

Proposal Talk

02.10.2017



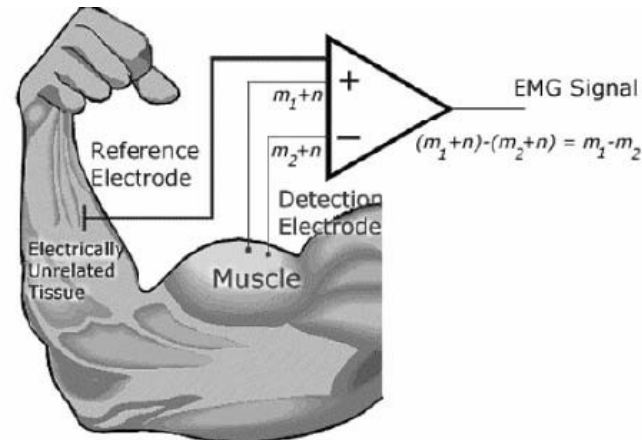
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Motivation

- MediWeCo: Contribution to learning and teaching physiotherapy through feedback.
- First to use combination of Myo & EMG signals.

MediWeCo
Physio



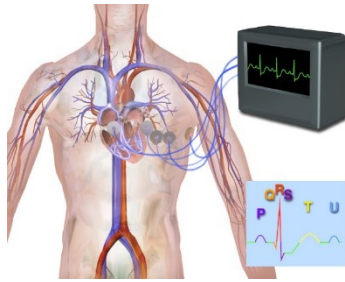
Gesture recognition?

- Image analysis requires ...
- Motion capture requires ...
- Sensing gloves are expensive.



Why electromyography?

- Measuring muscle activity

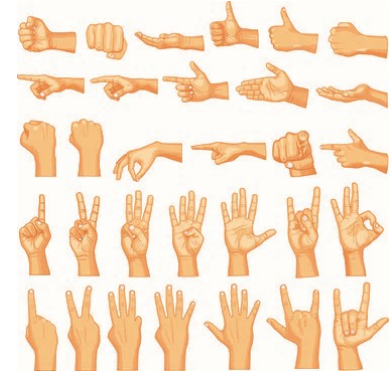


- Thalmic Myo
 - Safe, easy, cheap, non-invasive
 - No gel to facilitate conductivity
 - Wireless



Goal: finger gesture recognition with Myo

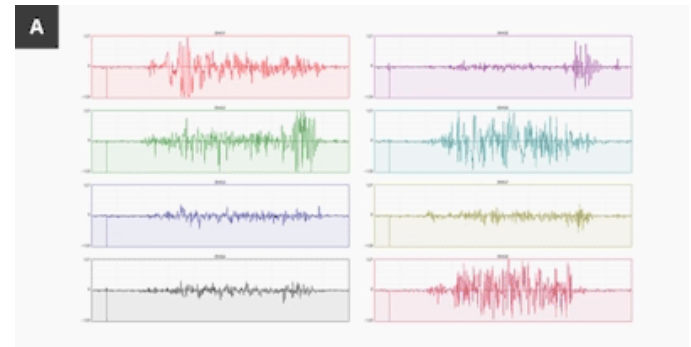
- For different finger gestures → find best detection accuracy.



- Signals acquired with Myo.



- Focus solely on EMG signals.



