TensorFlow Introduction:

Duke-Tsinghua Machine Learning Summer School 2017

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TensorFlow: What is it?

- A software library for machine learning
  - Computation using data flow graphs
  - Neural Networks
- Released by Google November 9, 2015
- An open source successor to DistBelief
  - Apache 2.0 License
- APIs:
  - **Python**
  - C++
  - Java
  - Go

TensorFlow: Alternatives

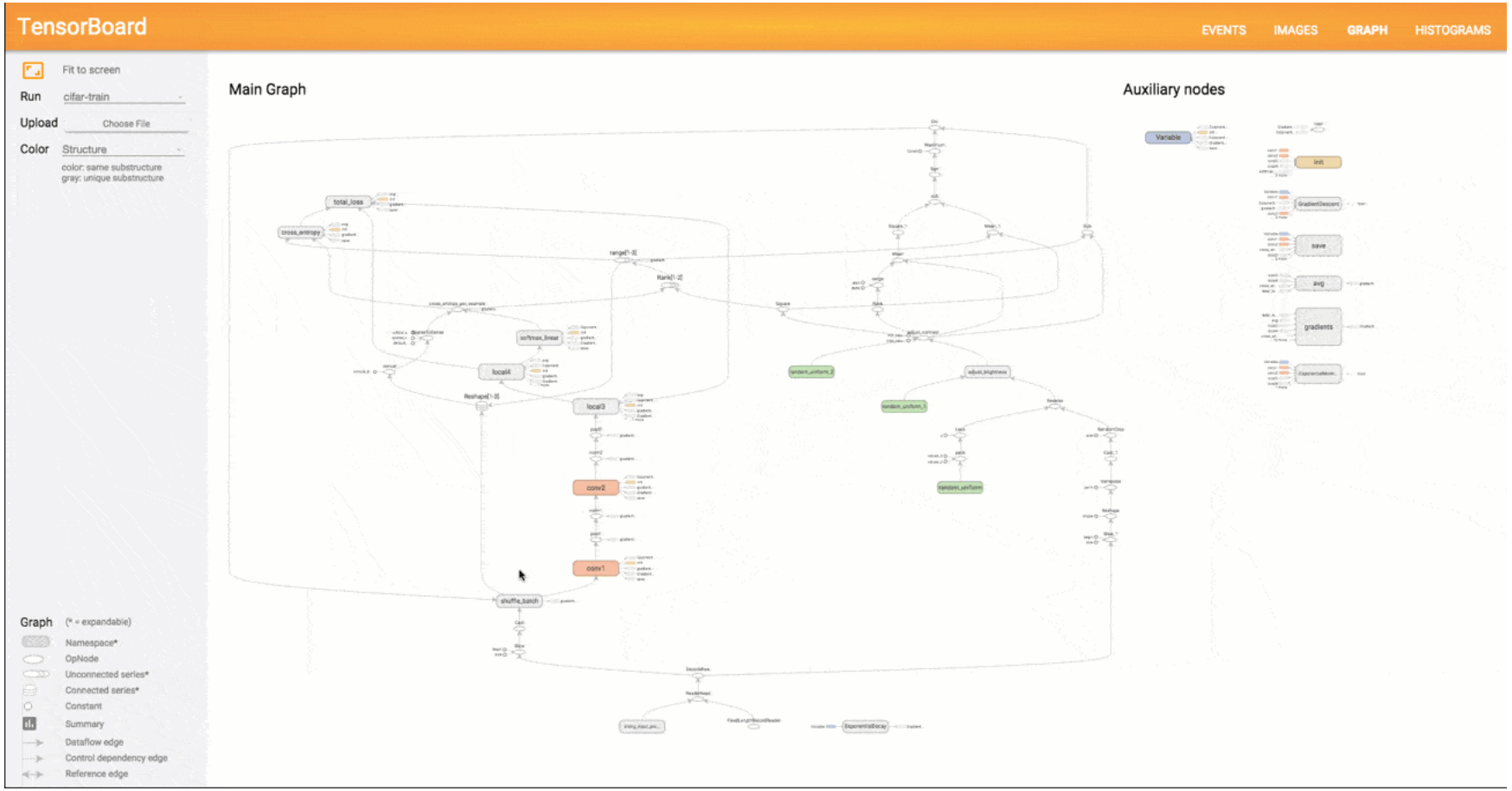
- Caffe
  - UC Berkeley (BVLC: Berkeley Vision and Learning Center)
- Microsoft Cognitive Toolkit (CNTK 2.0)
  - Microsoft
- Theano
  - Université de Montréal (MILA/LISA: Montreal Institute for Learning Algorithms)
- Torch

TensorFlow: Why?

