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Exploring medical applications of fast ML with a novel FPGA firmware framework

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Machine learning has been applied to many areas of clinical medicine, from assisting radiologists with scan interpretation to clinical early warning scoring systems. However, the possibilities of ML-assisted real time data interpretationand the hardware needed to realise it are yet to be fully explored. In this talk, possible applications of fast ML hardware to real-time medical imaging will be discussed, along with the practical considerations needed to deploy algorithms to clinical environments. A new FPGA firmware toolchain will also be presented, which enables very large networks with different use cases to be seamlessly deployed to a variety of FPGAs with low latency. The framework's uses within the basic sciences will be discussed, alongside its medical applications.

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