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# Quantum Annealing for stop paper

Dear journal, we would like to thank the referee for this second iteration of comments, as these have further helped us to improve the quality of the paper. All text comments have been addressed in the latest version uploaded (v3). Below, we address the physics comments which need action.

☑ **Q1** Indeed, the classification performance is clearly the most important algorithm metric to quantify. The fact that the BDT performs better than a DNN is interesting, and not entirely surprising. Nonetheless, I think giving the reader some indication of the time to solution for the quantum algorithm is extremely important as it clarifies the current practicality and limitations (which may improve dramatically in the near future).

The time to solution is typically the one of the annealing, i.e. 20 micro-seconds. A sentence has been added to cover this point in section 4, at line 230 of the latest version (v3).

☑ **Q2** These details of the BDT training should be added to the manuscript, potentially in an appendix if the authors prefer.

According to the previous suggestion of the referee, the details of the BDT training are already in the manuscript: we kindly refer the referee to the appendix A, lines 459-484 of v2 for the details covering both the BDT internal parameters as well as the procedure for finding the best set of input variables to the BDT. These can be found in the lines 464-489 of v3.

☑ **Q3** "Indeed: in order to make the comparison with the results of quantum annealing as valid as possible, a BDT was re-trained with the the Delphes simulation. It has to be noted that the performance of the BDT (for the same signal) is compatible between this new simulation and the full simulation of the CMS detector." Could this statement be added to the paper?

This has been added at the end of Appendix A where both the question of simulated samples and the details of the BDT are covered.

☑ **Q4** L403: Should this be "comparable to the best-known classical ML tool."?

That is indeed a better formulation. The text has been modified as suggested by the referee.

# Stop1 direct search at 8 TeV

8 TeV stop studies can be found here

Replies to JHEP's referee can be found here

# Stop1 grid

This can be found here

# SW guide

This can be found here

# Old Jet and MET studies

Some Jet and MET studies can be found here

# Old triggers studies studies

trigger studies

-- PedrameBargassa - 28 Jan 2009

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