Input lateral acceleration D_{nx1}

Step 1 IIR low-pass filter (15Hz cut-off)

Step 2 Find zero-crossing intervals (Δt) in overlapping windows, i ($i = 1,..., N$) of species-specific window length, W

Step 3 Determine window stability by comparing threshold ThS^* to $\sigma(\Delta t)_i$

If $\sigma(\Delta t)_i < ThS^* \rightarrow$ TBF in window stable
If $\sigma(\Delta t)_i > ThS^* \rightarrow$ TBF in window unstable, discarded

Step 3 Determine window similarity by comparing $E(\Delta t)_i$ and $E(\Delta t)_{i+1}$ by non-parametric statistical tests

If $E(\Delta t)_i = E(\Delta t)_{i+1} \rightarrow$ window combined
If $E(\Delta t)_i \neq E(\Delta t)_{i+1} \rightarrow$ windows separate

Output List of frequencies and corresponding window lengths