | | --- | --- | --- | | 1 = Stance | 2 = Swing | 3 = Mid-swing | |
| **Column BJ-BM** | Indices for beginning and end of identified sitting and standing periods at the start and finish of each trial |

The “MVC” folder contains in Excel format the post-processed maximum voluntary contraction (MVC) data (three repetitions). The data have different lengths because individual trials were recorded for each set of muscles (ankle dorsiflexors, ankle plantarflexors, knee extensors, knee flexors).

|  |  |
| --- | --- |
| **Filename** | **SubjectID\_Circuit.xlsx** |
| **Columns**  **A-N** | RTA, RMG, RSOL, RBF, RST, RVL, RRF  LTA, LMG, LSOL, LBF, LST, LVL, LRF |

The “Feature” folder contains in Excel format the features extracted from five different analysis windows for each gait event in Excel format. Details of file organization are described below.

|  |  |
| --- | --- |
| **Filename** | **SubjectID\_Features.xlsx** |
| **Sheet** | 0Delay = No delay  30Delay = 30 ms relative shift  60Delay = 60 ms relative shift  90Delay = 90 ms relative shift  120Delay = 120 ms relative shift |
| **Column A-ND** | Features |
| **Column NE** | Leg-phase:  1 = Right heel contact  2 = Right toe off  3 = Left heel contact  4 = Left toe off |
| **Column NF** | Triggers |