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Quantum control algorithm of imperfect knowledge bases of intelligent cognitive controllers

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The quantum self-organization algorithm model of wise knowledge base design for intelligent fuzzy controllers with required robust level considered. Background of the model is a new model of quantum inference based on quantum genetic algorithm. Quantum genetic algorithm applied on line for the quantum correlation's type searching between unknown solutions in quantum superposition of imperfect knowledge bases of intelligent controllers designed on soft computing. Disturbance conditions of analytical information-thermodynamic trade-off interrelations between main control quality measures (as new design laws) discussed. The smart control design with guaranteed achievement of these trade-off interrelations is main goal for quantum self-organization algorithm of imperfect KB. Sophisticated synergetic quantum information effect introduced: a new robust smart controller on line designed from responses on unpredicted control situations of any imperfect KB applying quantum hidden information extracted from quantum correlation. Within the toolkit of classical intelligent control the achievement of the similar synergetic information effect is impossible. Benchmarks of intelligent cognitive robotic control applications considered.

Keywords: quantum genetic algorithm, intelligent control, cognitive robotics

Summary

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