**Notes on true BOS Pilot**

LST, 20-06-2020

* Processing:
  + N=2
  + Sample freq force plates: 900 Hz, marker data: 150 Hz
  + Filtered (both FP / COP and marker data): low-pass 4th order bi-directional Butterworth filter at 10Hz. Needed because the COP data was quite noisy (and a few vibrations in some trials not sure what happened but looked good after filtering).
  + Threshold: 50N (FP are less accurate at low forces, when finding the edges we usually lean to one FP, so forces are closer to full body weight). At lower values many outliers also outside BOS, also these data points are per definition not related to our leaning effort.
  + I split the falls trials and toe trials, data concatenated over available reps of trials.
  + Feet are rotated to have toe and heel point backward/forward. Vertical movement is ignored (is not a lot for at least Sub2)
* Good to note:
  + we moved to the lateral edges, not so much towards the medial edges (except maybe when standing on one foot). As this is not really important for the true BOS estimation 🡪 about the lateral edge.
  + Please take care: the sts condition versus the stance conditions didn’t had the leaning effort!
  + Some trials show some shift in feet if the second recorded rep was not immediately recorded but feet were replaced 🡪 made a second cons. When feet are not moved, data is concatenated over trials.
  + **Marker thickness**: recorded is the middle of the marker, so could at least subtract half the radius of markers from their position.
* Figures:
  + Saved figures with all data per trial (without <50N):
    - Plotted averaged and rotated markers in blue lines, the cyan is the individual data (for force > 50N).
    - Individual cop data is plotted in black small dots.
    - These are not the rotated, but measured marker and COP position
  + Figure with all cons (without <50N):
    - the 25 and 75% are arbitrarily chosen by me and not related to the normalized AP frame. Both ankle and forefoot are normalized separately.
    - These are the rotated, but measured marker and COP position
    - Black = left and blue is right data dots
  + I saved all the individual and summary over conditions figures!
* Outcome:
  + In Data matrix per sub
  + AP: all datapoints relative to heel and toe position (each frame with force >50N)
  + ML: data points above half of the heel-toe distance (AP direction) are expressed as percentage between MTP1 and MTP5, from med (0%) to lat (100%) for both feet
  + ML: data points below half of AP foot are expressed as percentage between med (0%) and lat (100%) ankle