

# Collaborative Semantic Points of Interests

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**Abstract.** The novel mobile application csxPOI (short for: collaborative, semantic, and context-aware points-of-interest) enables its users to collaboratively create, share, and modify semantic points of interest (POI). Semantic POIs describe geographic places with explicit semantic properties of a collaboratively created ontology. As the ontology includes multiple subclassifications and instantiations and as it links to DBpedia, the richness of annotation goes far beyond mere textual annotations such as tags. Users can search for POIs through the subclass hierarchy of the collaboratively created ontology. For example, a POI annotated as bakery can be found through the search string *shop* as it is a superclass of bakery. Data mining techniques are employed to cluster and thus improve the quality of the collaboratively created POIs.

## 1 Introduction

Mobile devices with permanent Internet connectivity are turning the vision of ubiquitous computing into reality [1]. Applications running on such devices are among others aware of the user's geographic location and can adapt their behavior and content accordingly. Points of interests (POIs) provide useful information about specific geographic places. Whether users are able to quickly find the POIs they are interested in, depends among others on the quality of the POIs' annotations. Unstructured textual descriptions of POIs and folksonomic tags are a good starting point. However, the relation between the POIs remains hidden in the data and is hard to extract and understand for the machine. Other (mobile) systems such as [2,3] provide a semantic representation of POIs but do not provide for a collaborative creation and modification of semantic POIs and an underlying ontology of POI categories.

In order to understand semantic POIs and their relations, we have developed the mobile application csxPOI (short for *collaborative, semantic, and context-aware points of interests*) to collaboratively create, share, and modify *semantic POIs*. While working with the POIs, the users collaboratively modify and improve an ontology of POI categories underlying to the application. Such user-contributed POIs gathered from a large group of people is likely to include duplicate POIs with similar but unequal annotations and slightly varying locations for the same physical places. Thus, a revision engine applies data mining techniques for POI clustering.