

Taichi Itoh

BrainPad Inc.

Quantum annealing for combinatorial optimization problems with multiple constraints

We study an application of quantum annealing to combinatorial optimization problems with multiple constraints. We propose a formulation of Ising spin Hamiltonian, including the case of capacitated vehicle routing problems (CVRP). We perform the quantum annealing to the Hamiltonian by quantum Monte Carlo methods. The performance of quantum annealing is compared with conventional methods.

This work was done in collaboration with Mitsuhsa Ohta (BrainPad Inc.) and Yuichi Yamasaki (BrainPad Inc.), and Shu Tanaka (Waseda University and JST, PRESTO).