Mobile Crowdsensing for Smart Cities

Chi Liu, Beijing Institute of Technology

Recent years have witnessed the huge attention from academia, industries, and governmental agencies on the fast development of smart cities, driven by the key enabling technologies like the Internet-of-Things (IoT). Smart cities has wide applicability on smart building, smart transportation systems, and smart grid, etc. Specifically, with the rapid adoption of wearable smart mobile devices (e.g., iPhone, iPad, iWatch, etc.) for almost everybody, as well as the possible usage of unmanned vehicles (like driverless cars and UAVs which turn to be technically matured and cheap), mobile crowdsensing (MCS) by employing both human and unmanned vehicle participants, as a new sensing campaign, can better collect useful data in a flexible and rapid way, if compared with traditional IoT which physically deploys sensors. Furthermore, artificial intelligence (AI), especially deep reinforcement learning technique (DRL, which have already proven its superiority in games and physical control tasks) can aid efficient unmanned vehicle route planning, job scheduling and sensing task decision-making. In this talk, we will first revisit the history of MCS and its recent major applications on smart cities, and then introduce the scenario with co-existence of both human participants and unmanned vehicles. In the end, we will provide a few state-of-the-art solutions for sensing tasks allocation and route planning, driven by DRL.