

FINAL REPORT ON THE REQUIRED CORRECTIONS THAT WERE MADE TO THE MASTERS THESIS:

*"MACHINE LEARNING FOR PARTICLE IDENTIFICATION &
DEEP GENERATIVE MODELS TOWARDS FAST SIMULATIONS FOR THE ALICE TRANSITION RADIATION
DETECTOR AT CERN"*

Christiaan Gerhardus Viljoen

General Corrections:

Various general fixes were made. Some of these issues were pointed out by the External Examiners in their respective reports, others by my Supervisor, and some additional issues were found by myself and rectified appropriately. These corrections included:

- The correction of various grammatical- and spelling errors
 - Corrections to some of the bibliographical references, which were missing certain fields, etc.
 - The sizing and placement of various figures were corrected (for optimal readability); in particular, these changes ensured that subplots did not span across more than one page and that all plots were large enough to be legible and interpretable.
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Specific Corrections Required from External Examiner 1:

- **Misconceptions regarding the fermion families:**

The second paragraph in Section 2.1.2 was rewritten in its entirety and in its present form correctly delineates the three generations of ordinary matter fermions.

Mention is also now made of colour charge; this information was not included initially.

- **Energy density composition of the Universe**

Estimated ratios for ordinary matter, dark matter and dark energy are given.

- **Various additional small corrections were required and made to the explanations given for certain Physics concepts:**

(These required corrections were given as annotations to the originally submitted thesis PDF and included): the delineation between the Standard Model and Special Relativity, the number of gluons, the estimated order of magnitude of the masses of the neutrinos, the fact that π^0 is a superposition (Table 2), hadronization of the QGP results only in hadrons being formed (no electrons, etc.), zero resistance of NbTi cables at temperatures close to absolute zero, there are no hadronic calorimeters in the ALICE detector, there are only 522 TRD detector elements, due to PHOS holes.

Each of these mistakes were fixed as required.

Specific Corrections Required from External Examiner 2:

- **Too much detail in the abstract**

The summary of the main Aims of the thesis (which was previously located in Section 1.2) was moved to the Abstract section. Some reorganization and additional writing were performed to produce an abstract of reasonable length.

Similarly, the more detailed Aims (that were previously located in the Abstract section) were instead moved to Section 1.2 of the final version of the thesis.

- **Mention of the energy scale of QED, but not of the other forces**

The energy scale of QED is no longer mentioned.

- **Ambiguities in wording, undefined concepts and undefined constant in Equation 16**

Each of these issues was dealt with appropriately as needed.

- **Suggestion to move the detailed discussion of the data extraction methodology in Section 4.1.1.1. to an Appendix**

Data extraction is now described very briefly in Section 4.1.1. The detailed explanation of the data extraction workflow was moved to Appendix V of the final version of the thesis.
