

Abstract

This report describes two different C code implementations - the former making use of [OpenMP](#) and the latter of [NVIDIA CUDA](#) - of a simple multi-layer Neural Network. In particular, the aim of the present work is to exploit parallelization techniques in order to allow an efficient evaluation of the network.

Contents

Introduction

During 2017 and 2018 the Drift Tubes hit efficiency underwent unexpected and not yet understood variations. The hypothesis of chamber aging was quickly dismissed, but no other explanation has been found yet. The present work reports a research for a dependency of the efficiency on the atmospheric pressure. Chapter ?? outlines the major features of the Large Hadron Collider and describes the upgrade plans for the future, pointing out the need of this study in view of the impending changes. In Chapter ?? a closer look at the Compact Muon Solenoid experiment is given, along with a detailed description of the Drift Tubes sub-detector and its functioning. Chapter ?? goes deeply into the study of efficiency, outlining the hypothesis behind the research for a dependence on atmospheric pressure. Furthermore, it gives details about the data analysis, the encountered issues alongside with the measures taken to solve them, and the results of the study.

Chapter 1

LHC and High Luminosity-LHC

Bibliography

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