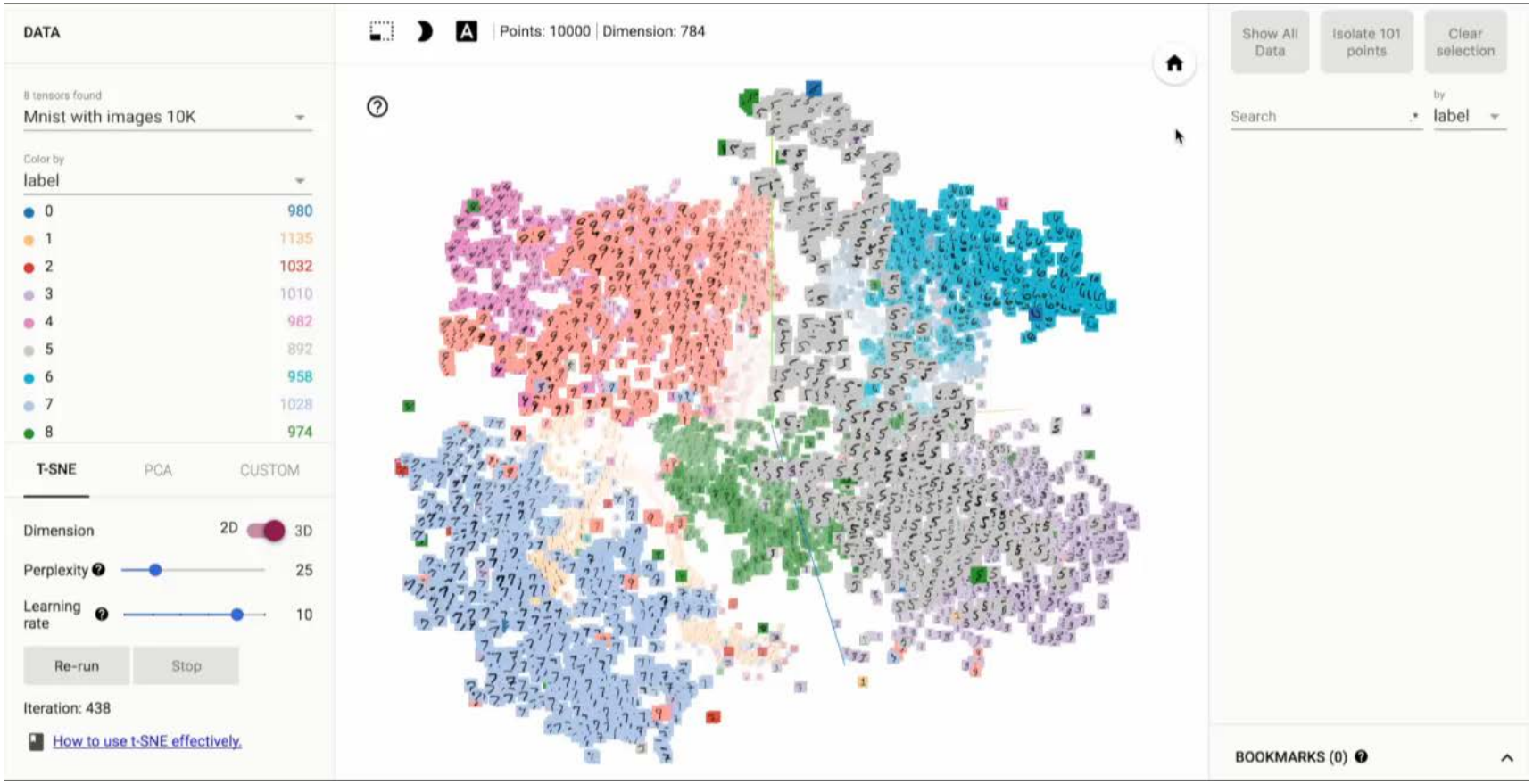
- CPU/GPU/TPU support, easy to scale up
- Large and active user-base
  - Academia, industry, enthusiasts
- Rapid Development and support by Google
- TensorBoard visualizations
- Integration with Google Cloud Platform
- Pre-trained models and high-level libraries (Slim, Keras, TFLearn)

TensorFlow: Data Flow Graphs

TensorBoard: Graph Visualization



TensorFlow: Data Flow Graphs



Questions?