Developing a time series neural network with the PyTorch library and performing inference using object code

Abstract

The scientific focus will be on disruption research, which aims to develop methods toward safe, rapid shutdown of high-power tokamak plasmas. To carry out dedicated experiments including disruption prediction, and mitigation studies on ADITYA-U, the deep learning methodologies are studied and implemented. The proposed method extends considerably the capabilities of previous strategies and implement the Tensor Flaw based model using PyTorch library. The existing model needs to be developed in PyTorch and deployed on embedded hardware by embedding the model in to object code using C language.

Objective: The data is extracted from ADITYA-U data server in specified format. We need to further process the data that can be understood and optimize for model development using PyTorch library. Model will be trained based on given input data. Developed model should be converted in Object code for deployment. The results will be benchmarked and logged.

Deliverables: Trained model should be applied to real time prototype. Prediction of event based on data needs to be optimized further to achieve higher accuracy.

Academic Project Requirements:

1) Required No. of student(s) for academic project: 2

2) Name of course with branch/discipline: B.E./B.Tech. Computer Engineering/IT/MCA

3) Academic Project duration:

(a) Total academic project duration: 10 Weeks
(b) Student's presence at IPR for academic project work: 5 Full working Days per week

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