

## **Analysis of human's natural locomotor behaviors at home from a sensitive floor.**

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Documenting how we walk at home allows to identify indoor locomotor efficiency, space occupancy, and markers of wellness. Our objective was to investigate the evolution of our locomotor trajectories performed at home, captured by a capacitive proximity sensor, the SensFloor, installed in an apartment in Montpellier. Data were collected by continuously capturing movements of two individuals living in this apartment. Trajectories were detected and identified thanks to the Walk@Home algorithm which allowed to quantify walking metrics: locomotion distance, time, speed and spatial occupation. The analysis of one year of occupancy revealed an average of 190 trajectories per day, with (i) an average walking velocity  $\mu_v=0.59$  m/s ( $\sigma_v=0.03$  m/s), (ii) an average daily walking distance  $\mu_l= 1000$ m, and (iii) an average walking time of  $\mu_d= 1,683.89$ s. The longitudinal study of home walking parameters now allows the identification of a home walking motor signature and its correspondence to well-being.

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