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Analysis of natural locomotor behaviors at home using a sensitive floor.

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WALKING AT HOME FACTS AND FIGURES*

*Averaged daily values per person
(extracted from 40 months of occupancy)



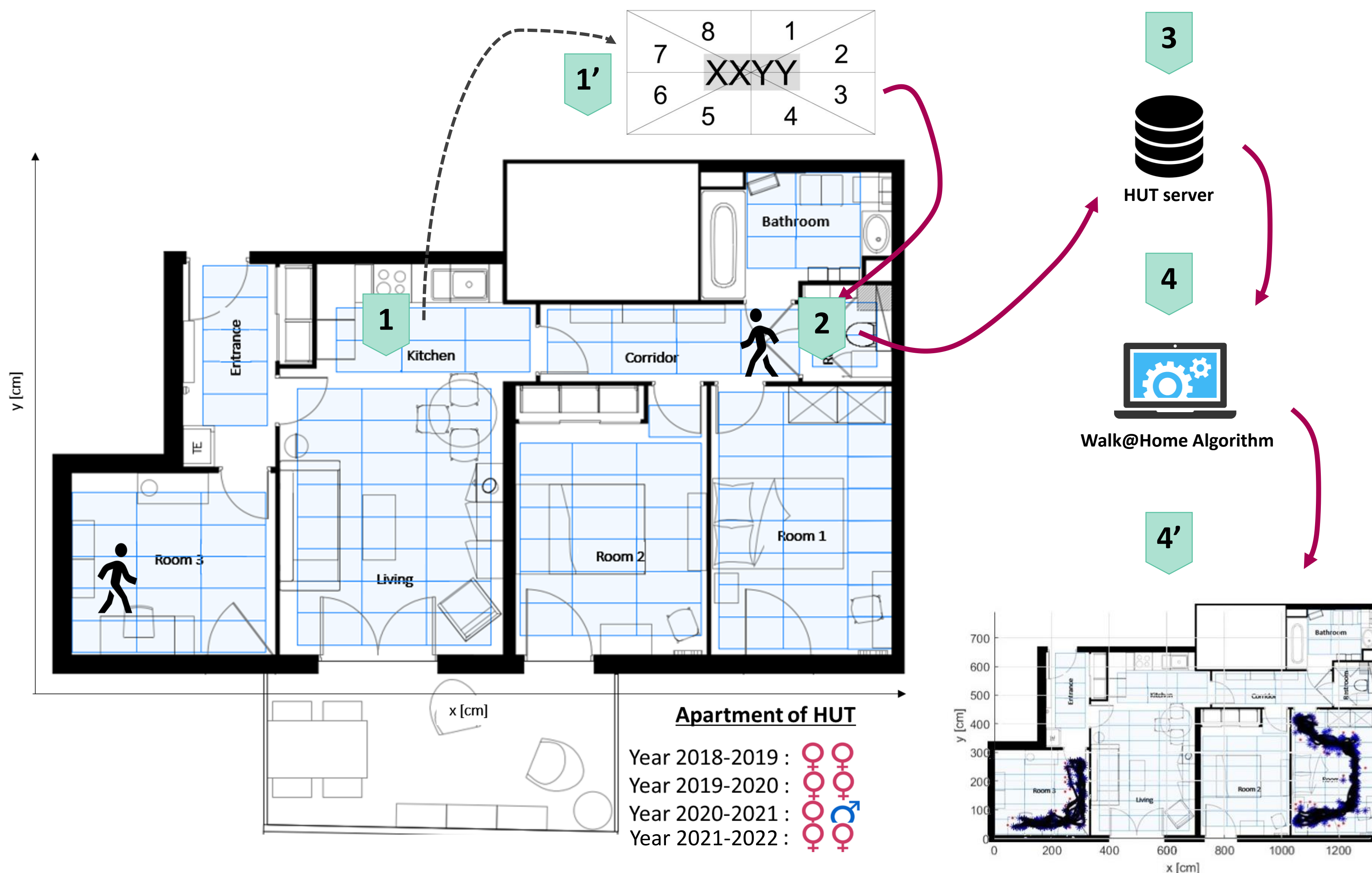
INTRODUCTION

Documenting how people walk at home allows to identify :

