

J. LAURENT-MICHEL, F. CASADO. *At the bedside, what you know and what you don't know: a 3D dataset for ageing studies. Gerontechnology 2018;17(Suppl):133s; https://doi.org/10.4017/gt.2018.17.s.129.00* **Purpose** We need help in care because the percentage of the global population over 60 years old is projected to double in 2050.¹ Sensing in devices for fall recognition is vulnerable to external conditions. Efficiency of fall detection systems severely decrease under real-life conditions². An extended dataset is key to the development of fall detection systems to run robustness tests and non-regression tests in real life conditions. **Method** A few flight sensors have collected depth map images at the bedside of two different hospitals. From this large amount of data, we have analysed and labelled manually 15% of the content and extracted most relevant parts for evaluation. **Results & Discussion** Patients are inactive for most of the day (61% laid and 15% sit). The analysed dataset contains 9 falls, 6 of them unknown by the nurse (*Figure 1*). The movement-tracking algorithm shows a sensitivity of 72% and specificity of 97%. The dataset is quite small, but these preliminary results invite us to label falls from the whole dataset. If an analytic approach allows good enough results for specific falls, a machine learning based algorithm, such as deep learning, will diversify the kinds of detectable falls. In conclusion, to be unaware of each fall is an important loss of clinical information. There is a gap in fall prevention: many falls are unknown (two thirds in this dataset). This can lead to a lack of clinical knowledge about the patient and risks undetected by the nursing team. Building a comprehensive dataset for further machine learning development and using an automated fall detection system may allow for better quality of care.

References

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Keywords: fall detection systems, Time-of-flight, fall dataset, machine learning
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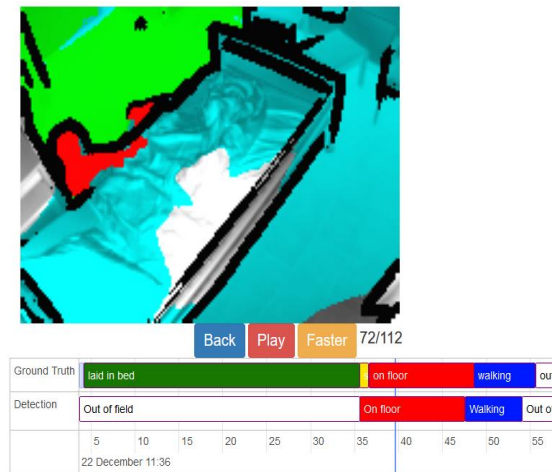


Figure 1. Automatic processing compared with a ground truth