

1

Pre-Processing

 $\odot || \sim 500 | \odot \sim 750$

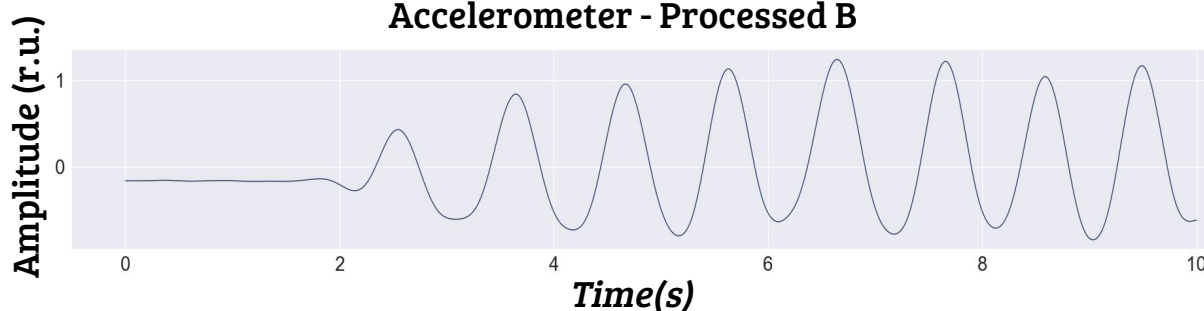
Accelerometer - Original Signal

Process A: $\odot || \sim 500$

Accelerometer - Processed A

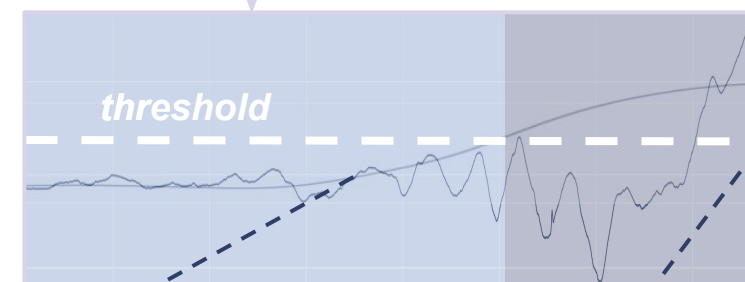
Process B: $\odot \sim 750$

Accelerometer - Processed B



2

Symbolic Connotation

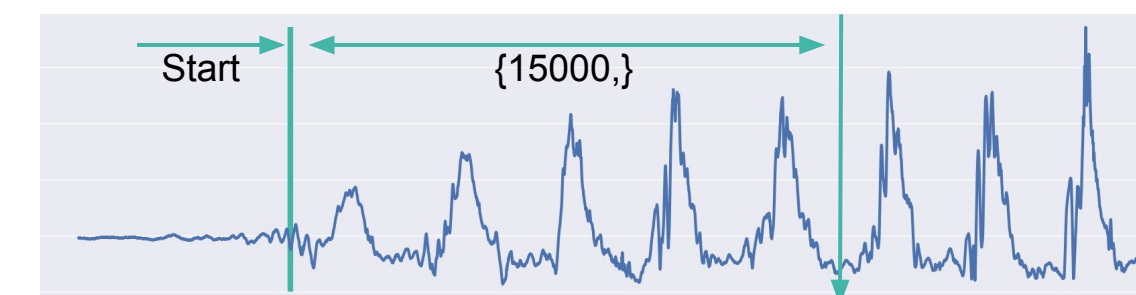
 $\nexists 0.2 | \partial 0.01$

 $0z0p0p1p1p1z$

 $1n1n1p1p1p/.../1n1n1p1p1p$

3

Search

 $(?<=1.\{15000,\})(n1p)(.*?)(n1p)$

 $(?<=1.\{15000,\})$ - Find Start and 5 s ahead

 $/.../0.0.0.1.1./.../$
Start
Search here
 $(n.p)(.*?)(n.p)$ - Find Segment 5 s ahead of Start

 $/.../1n1p1n1p/.../1n1p1n1p/.../$
 $\odot(s)$ - Whitening of the signal (s);

 $|| (s)$ - Modulus of signal s

 $\sim (s, win_size)$ - Smoothing of s with total overlap of the window;

 $|$ - separates the pre-processing methods for different signals

 $\nexists (s, thr)$ - Amplitude thresholding. Everything superior to the threshold level is "1", while the rest is "0";

 $\partial (s, thr)$ - Derivative of the signal (s) with a rounding threshold, the characters used were: ['p' - positive derivative, 'n' - negative derivative, 'z' - zero derivative.]

 $|$ - separates the connotation methods for different signals

 $(?<=1.\{15000,\})$ - Searches for 15000 characters ahead of finding the "0..1" match, which is the match for the first signal;

 $(n1p)$ - Minimum of the second signal;

 $(.*?)$ - Finds anything in a greedy way