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Type: Poster and Flash talk

Accelerating Machine Learning algorithms in FPGAs for the trigger system of a SiPM-based upgraded camera of the CTA Large-Sized Telescopes

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Current Imaging Atmospheric Cherenkov Telescopes use combined analog and digital electronics for their trigger systems, implementing simple but fast algorithms. Such trigger techniques are used due to high data rates and strict timing requirements. In recent years, in the context of a possible upgraded camera for the Large-Sized Telescopes (LSTs) of the Cherenkov Telescope Array (CTA) based on Silicon PhotoMultipliers, a new fully digital trigger system incorporating Machine Learning (ML) algorithms is being developed. The main concept is to implement those algorithms in FPGAs to increase the sensitivity and efficiency of the real-time decision making while being able to fulfill timing constraints. The project is full of challenges, such as complex printed circuit board design, complex FPGA logic design, and translating high level ML models to FPGA synthesizable code. We are currently developing a test bench as a proof of concept and to evaluate the FPGA performance of the algorithms.

What of the following keywords match your abstract best?

FPGAs

Please tick if you are a PhD student and wish to take part to the poster prize competition!

I am a PhD student

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