7b.044.SBU - Human Behavior from Insole Sensor Data

Proposed Project - Team

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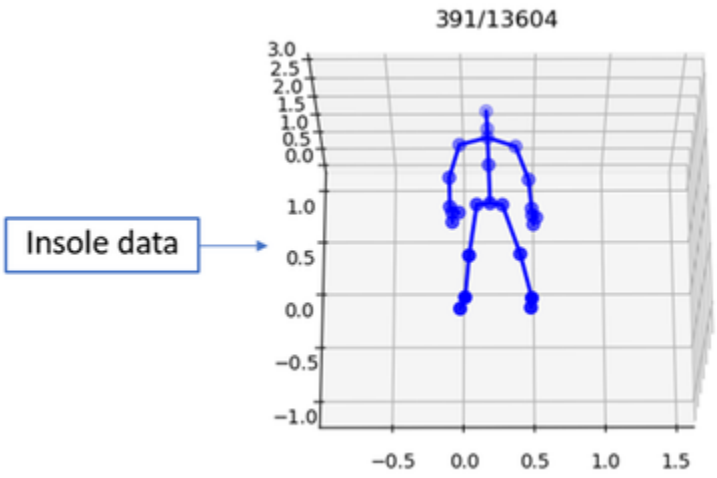
Mouli Narayanan	Project Mentor	Not Available	Not Available	**Sponsored by:** Zeblok

Proposed Project - Summary

With Zeblok insole sensor, we can collect insole data from subjects. However, insole data can only provide us signals from the shoe and from these signals it is hard to tell what is happening to the subjects. In order to visualize the human behaviors that best correspond with insole sensor data, we use machine learning techniques to learn a mapping between the insole data and the full skeleton data. After learning such a mapping, we can predict other body motions of the subject that can be useful for diagnosis and for providing better healthcare.



Proposed Project - Details of Progress/Achievement

We have implemented the recording pipeline for human skeleton data using the Microsoft Kinect SDK. We record the time stamp and the 3D coordinates of 25 joints of the human skeleton. The frame rate of the skeleton data is approximately 28. We also synchronized the insole data and skeleton data according to their time stamps. We have implemented an LSTM deep learning model to learn a mapping between the insole data and the skeleton data. In the testing phase, we input insole data into the LSTM and it outputs skeleton data. We have also implemented visualization of the skeleton data.

Proposed Project - Deliverables

	Deliverable

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CVDI Leadership

1.	Record human skeleton data using Kinect
2.	Synchronize between insole data and skeleton data
3.	Implement LSTM to learn mapping between insole data and skeleton data
4.	Visualize skeleton data

Proposed Project - Benefits to IAB

Proposed Project - Documents

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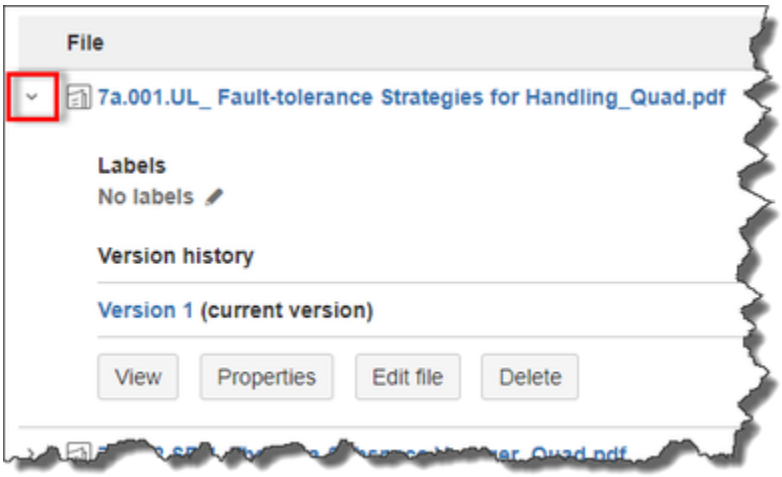

File	Modified
7b.044.SBU_2018 Fall Meeting Poster.pptx	Nov 20, 2018 by Sally Johnson
image2018-11-20_13-35-58.png	Nov 20, 2018 by Sally Johnson
7b.044.SBU_Mid-Year Report.docx	Feb 01, 2019 by Sally Johnson

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