State of the art



Robotic arm control



Surgery interface control

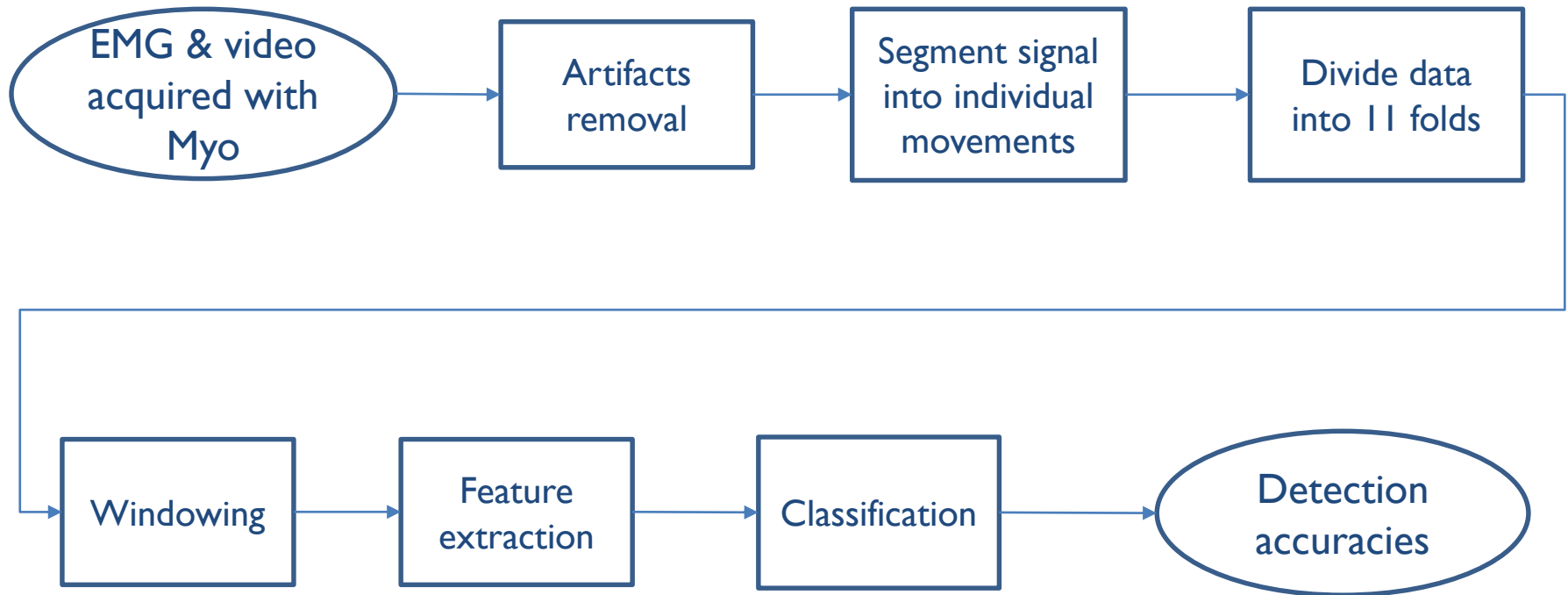


Control of stage effects



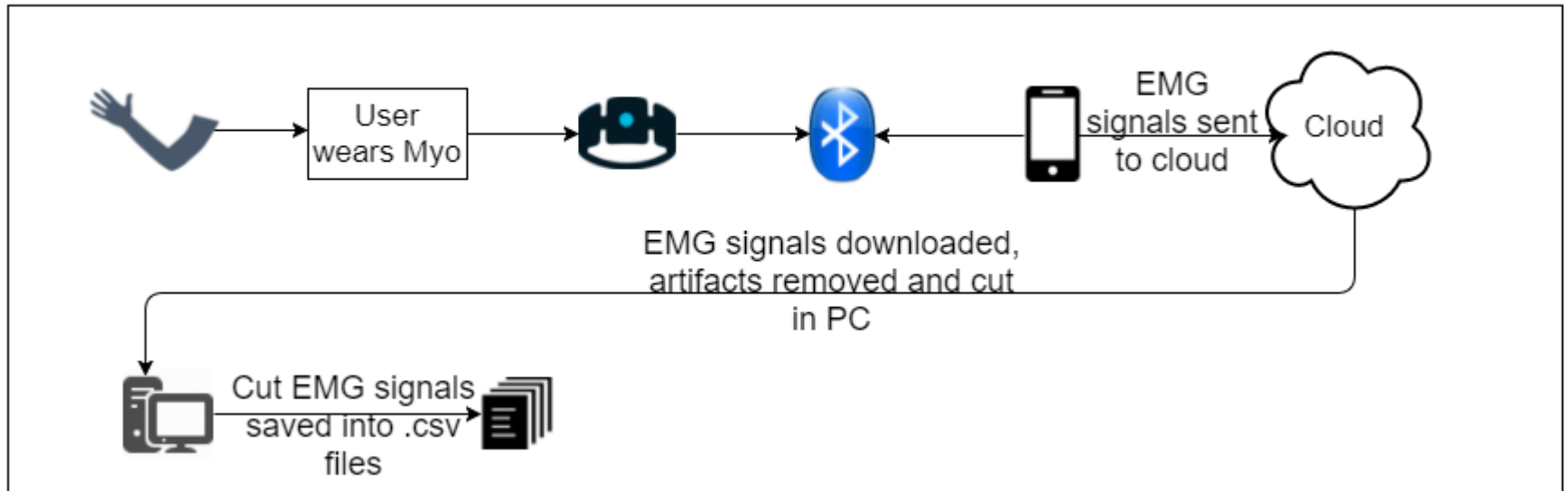
Remote vehicle control

