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TensorFlow

TensorFlow™ is an open-source software library for numerical computation using data flow graphs. Nodes in the graph represent mathematical operations, while the graph edges represent the multidimensional data arrays (tensors) that flow between them. This flexible architecture lets you deploy computation to one or more CPUs or GPUs in a desktop, server, or mobile device without rewriting code.

TensorFlow was originally developed by researchers and engineers working on the Google Brain team within Google’s Machine Intelligence research organization for the purposes of conducting machine learning and deep neural networks (DNNs) research. The system is general enough to be applicable in a wide variety of other domains, as well.

Jetson TX2

While many AI applications can utilize powerful server processing, others require processing to occur on or near the sensing device itself. These edge applications may require low latency, data privacy, or network connectivity may be limited. Some edge applications include robotics, smart cameras, drones, and portable medical devices.

Jetson is NVIDIA’s solution to AI at the edge. The Jetson TX2 is a complete System on Module (SoM) which combines a multi-core CPU, Pascal architecture GPU, and Image Signal Processor (ISP) into a single module with a low power profile. With support for CUDA, TensorFlow and other multimedia and image processing libraries, Jetson makes it easy to deploy high performance neural networks at the edge.

1.1. Benefits Of TensorFlow For Jetson TX2

Previously, installing TensorFlow for Jetson was complicated for a lot of users. It proved to be too difficult to install and to get it working with the latest version of TensorFlow,
CUDA, and other NVIDIA GPU related libraries. Now, installing TensorFlow for Jetson TX2 is streamlined with just a few commands.

Installing TensorFlow for Jetson TX2 provides you with access to the latest version of the framework on a lightweight, mobile platform without being restricted to TensorFlow Lite.
Before you install TensorFlow, ensure you install JetPack 3.3. TensorRT is already included in the JetPack package.
Chapter 3.
INSTALLING TENSORFLOW

Install TensorFlow using the **pip** command that corresponds to your chosen version of Python.

```
```

*Use **pip3** if are using Python version 3.5.*
Chapter 4.
VERIFYING THE INSTALLATION

To verify that TensorFlow has been successfully installed on Jetson TX2, you’ll need to launch a Python prompt and import TensorFlow.

1. From the terminal, run whichever Python version you’ve selected. For example:

   $ python<x>

   Where <x> is your version of Python. Python versions 2.7 and 3.5 are supported.

2. Import TensorFlow:

   >>> import tensorflow

   If TensorFlow was installed correctly, this command should execute without error.
Chapter 5.
UNINSTALLING

TensorFlow can easily be uninstalled using the `pip uninstall` command, where the version of `pip` corresponds to your version of Python.

```
$: pip uninstall -y tensorflow-gpu
```

Use `pip3` if are using Python version 3.5.
Chapter 6.
TROUBLESHOOTING

You can access the NVIDIA Embedded Computing Jetson and Embedded Systems forum at https://devtalk.nvidia.com/default/board/139/embedded-systems/1 for all things related to Jetson. This forum offers the possibility of finding answers, making connections, and to get involved in discussions with customers, developers, and Jetson engineers.

6.1. Support

For more information about TensorFlow, see:

- TensorFlow tutorials
- TensorFlow API
- Install TensorFlow on Ubuntu
- NVIDIA TensorFlow documentation

For more information about Jetson TX2, see:

- NVIDIA Jetson TX2 product page
- NVIDIA Jetson Portal
  - News and information related to NVIDIA Jetson
- NVIDIA Jetson Developer Forums
  - Community forums discussing NVIDIA Jetson

For more information about JetPack, see:

- NVIDIA JetPack documentation
Troubleshooting

- NVIDIA Jetson Download Center
  - JetPack and other downloadable content related to NVIDIA Jetson
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