**Design and Development of Software Agents for Location**

**Privacy-risk estimation**

**Abstract:**

Developing and comparing different algorithms for location prediction. The raw trajectories used are from microsoft geolite data. This data is first used to find the stay points. The stay points are the places where user spent at least 10 minutes within the radius of 50 m. Once the stay points are found, we cluster these stay points using k mean algorithm using only distance. Once this process is done, we start creating markov chains.

**Index:**

1. Introduction
2. Related Work
3. System Model
   1. Components of the system and your assumptions about them
      1. Components, e.g., user and the mobile device
      2. State the basic role of these components and your assumptions about them
      3. Simplify and state the overall challenge in a few statements
      4. Explain what you mean in more detail
      5. You could go in further detail about the specifics, e.g., the metrics you want to minimize/maximize

Algorithms

-> Describe the Markov chain approach

1. -> The algorithm for finding the paths to present to the user and how much to explore these path Describe the necessary definitions inside the relevant chaptersUser analysis (🡪 A subsection inside the evaluations chapter)
   1. All user trajectories
   2. User patterns on weekdays and weekends
   3. User patterns on hourly basis
   4. Discussion and Summary

Staypoints (Implementation chapter before the Evaluations chapter)

* 1. Distance and time clustering online algorithm
  2. Trajectories start and end points
  3. Forming states from staypoints
  4. Recalculating the start and end times
  5. Discussion and Summary

1. Markov Model

a. Daily transition Matrices

b. Markov Model & Algorithm for location data

c. Discussion and Summary

1. Prediction (Inside Algorithms chapter)
2. Prediction approach
3. Accuracy tests on user data
4. Discussion and Summary
5. Android implementation
   1. GUI: what will the user see when he looks at your app?
6. Challenges
7. Changes
8. Discussion and Summary
9. Future Work
10. Conclusion

References: