

#### Habit monitoring over sensor streams

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# Habit monitoring over sensor streams



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## Context

- Use emerging sensing and monitoring technologies to improve ageing at home
- Monitor the activity, assess autonomy, improve well-being and security



# Challenge

### Keywords

Data mining, Ageing at home, Sensor networks, Pattern discovery, Activity monitoring, Periodicity monitoring, Regularity, Top-k Monitor the habits through the **unsupervised** discovery of **relevant patterns** and the analysis of their **evolution** 



Figure 2: Episode occurrence mining







## **Proposed solution**

- General framework, for the **discovery** of the **top-***k* most relevant **episodes**
- Relevancy as a combination of measures, based on user preference
  - Frequency
  - Regularity
- Length
- Periodicity



Figure 5: Periodicity modeling

Handling of data stream: real-time

discovery and update of the habits over the latest window

#### Figure 4: Most regular patterns

# **Perspectives**

- Integration of the different measures
- Parameter setting
- Trend analysis, anomaly detection

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