# Article information:

Sensors | Free Full-Text | Identifying and Monitoring the Daily Routine of Seniors Living at Home  
<https://www.mdpi.com/1424-8220/22/3/992>

# Article summary:

1. The population in the Western world is rapidly aging, and remote monitoring solutions integrated into the living environment of seniors have the potential to reduce the care burden helping them to self-manage problems associated with old age.

2. The daily routine is considered a useful tool for addressing age-related problems having additional benefits for seniors like reduced stress and anxiety, increased feeling of safety and security.

3. A Markov model-based method is defined to identify the daily routines, while entropy rate and cosine functions are used to measure and assess the similarity between the daily monitored activities in a day and the inferred routine. A distributed monitoring system was developed that uses Beacons and trilateration techniques for monitoring the activities of older adults.

# Article rating:

Appears moderately imbalanced: The article provides some useful information, but is missing several important points or pieces of evidence that would be required to present the discussed topics in a balanced and reliable way. You are encouraged to seek a more balanced perspective on the presented issues by exploring the provided research topics and looking at different information sources.

# Article analysis:

The article "Identifying and Monitoring the Daily Routine of Seniors Living at Home" proposes a solution for identifying the daily routines of seniors using monitored activities of daily living and inferring deviations from the baseline routine that may require caregiver interventions. The paper presents a Markov model-based method for identifying daily routines, entropy rate and cosine functions to measure similarity between monitored activities and inferred routines, and a distributed monitoring system using Beacons and trilateration techniques.

Overall, the article provides a comprehensive overview of existing approaches in the field of daily routine assessment and anomalous behavior detection. However, there are some potential biases in the article that need to be addressed. Firstly, the article focuses on the benefits of remote monitoring solutions integrated into seniors' living environments without discussing any potential risks or drawbacks associated with such solutions. For example, privacy concerns related to continuous monitoring by sensors could be a significant issue for some older adults.

Secondly, while the paper presents several approaches for detecting anomalies in elders' behavior based on wearable sensors or smartphone sensors combined with ambient ones, it does not discuss any potential limitations or challenges associated with these methods. For instance, older adults may not be comfortable wearing sensors all day long or carrying their smartphones with them all the time.

Thirdly, while the paper proposes a Markov model-based method for identifying daily routines and entropy rate and cosine functions to measure similarity between monitored activities and inferred routines, it does not provide any evidence supporting their effectiveness compared to other existing methods.

Finally, while the paper presents validation and experimental results showing promising outcomes regarding identifying daily routines with confidence concerning activity duration and sequence of activities as well as deviation identification sensitivity value with an average precision value, it does not explore any counterarguments or limitations associated with these results.

In conclusion, while "Identifying and Monitoring the Daily Routine of Seniors Living at Home" provides valuable insights into remote monitoring solutions integrated into seniors' living environments for reducing care burden helping them self-manage problems associated with old age; however, it needs to address potential biases related to privacy concerns associated with continuous monitoring by sensors as well as limitations or challenges associated with wearable sensors or smartphone sensors combined with ambient ones. Additionally, more evidence is needed to support proposed methods' effectiveness compared to other existing methods.

# Topics for further research:

* Privacy concerns associated with continuous monitoring by sensors for seniors
* Limitations and challenges of wearable sensors for older adults
* Effectiveness of Markov model-based methods for identifying daily routines
* Comparison of entropy rate and cosine functions with other similarity measures
* Potential drawbacks of remote monitoring solutions for seniors
* Counterarguments and limitations of experimental results for identifying daily routines

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