

Peer Review

Review of: "An Approximated QUBO Formulation for Solving Practical SAT Problems"

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The paper presents an approximated QUBO formulation for SAT problems from real-world applications. This method provides an inexact mapping, meaning the ground state of the QUBO does not necessarily correspond to the SAT solution. The method takes advantage of the prevalence of binary clauses in practical SAT instances, enabling a direct MAX2SAT formalization. The approach is compared against different approximate solvers in the literature.

The paper improved significantly during the revisions, and the author has already addressed most of the possible issues and comments.

The paper still has some typos, for example, punctuation errors in the formulas in the first column of page 3 (there are some full stops after commas and errors like these). I suggest a further decisive proofread step.

The correctness of the encoding sat-to-QUBO is validated only by tests. It would be better to be clear about this limitation in the paper.

The results could be presented more clearly. The tables are not easy to read. For example, the best results or the results worth commenting on could be highlighted (in bold).

It would also be better to clearly specify in the abstract/introduction/conclusion why it is worth providing an approximate solution to a problem that can be solved exactly with SAT solvers.

Finally, the paper lacks a section discussing and comparing the related work with the proposed approach, and future work is only briefly proposed.

Declarations

Potential competing interests: No potential competing interests to declare.