Learning based dynamic optimization in massive IoT networks

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Objectives
- Optimizing massive and inter-dependent configurations under time-varied traffic and heterogeneous requirements in mIoT networks.

Deep Reinforcement Learning:
- Self-Improvement
- Cooperative Optimization
- Long-term KPIs

Conventional Solutions:
- Heuristic
- Independent Optimization
- Short-term KPIs

DRL Framework

Case Study:
- NarrowBand-IoT (5G mIoT solution)
- Bursty Traffic Scenario (e.g., massive alarm system)
- Configuring resource for access and data

Numerical Results:

Methodology:
- Q-learning
- DNN/LSTM
- Multi-agent Cooperative Learning