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Quantum approaches for battery disassembly optimization

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The rapid growth of electric vehicles (EVs) has led to an increasing demand for efficient and sustainable recycling of lithium-ion batteries. Disassembly is a critical step in the battery recycling process, influencing both economic viability and environmental impact. Recent research has explored various strategies for optimizing disassembly, including human-robot collaboration, task sequencing, and dynamic allocation using AI techniques such as Q-learning and particle swarm optimization. However, the complexity of disassembly line balancing, especially when considering constraints like safety, ergonomics, and component variability, calls for more advanced optimization methods.

Quantum-inspired algorithms and quantum annealing offer promising avenues for solving such combinatorial problems more efficiently than classical approaches

Master

Autre ou non applicable

Laboratoire d'accueil

DISP

Composante ou Département Composante

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