

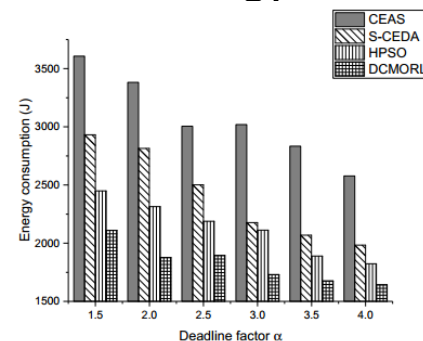
A multi-objective reinforcement learning
algorithm for deadline constrained
scientific workflow scheduling in clouds

Yao QIN, Hua WANG, Shanwen YI, Xiaole LI,
Linbo ZHAI

Frontiers of Computer Science, DOI: [10.1007/s11704-020-9273-z](https://doi.org/10.1007/s11704-020-9273-z)

Problems & Ideas

- Problems of workflow scheduling with a deadline constraint
 - the PCP strategy in IC-PCPD2 can not accurately reflect the situation of each time step
 - Most existing multi-objective workflow scheduling algorithms do not consider weight selection
- Ideas: design a deadline constrained scientific workflow scheduling algorithm based on multi-objective reinforcement learning (DCMORL)
 - multi-objective reinforcement learning algorithm
 - propose an improved version of the PCP strategy called MPCP
 - Chebyshev scalarization function

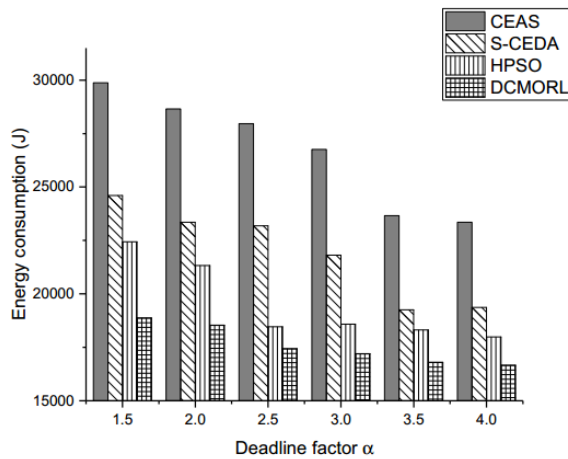


Energy consumption in the case of CyberShake

(a) CyberShake

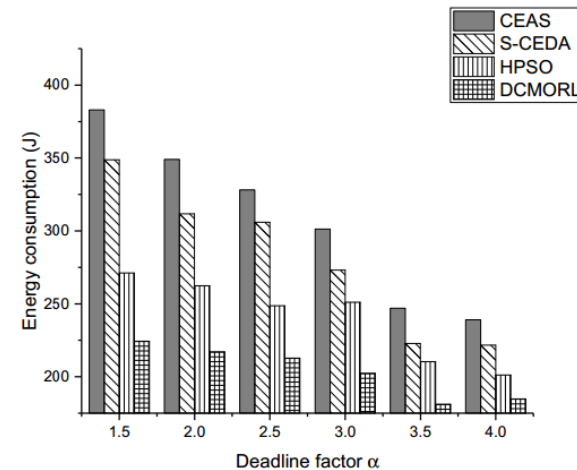
Main Contributions

Energy consumption in the case of EpiGenomics



(b) EpiGenomics

Energy consumption in the case of Montage



(c) Montage