Sigmark: An Open-Source Tool for Collaborative Event Annotation in Wearable Sensor Data

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3rd WORLD FALLS CONGRESS

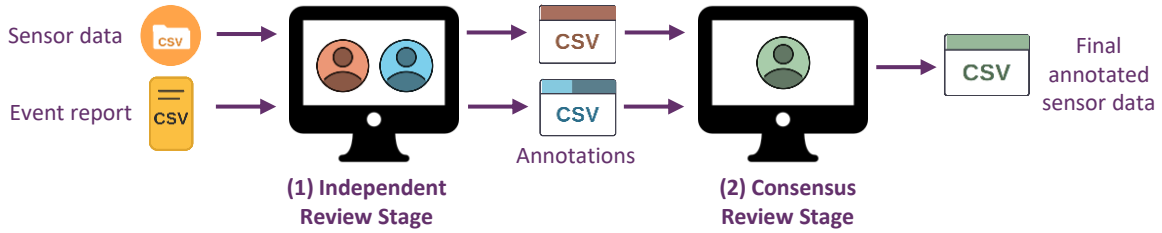
Background

Wearable devices enable low-cost, real-world monitoring, capturing rich sensor data suited to event detection (e.g., falls).

Current labeling workflows rely on manual logging or generic tools, which are time-consuming, error-prone, and lack the temporal precision required for high-frequency sensor data.

An open-source graphical interface to standardize the annotation of wearable sensor data, built with Shiny for Python.

Two-stage validation[1]

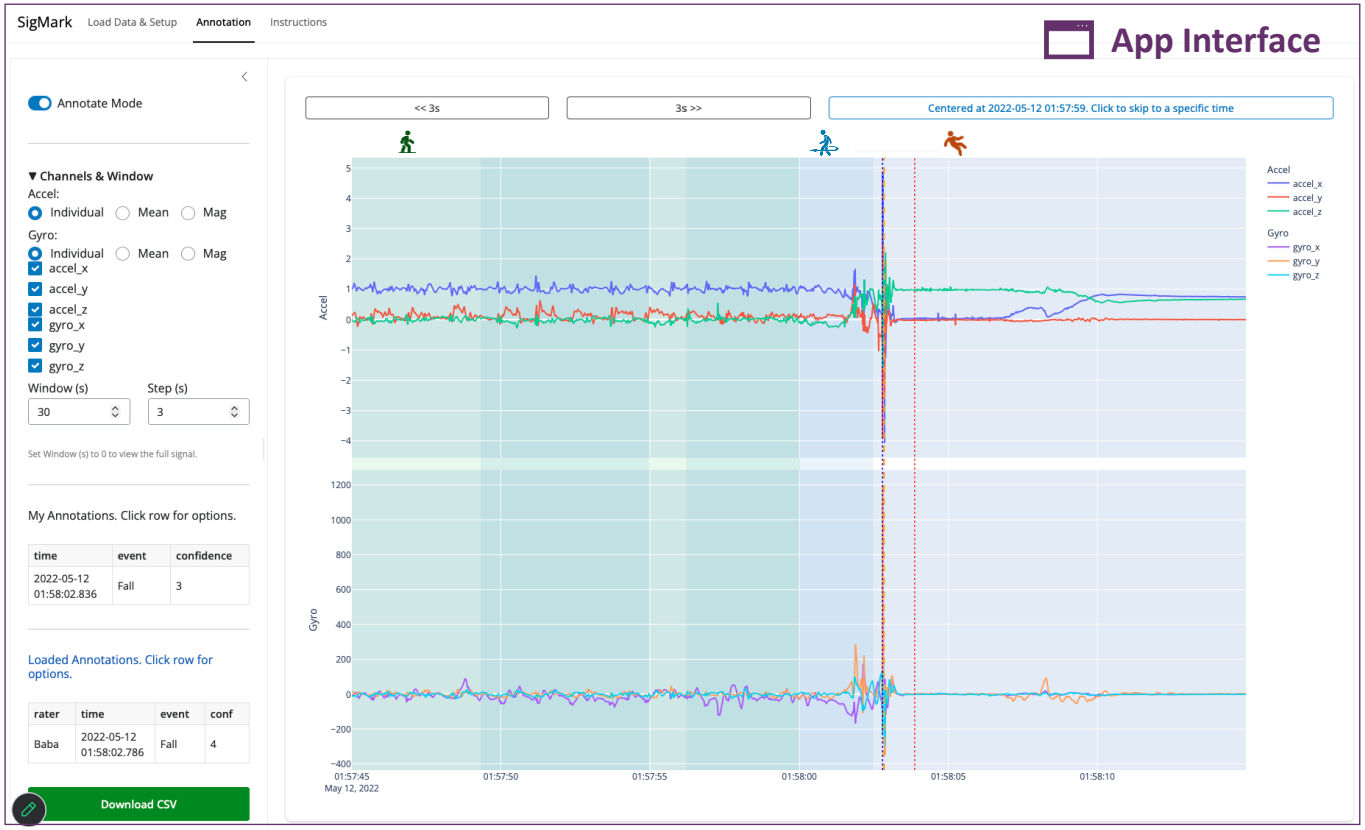


Results

Deployed to annotate Mobilise-D[2] fall events, handling import, annotation & visualization of real-world data.

Preliminary feedback: the digital consensus workflow improves annotation speed and temporal precision vs. manual methods.

App Interface



Conclusion

Efficient, intuitive fall event annotation with general-purpose use beyond falls (e.g., gait analysis).

Open-sourced to enable collaborative datasets and standardized protocols.

[1] Klenk, J. et al. (2016);
[2] Mikolaizak, S.A. et al. (2022)

Easy CSV upload | **Customizable** | **Event flexibility** | **Gait event detection** | **Interoperable format** | **Open-source software**

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