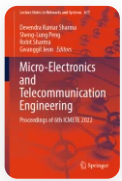


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# Task Scheduling Algorithm Using Improved PSO in Dew Computing

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## Abstract

IoT devices must have more resources to keep up with the growing needs across a variety of application areas as the Internet of Things (IoT) is growing exponentially. Modern IoT devices do not fully utilize highly over-provisioned processing resources as a result of increasing requirements. This paper proposes a task scheduling approach based on Improved Particle Swarm Optimization (IPSO) for real-time applications in the cloud–fog–dew environment. By dispatching edge operations to adjacent IoT devices, it uses consolidated idle resources in IoT devices for edge services. Task scheduling is formulated as an optimization issue using permutations in the proposed scheduling technique. Afterward, tasks are assigned to enough resources in the order determined by the optimal permutation, resulting in the least amount of network traffic and power usage. The simulation results show that the proposed method uses less power than other algorithms and can reduce Internet traffic while completing tasks at the dew computing layer.