

MASTER THESIS: *DATA PREPARATION FOR AI*

A growing problem in the field of AI and machine learning is the availability, preparation, and delivery of the large volumes of training data which is required to train models to the desired accuracy. For performance, data must be decoded on the fly and the data augmented (crop, resize, rotate, noise injection, etc) in order to increase the effective size of the data set. Below are outlines of master study projects in this area, suitable for one or more students, with an interest in Machine Learning and FPGA designs. Knowledge of VHDL/Verilog and/or C/Python is a plus but not a requirement. Candidates may be offered summer internships.

Tensorflow

Build a TensorFlow library for offloading data preparation functions to a data preparation engine. Evaluate the data preparation performance on common data set (e.g. ImageNet).

Prototype

Prototype a data preparation engine for AI using an FPGA. The engine should provide high-speed JPEG/H264 decode and a selection of data augmentation functions

Evaluate

Evaluation of the performance of common data preparation tasks (Tensorflow) across multiple architectures. Evaluate throughput, latency, and ease of implementation.

For further information – please contact:
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About Graphcore:

Graphcore is a Bristol, UK based silicon chip company with offices in Oslo and Palo Alto (US)

Graphcore has created a completely new processor, the Intelligence Processing Unit (IPU), specifically designed for AI

