Performance Evaluation of Partial Offloading under Various Scenarios in Mobile Edge Computing

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***Abstract*—The problem of offloading policy is addressed for mobile edge computing (MEC) in this paper. We proposed a deep learning-based partial offloading method to reduce user equipment's energy consumption and service delay. The proposed method consists of two deep neural networks (DNNs) to find the best partitioning of a single task and their offloading policy, respectively. Multiclass classification is used for the selection of partitioning and offloading policies. For partitioning selection, the DNN was learned through the ratio of task size instead of the actual task size to improve the classification accuracy. The performance of the proposed method was evaluated in three scenarios which are delay-critical model (DCM), energy-critical model (ECM), and delay and energy-critical model (DECM). The simulation results show that ECM has the worse classification performance for partitioning selection than DCM and DECM, while three scenarios have similar classification performance for offloading selection. Additionally, the proposed method has more than 77% and 89% classification performances for partitioning and offloading in various scenarios, respectively.**

***Keyword*— Mobile edge computing, computation offloading strategy, task partitioning, deep learning.**

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