

A Comprehensive Co-Evolutionary Framework for DNN Architecture Design Space Exploration on GPU Accelerator Platforms

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Abstract—Deep Neural Networks(DNNs) are an extremely attractive subset of computational models which provide promising results for a wide variety of problems. However, the performance delivered by DNNs overshadows the network architecture search(NAS) process and network’s suitability for a given task. In this paper, we present an end-to-end framework designed to detect the abstract model required for a given data set, genetically modify the network architecture and evolve the knowledge representation format. The inherent parallelism offered by both the neural network and it’s evolutionary extension is exploited by deploying the model on a GPU which substantially improves the throughput of Genetic-NAS.

Index Terms—component, formatting, style, styling, insert

I. INTRODUCTION