Deep Learning Tutorial

Introduction to Torch7 and Theano

Current tooling landscape

- 2015: Explosion in frameworks: Theano, Torch7, MXnet, TensorFlow, Chainer, Nervana/Neon, CNTK, brainstorm, SINGA, Deeplearning4j, Caffe, …
- Most have (multiple) higher-level libraries on top.

- Two currently most popular, two paradigms:
  - Theano: Symbolic graph.
  - Torch7: Direct, numeric layers. (but see nngraph)

- This session: get a quick feeling for paradigms.
 - i.e. Not an in-depth tutorial!

Torch7

- Long history ranging back to 2002, multiple rewrites.
    - Read: a ton of experience flowed into it.
- Big-name users: Google (DeepMind), Facebook, Twitter.
- Written in LuaJIT and C/CUDA.
- Conceptually just like current exercise.
    - Hence, shorter introduction.

Resources

- [Getting started](#).
- Soumith's [CVPR15 notebook](#).
- "Official" [tutorial series](#).
- [Cheat-sheet](#) wiki with many links.
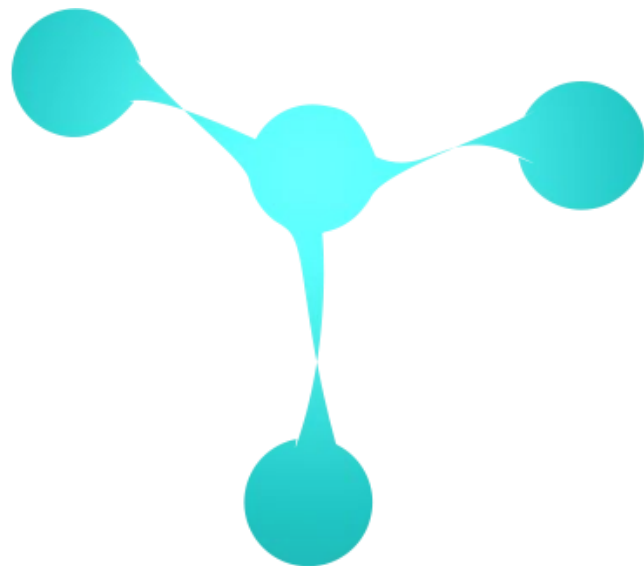
Theano

- Started in 2007 by LISA Lab@Montréal.
- Framework for symbolic computing with tensors.
    - Conceptually very different!
- Python!
- Used by many deep-learning labs.

Resources

- Official Theano tutorial.
- Official Deep Learning with Theano tutorial series.
- DLSS'15 tutorial series.
- Kazuya's notebook.