Patent Search

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Abstract:

Deep Reinforcement Learning for Energy-Efficient Computation Offloading with DVFS for Time-Critical IoT Applications in Edge Computing ABSTRACT: Internet of Thir steadily growing industry. It investigates the infrastructure and protocols that allow large and tiny computers to connect to the Internet, share data, and utilise it. As a consequence of this knowledge, people's interactions with their surroundings are evolving. It lays the groundwork for new applications and services that will streamli accelerate manual tasks. Everything in this composition is intricately intertwined. The majority of the time, Internet of Things-connected devices generate a great deal These devices previously transmitted data to centralised cloud servers. These servers provided the computing power for Cloud Computing (CC). This strategy has a nu drawbacks, including longer wait times, an increased demand for network speed, concerns about privacy and security, and so on. Edge Computing (EC) complements cloud servers in the data centre. It offers tremendous processing power near to the data source, accelerates data transfer, and maintains privacy. Small, battery-powe of Things devices are a significant problem because they consume a great deal of energy. In recent years, the Internet of Things (IoT) community has become increasi concerned with its energy consumption. This has resulted in a variety of strategies for reducing energy consumption while meeting the increasing demand for compu capacity. When it comes to energy consumption, the central processing unit (CPU) of the computer ranks first. DVFS, which stands for "dynamic voltage and frequency a power-saving method employed by modern computers. In this thesis, we demonstrate how to construct an offloading method for a distributed vector file system (D reinforcement learning at the edge. Our objective is to discover ways to increase the electrical efficiency of IoT devices. Experiment results indicate that this method c energy consumption while still conducting the application and service-required computing tasks. The proposed method performs better than the native Linux goverr of energy efficiency. The average quantity of energy used decreases by 5% when compared to on-demand governors and by 9.5% when compared to conservative go

Complete Specification

Description:DESCRIPTIONS

The Internet of Things (IoT) is a new discipline that investigates emerging technologies that permit common and small physical objects to connect to the internet an collect, analyse, and share data. The data collected by Internet of Things (IoT) devices is typically transmitted to remote cloud storage facilities. IoT devices send data these servers, which analyse it and return the results to the devices, enabling them to respond optimally to their environments. This method has several disadvanta including slower connections, an increased demand for broadband, and an increased risk of data thievery. Therefore, this technique is unsuitable for applications w deadlines, which require a quick response, or which collect data containing sensitive information. Due to these issues, the possibility of edge computing with low connection latency has increased [40], which indicates that data processing should occur as close to the data source as possible (the Edge). Modern Internet of Thin devices include data storage memory, processors, and graphics processors. Consequently, they are able to participate in Edge computing projects that store data ne the location where it was generated. This capability emerged as IoT devices shrunk and gained capabilities. In contrast, IoT devices cannot perform nearly as much computation as desktop computers or servers. Frequently, because Internet-of-things devices are deployed in the field, they are powered by their own batteries. In the duration of a programme is determined by the amount of processing capacity it needs to complete its task. The programme may not be able to meet the need f real-time response with IoT devices alone, which may reduce the battery life of IoT devices. Due to the issues we've already discussed, this is the case. One solution aforementioned problems is computation offloading, which entails transferring data and certain computer tasks to other, closer systems (sometimes referred to as servers") in order to complete them. Various offloading systems, each designed for a specific enterprise, have been proposed as potential solutions. These procedu manage some processes and data that are challenging for computers to process. They achieve this by utilising local communication networks with a high bandwidth

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