Methods

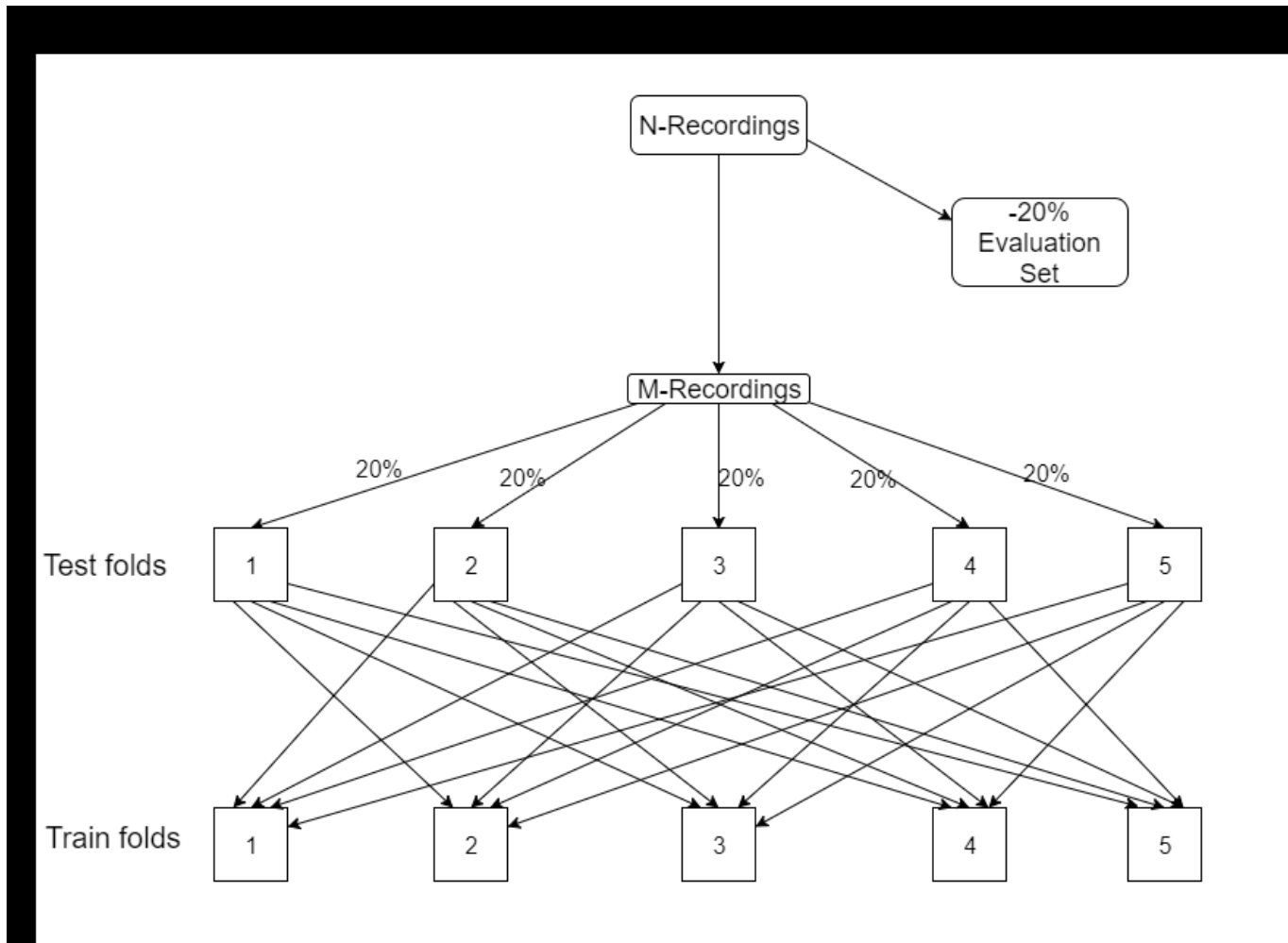


Tasks

Data collection

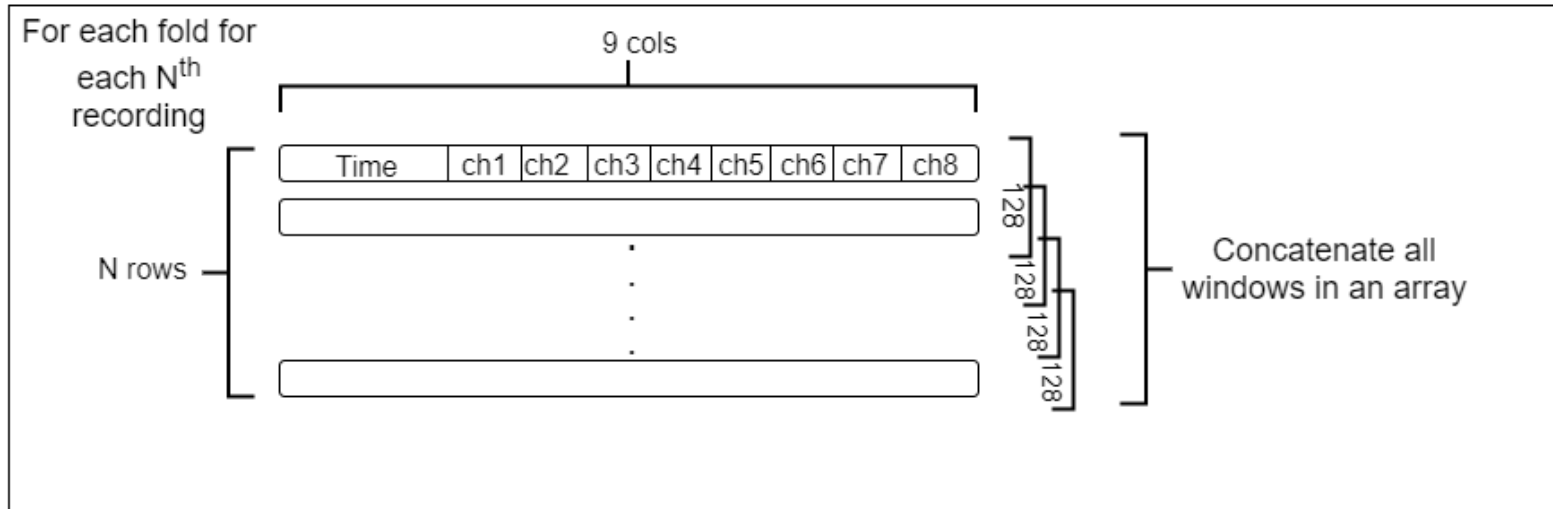


Tasks



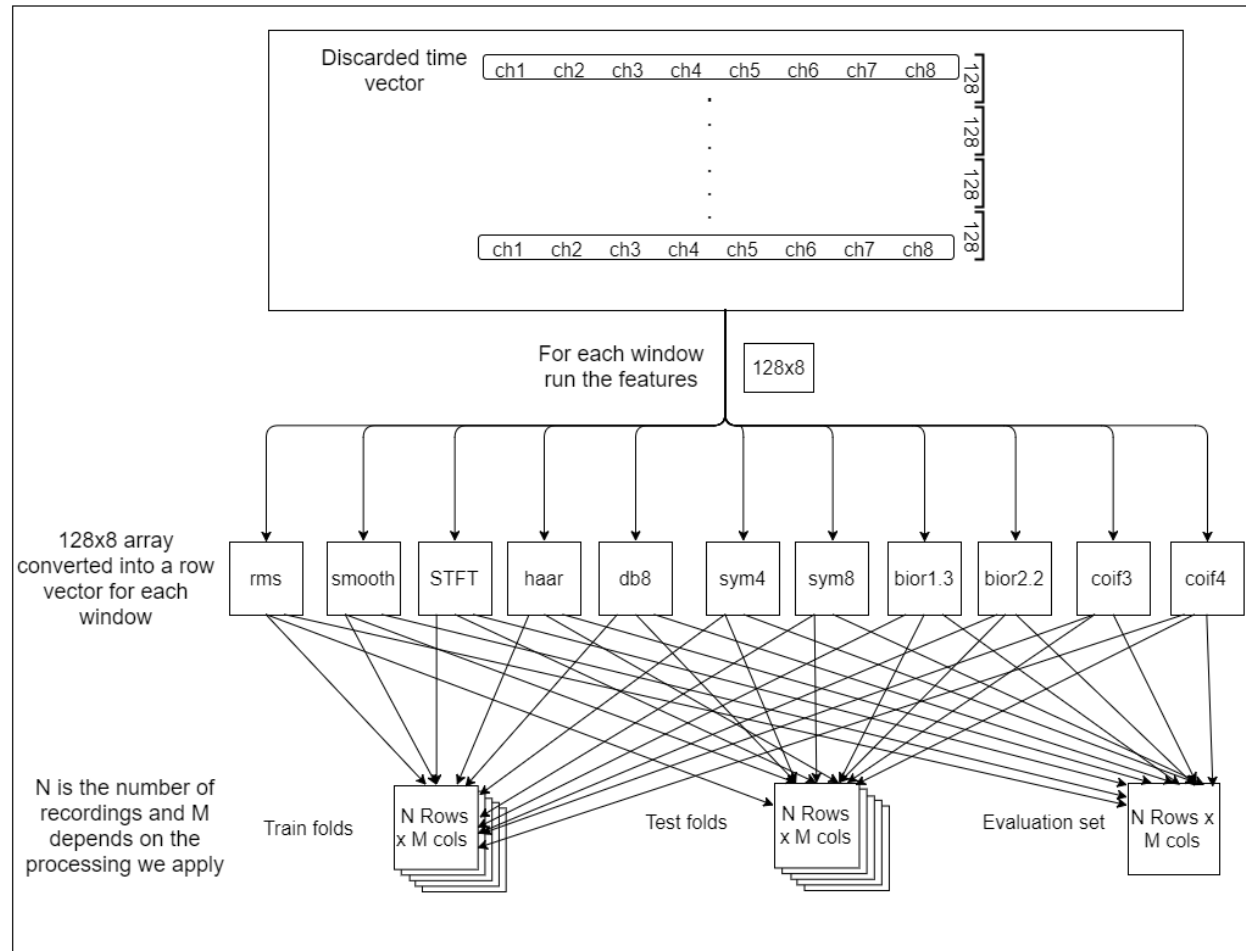
Tasks

Windowing



