A case study on eliminating interference with power supply to a communication base station

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Does Mappo reduce power consumption in 5G ultra-dense networks?
6. Conclusion In this paper,we thoroughly study the base station control problem in 5G ultra-dense networks and propose an innovative MAPPO algorithm. The algorithm significantly reducesthe overall power consumption of the system by optimizing inter-base station collaboration and interference management while guaranteeing user QoS.

How does distributed execution affect base station control?
In the distributed execution phase,each actor network makes decisions independently based only on its own network and observations,and although each actor executes independently,the whole system is able to obtain a better base station control strategybecause their strategies are based on the results of global optimization. Fig. 2.

How to reduce the energy consumption of a base station?
Using this technique,the energy consumption of a base station can be reduced by turning off energy-intensive devicesinside the base station,or by turning off the entire base station and keeping only the sensing module to wake up the base station.

Why do base stations waste so much energy?
When there is little or no communication activity,base stations typically consume more than 80% of their peak power consumption,leading to significant energy waste . This energy waste not only increases operational costs,but also burdens the environment,which is contrary to global sustainability goals .

A base station control algorithm based on Multi-Agent Proximity Policy Optimization (MAPPO) is designed. In the constructed 5G UDN model, each base station is considered as an ...

Abstract. As the number of communication terminals in power IoT continues to grow, the significance of Ultra-Dense Networks (UDN) interference management for maintaining quality of ...

Nevertheless, the deployment of base stations for a multitude of communication needs also engenders

considerable interference in both the frequency and power domains. This paper ...

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In the communication power supply field, base station interruptions may occur due to sudden natural disasters or unstable power supplies. This work studies the optimization of battery ...

When nomadic cells are deployed, the transmission power of neighbor base stations needs to be optimized to limit the inter-cell interferences. We analyze the problem of neighborhood ...

With the maturity and large-scale deployment of 5G technology, the proportion of energy consumption of base stations in the smart grid is increasing, and there is an urgent need to reduce ...

Abstract In this research work, the classifications of the device that controls the energy supply sources of the mobile communication base station are presented. The device is used to automatically control ...

For multi-user interference, M. Schubert et al. first proposed a solution to the precoding design problem of eliminating multi-user interference [3]. For inter-base station interference, the ...

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