TEL AVIV UNIVERSITY אוניברסיטת תל-אביב
FACULTY OF ENGINEERING הסדנהל הטלוקפה

סמינר מחלקתי המחלקה להנדסת תעשייה

Bootstrapping Semantic Locations from Human Mobility Data

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Abstract:

In recent years, the prevalence of mobile phones fitted with GPS and other positioning technologies has made people's exact location in space and time an accessible piece of data. The process of transforming the *physical location* (e.g. <32.156, 34.69>) of such a mobile user into a *semantic location* (e.g. "Home" or "Work") is called Semantic Labeling. This semantic representation has numerous advantages: it allows easier discovery of mobility patterns, regardless of the user's geographical setting; it enables straightforward comparison between users; and it does not expose the physical location of private places such as the user's home.

In this talk I will present a simple model for human mobility and a framework for semantic labeling based on that model. The framework uses supervised learning and utilizes spatial, temporal and contextual data. We refer to this process as "bootstrapping" semantic locations since the input data the framework uses is only the time-stamped physical locations, without any a-priori knowledge of the user itself: habits, demographic features, social group and so on. I will discuss the experiments used to evaluate this framework and will present two sample applications of it: for privacy-preserving dataset release and for measuring user similarity.

This work was performed under the supervision of Dr. Eran Toch.

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