Sequence Labeling for Gait Analysis using LSTM

Pablo A. Iturralde
Bioengineering Department
University of Pittsburgh
Pittsburgh, PA
pai7@pitt.edu

Yin Zhong
The Robotics Institute
Carnegie Mellon University
Pittsburgh, PA
yinzhong@andrew.cmu.edu

Jakob Bauer
School of Computer Science
Carnegie Mellon University
Pittsburgh, PA
jsbauer@andrew.cmu.edu

ABSTRACT
1. INTRODUCTION

In order to study human gait, it is necessary to divide the gait cycle into swing phase and stance phase. The transition between the phases is marked by two events: the subject's heel hitting the ground (heel strike) and the subject's toe lifting off the ground (toe off). It is paramount to accurately identify these events because otherwise no meaningful comparison of different stride cycles is possible.

The current gold standard for event identification is the use of dedicated hardware such as force plates that measure ground reaction forces or foot switches that are pressed when the foot is in contact with the ground.

2. PREVIOUS WORK
3. LSTM
4. DATA
5. NETWORK ARCHITECTURE
6. NETWORK TRAINING
7. RESULTS
8. CONCLUSION AND FUTURE WORK