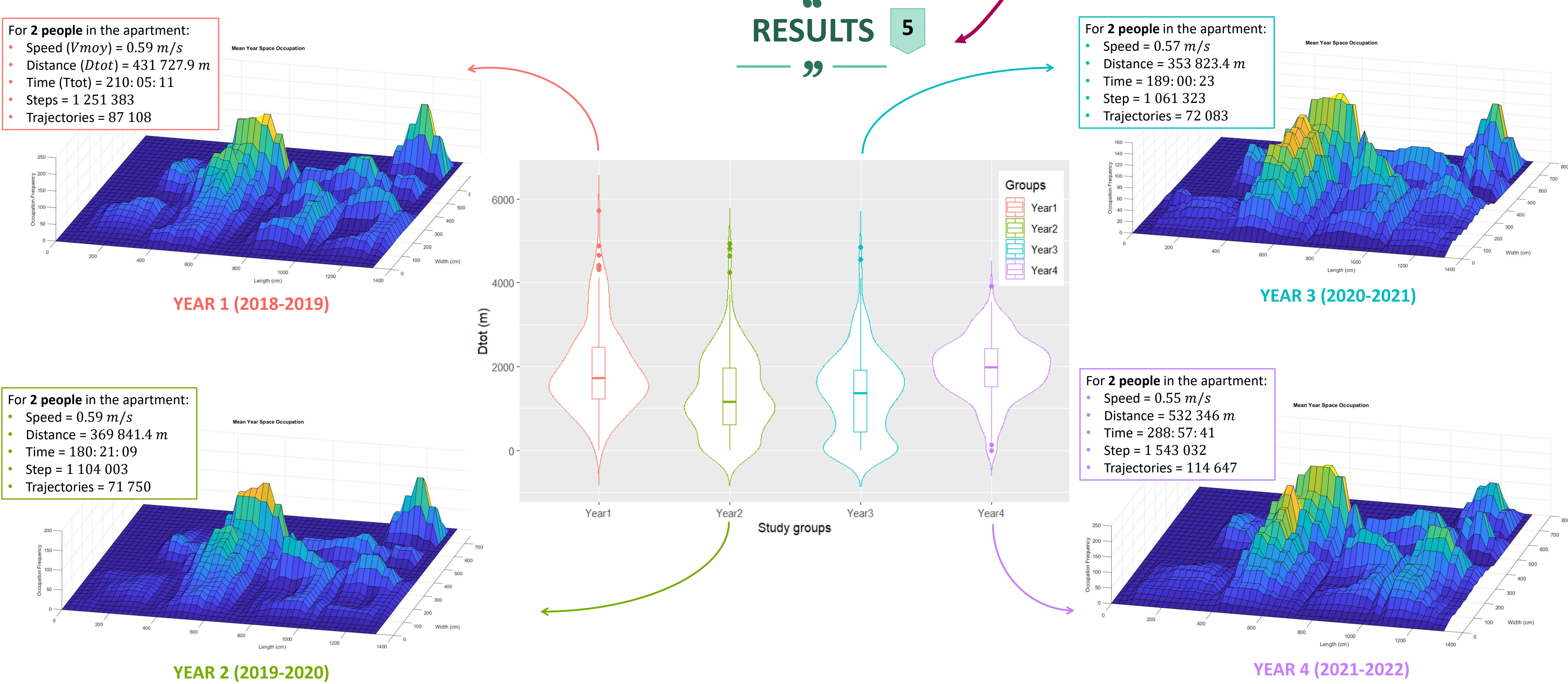
- **Indoor locomotor efficiency** → Speed (v) in m/s, distance (d) in m, time (t) in s, number of steps, trajectories [1].
- **Indoor space occupancy** → Occupation of a restricted space **encumbered** with obstacles (attractors-repulsors) [2].
- **Markers of wellness** → Physical and psychological well-being (influences of **mood** and **personality** on walking pattern) [3,4].

Our objective was to investigate the evolution of locomotor trajectories performed at home, captured by a capacitive proximity sensor, the SensFloor, installed in an apartment in Montpellier.

MATERIALS & METHODS



RESULTS



CONCLUSION

This study shows that we walk every day at home approximately 25 minutes, taking 2050 steps over a distance of 822 meters with an average speed of $0.58 \text{ m} \cdot \text{s}^{-1}$. It also suggests a **variable locomotor behavior** (increase in distance and travel time) according to temporal moments (weekends, vacations, seasons) associated with a **constant walking velocity**. The extraction of this locomotor information over 4 years (1 year for each of the four dyads) allows us to document natural walking at home. This research also allows us to consider a **motor signature of well-being** at home that could serve as a health indicator for the recognition and prevention of psychomotor disorders.

ACKNOWLEDGMENTS

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