TA5 WP4-2 report
Generic Tools for Artificial Neural Network Implementation on Field Programmable Gate Arrays

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Abstract

Text

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1 Introduction

Here some text on importance of fast feature extraction in data flow of physics experiments, FPGA solutions and ANN approaches. Connection to PUNCH4NFDI [1] as future service provider.

2 Section 1: Evaluation of hls4ml for real-time classification of astronomical radio signals

editors: MPIfR group

Text

3 Section 2: VHDL implementation of convolutional neural networks for real-time processing of ATLAS Liquid-Argon Calorimeter data

editors: Dresden group

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4 Section 3: Evaluation of AI hardware engines with AMD Versal AI

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editors: all

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6 Summary and Outlook

Acknowledgements

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References

[1] The PUNCH4NFDI Consortium. PUNCH4NFDI consortium proposal, September 2020. This is the version documenting the work plan at the proposal stage. The reduction in funding led to a re-shaping of the work programme that is documented elsewhere. doi:10.5281/zenodo.5722895.

[2] Georges Aad, Anne-Sophie Berthold, Thomas Calvet, Nemer Chiedde, Etienne Fortin, Nick Fritzsche, Rainer Hentges, Lauri Laatu, Emmanuel Monnier, Arno Straessner, and Johann Voigt. Artificial neural networks on fpgas for real-time energy reconstruction of the atlas lar calorimeters. *Computing and Software for Big Science*, 5, 12 2021. doi:10.1007/s41781-021-00066-y.