STIR and Tensorflow

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Abstract

This document provides a bit more in-depth and technical information regarding the integration of Tensorflow into STIR. It should give enough hints and tips such as to ease further development and extension of the ideas presented here.

1 The overall setup

take motivation from presentation, put time spent in forward projection etc.

2 Setting up Tensorflow

how to link the shared library with CMake, link to the guide, try different CUDA compilers

3 Creating the graphs

python scripts, describe functionality and basic design rules, timeline for debugging

4 Bringing Tensorflow into STIR

use the changed CMake files, don't reconfigure, change C++11 standard for recon buildblock

5 Computing matrix elements with Tensorflow

put more details for sdf, ray marching algorithm & scheduling of matrix elements, how to activate TF support

6 Class overview

TFRayTracer, ProjMatrixByBinUsingRayTracingTF, describe repository contents, tensorboard for debugging etc...

7 Futher information

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