Predicting Elbow Movements from Electromyography Data

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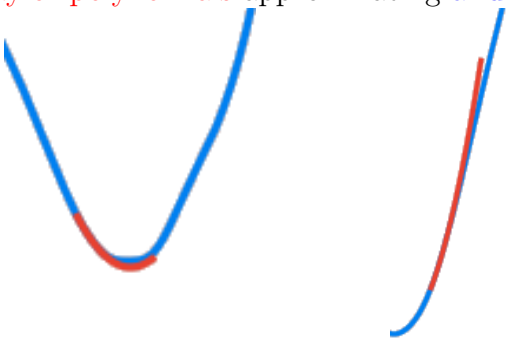
Introduction

- Dataset with waving motions from 17 persons
- 4 EMG sensors attached to upper arm
- Goal: predict future trajectory of elbow joint
- Desired: fast, interpretable model

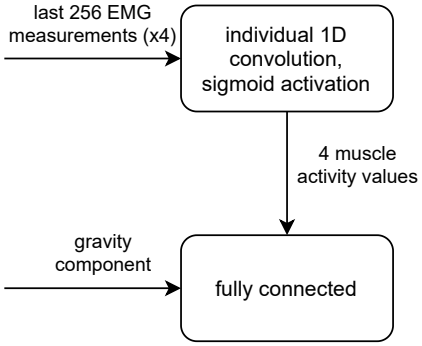
Taylor polynomials as Prediction

$$f(a) + f'(a)(x-a) + 0.5f''(a)(x-a)^2$$

Taylor polynomials approximating a function:

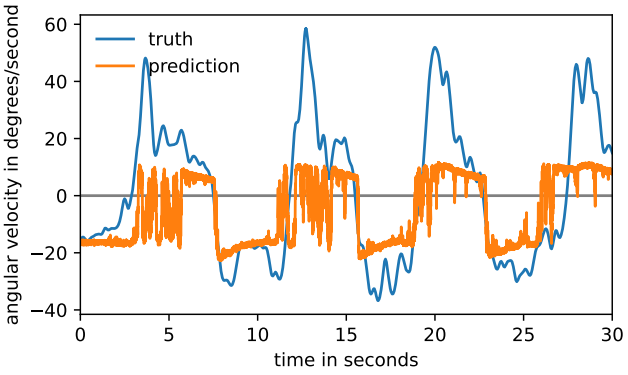


Network Architecture



Current performance

Prediction of elbow's angular velocity $f'(a)$:



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