intel Software STUDENT DEVELOPER PROGRAM

ARTIFICIAL INTELLIGENCE

INTEL AI DEEP LEARNING WORKSHOP

INTEL'S APPROACH TO AI: AVAILABLE TO OUR STUDENT DEVELOPERS

Workflow Tools/SDK	Intel® Deep Learning SDK (Training and Deployment)	Beta Dec'16 Gold Q1'17	Intel® Python
Big Data Analytics	hadoop Spark	BigDL	
Deep Learning Framework Optimizations	Caffe theano torch TensorFlow Microsoft CNTK neon		
Low Level Software Primitives	Intel® Math Kernel Library (Intel® MKL & MKL-DNN)		
Intel® Architecture	Xeon Phi, Xeon, Altera Arria 10, Core i3, Core i5, Core i7, Atom, Quark	+Network +Memory +Storage	

Datacenter ⟷ *Endpoint*

REMOTE ACCESS CLUSTERS

30 DAY BATCH ACCESS TO XEON CLUSTER FOR INTERESTED STUDENTS

FULL INSTANCE ACCESS TO XEON PHI CLUSTER FOR STUDENT AMBASSADORS AS LONG AS THEY ARE IN THE PROGRAM

*Other names and brands may be claimed as property of others.

WHAT DEEP LEARNING IS GOOD FOR

CLASSIFICATION

Label the image

Person

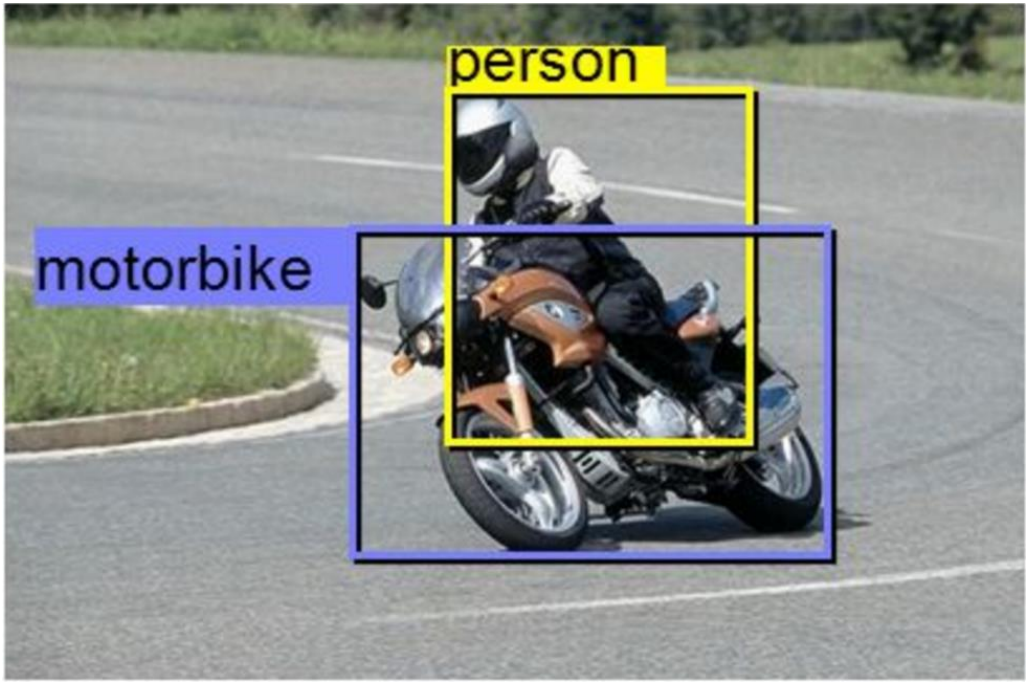
Motorcyclist

Bike

https://people.eecs.berkeley.edu/~jhoffman/talks/lsda-baylearn2014.pdf

DETECTION

Detect and label



https://people.eecs.berkeley.edu/~jhoffman/talks/lsda-baylearn2014.pdf

SEMANTIC SEGMENTATION

Label every pixel

https://people.eecs.berkeley.edu/~jhoffman/talks/lsda-baylearn2014.pdf

Caffe Demo

Prerequisite

Download

Build

Train & Test

Prerequisite

Ubuntu 16.04

Open a Terminal window

- sudo apt-get update
- sudo apt-get install build-essential cmake git pkg-config
- sudo apt-get install libprotobuf-dev libleveldb-dev libsnappy-dev libhdf5-serial-dev protobuf-compiler
- sudo apt-get install libatlas-base-dev
- sudo apt-get install --no-install-recommends libboost-all-dev
- sudo apt-get install libgflags-dev libgoogle-glog-dev liblmdb-dev
- [illegible]

Download

git clone https://github.com/intel/caffe.git

Build

Go to Caffe root directory.

cp Makefile.config.example Makefile.config

vi Makefile.config (add the red part)

- INCLUDE_DIRS := $(PYTHON_INCLUDE) /usr/local/include /usr/include/hdf5/serial
- LIBRARY_DIRS := $(PYTHON_LIB) /usr/local/lib /usr/lib /usr/lib/x86_64-linux-gnu /usr/lib/x86_64-linux-gnu/hdf5/serial

make all –j4

Train & Test

Get MNIST data set

- ./data/mnist/get_mnist.sh
- ./examples/mnist/create_mnist.sh

Training

- ./build/tools/caffe train --solver=examples/mnist/lenet_solver.prototxt

Test

- ./build/tools/caffe test –model examples/mnist/lenet_train_test.prototxt –weights examples/mnist/lenet_iter_10000.caffemodel –iterations 100

Q&A

THANK YOU!

Software

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