

**DIGITAL TWIN BASED INTELLIGENT EVOLUTION METHOD AND SYSTEM
FOR DISTRIBUTED COMPUTING RESOURCES**

ABSTRACT

5 The present invention provides a Digital Twin based intelligent evolution method and
system for distributed computing resources, and relates to the technical field of resource
evolution. The method includes: deploying intelligent perception probes at computing
nodes to collect operation data, extracting features by a double-level attention mechanism,
constructing a Digital Twin model based on a graph neural network, optimizing a resource
10 allocation strategy and a scheduling decision in combination with a hierarchical
reinforcement learning framework, generating a prediction sequence by an
attention-enhanced sequence prediction network, and finally solving for an optimal
configuration scheme through a particle swarm algorithm. According to the present
invention, the utilization rate of the distributed computing resources can be improved, the
15 system energy consumption can be reduced, and intelligent scheduling and optimized
configuration of the computing resources are achieved.

Drawing accompanying abstract: Fig. 1

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