Abstract

Portable devices such as mobile phones are one of the most important tool to capture human lives, known as Lifelog. In recent years, smartphones become not popular with a wide variety of sensors, but they also give context information of users who may carry them everywhere. In this thesis, We propose a novel framework, called Probabilistic Situation Modeling (PSM) for discovering underlying gists of the patterns and predicting daily life patterns from smartphones. With PSM framework, we show that we can find the types of behavior patterns out of multi-sensory sequential data reflecting the characteristics to define representations. To model sequential dependency, we incorporate Bigram Topic Models, which consider the dependency between words in text documents. For experiments, we use over 600 hours of real-life sensor data from smartphones. As experimental results, we show that the proposed framework discover various types of interpretable life patterns and the purpose of visiting particular location can be predicted.

Keyword : Probabilistic Situation Modeling, smartphones, multiple sensors, life patterns, machine learning

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