Title: SFERA - Assessing Location Privacy with Re-Identification Attacks

Speaker: Mohamed Maouche, LIRIS/INSA-Lyon

Abstract: Since the advent of hand held devices (e.g., smartphones, tablets,smart watches) with Ubiquitous computing and the wide popularity of location-based mobile applications, the amount of captured user location data is dramatically increasing. However, the gathering and exploitation of this data by mobile application providers raises many privacy threats as sensitive information can be inferred from it (e.g., home and work locations, religious beliefs, sexual orientations and social relationships). To address this issue a number of data obfuscation techniques (also called Location Privacy Protection Mechanisms or LPPMs) have been proposed in the literature. One of the existing methods to assess the effectiveness of LPPMs is to test them against user re-identification attacks. The aim of these attacks is to break user anonymity by re-associating data obfuscated using a given LPPM with user profiles built from user past mobility. In this presentation, we showcase Location Privacy issues, we present AP-Attack a novel re-identification attack that relies on a heatmap representation of user mobility data and we present our experiments on four real mobility datasets obsfuscated with three state-of-the-art LPPMs and compare AP-Attack to two representative attacks POI-Attack and PIT-Attack.