

Mobile Crowdsensing Scheme by Predicting Vehicle Mobility Using Deep Learning Algorithm

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Abstract : In Mobile cloud sensing across the globe, an emerging paradigm is selected by the user to compute sensing tasks. In urban cities current days, Mobile vehicles are adapted to perform the task of data sensing and data collection for universality and mobility. In this work, we focused on the optimality and mobile nodes that can be selected in order to collect the maximum amount of data from urban areas and fulfill the required data in the future period within a couple of minutes. We map out the requirement of the vehicle to configure the maximum data optimization problem and budget. The Application implementation is basically set up to generalize a realistic online platform in which real-time vehicles are moving apparently in a continuous manner. The data center has the authority to select a set of vehicles immediately. A deep learning-based scheme with the help of mobile vehicles (DLMV) will be proposed to collect sensing data from the urban environment. From the future time perspective, this work proposed a deep learning-based offline algorithm to predict mobility. Therefore, we proposed a greedy approach applying an online algorithm step into a subset of vehicles for an NP-complete problem with a limited budget. Real dataset experimental extensive evaluations are conducted for the real mobility dataset in Rome. The result of the experiment not only fulfills the efficiency of our proposed solution but also proves the validity of DLMV and improves the quantity of collecting the sensing data compared with other algorithms.

Keywords : mobile crowdsensing, deep learning, vehicle recruitment, sensing coverage, data collection

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