

Getting started with PyTorch

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Slack Channel for Tutorial: https://pytorchtutorial.slack.com

Invite Link: http://j.mp/pytorchtutorialslacksj

Tutorial Github Repo.: http://j.mp/aiconfsj19pytorch



Introductions & Networking



Agenda

- PyTorch Overview
- PyTorch Basics
- Linear Modeling
- Working with Data
- Break
- Image Classification
- Transfer Learning
- Text Classification
- Models in Production
- Discussion: Q & A



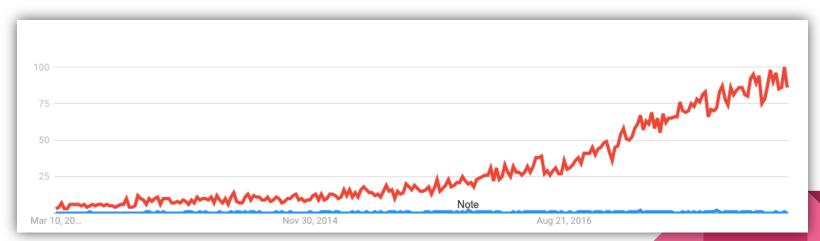
PyTorch Overview



PyTorch Origins

- Torch Lua
- Chainer
- HIPS Autograd

- Need for Dynamic execution library
- Popularity of Python in Machine Learning Community



Google Trends Last Five Years

Terms: Lua Machine Learning Python Machine Learning



Tell me more about you:

http://etc.ch/NYJD



Interactive Learning



Google Colab Environment

- Log in to your Google Account
- Go to: https://colab.research.google.com
- Go to File -> Open Notebook
- Go to GitHub tab and search for datadynamo
- From the dropdown select aiconf_sj_2019_pytorch
- Open the 01-Basics.ipynb notebook



Break



Transfer Learning



Why Transfer Learning?

Deep Learning Challenges Not enough data

Not enough hardware

Not enough labeled data

Training time too long



Transfer Learning

Domain to Domain Learning

- Learn Features, Weights, Biases in one domain
- Find domain with similar data characteristics and distribution
- Apply model in new domain

Retraining

- Freeze layers in a "good" model up to tunable depth of feature extraction but before final prediction layer
- Remove final layer(s)
- Relearn final and classification layers using your own data

Bonus: Combine Domain to Domain and Retraining



Deploying PyTorch Models



Deploying PyTorch Models: ONNX

- ONNX: Open Neural Network eXchange
 - Framework fragmentation: Project goal to allow researchers and developers to port models from one framework to another allowing interoperability
 - o Currently supports some of Caffe2, PyTorch, Microsoft Cognitive Toolkit, Apache MXNet
- Currently PyTorch only supports model export not import
- Resources:
 - ONNX: https://onnx.ai/ & https://onnx.ai/ & https://github.com/onnx/tutorials
 - PyTorch: http://pytorch.org/docs/master/onnx.html



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Discussion