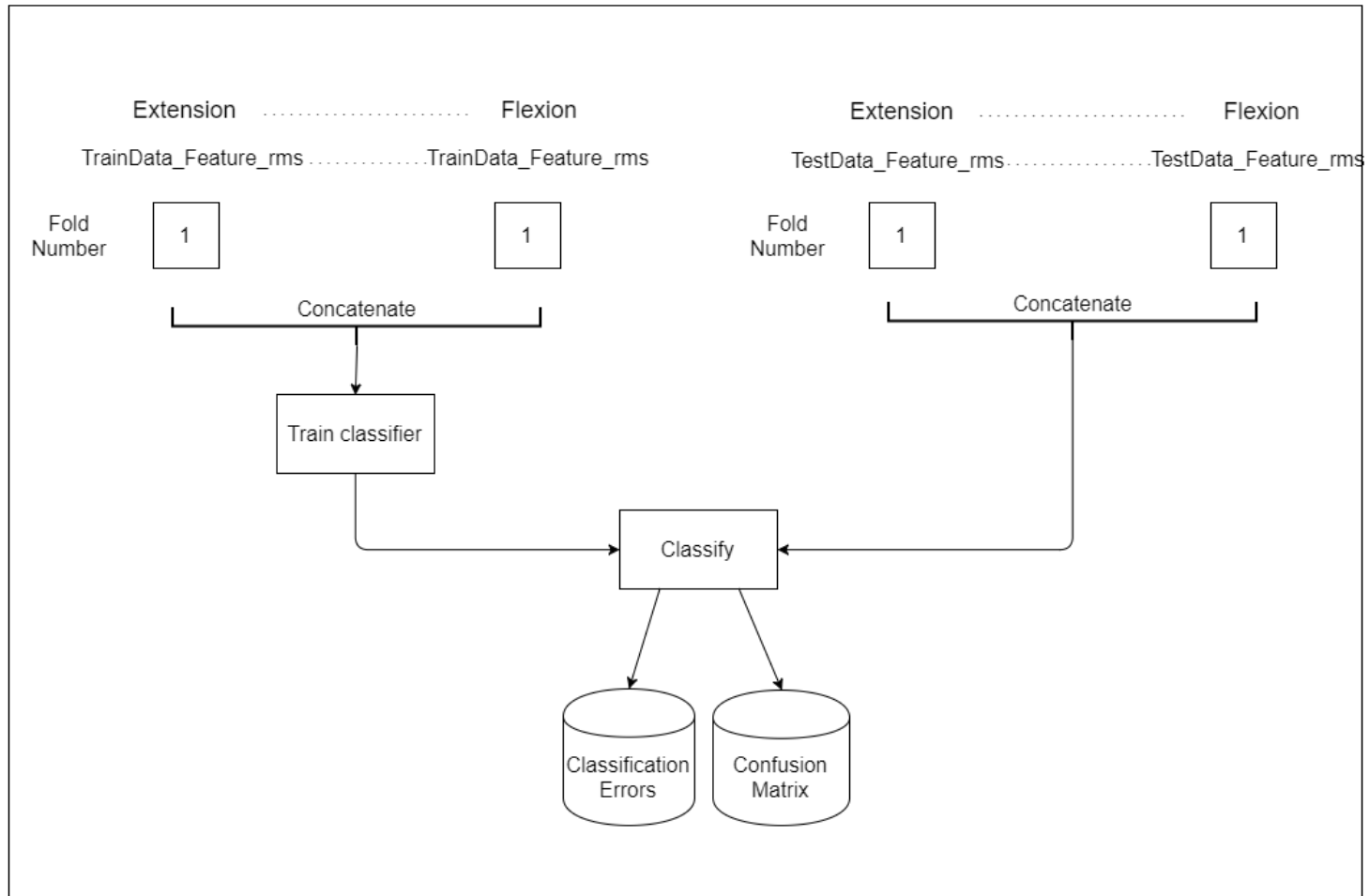
Tasks

Feature extraction



Tasks

Train & classification



Timeline

Combine most
accurate Features -
> Results

11/2017 – 12/2017

Test forward selection &
backward elimination,
creation of new gesture
database

12/2017 - 01/2018

Acquire new EMG signals

01/2017 - 03/2018

Discussion &
Conclusion

03/2018 - 03/2018



Summary

- What I will do
 - Test new finger gestures.
 - Find the optimal parameters for the classifiers.
 - Combine the best feature sets to increase the detection accuracies.
 - Create new finger gesture database.