List of Deep Learning and NLP Resources

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* Intro

+ http://www.wildml.com/2015/09/implementing-a-neural-network-from-scratch/

http://iamtrask.github.io/2015/07/12/basic-python-network/

https://iamtrask.github.io/2015/07/27/python-network-part2/

https://www.analyticsvidhya.com/blog/2016/08/deep-learning-path/

http://neuralnetworksanddeeplearning.com/index.html

https://github.com/adeshpande3/NLP-Stuff

https://adeshpande3.github.io/adeshpande3.github.io/Deep-Learning-Research-Review-Week-3-Natural-Language-Processing

http://karpathy.github.io/neuralnets/

https://github.com/terryum/awesome-deep-learning-papers

http://deeplearning.stanford.edu/wiki/index.php/UFLDL_Tutorial

* Probabilities and Statistics

http://www.dartmouth.edu/~chance/teaching_aids/books_articles/probability_book/book.html

http://static1.squarespace.com/static/54bf3241e4b0f0d81bf7ff36/t/55e9494fe4b011aed10e48e5/1441352015658/probability_cheatsheet.pdf

http://cs229.stanford.edu/section/cs229-prob.pdf

https://github.com/rouseguy/intro2stats

http://stattrek.com/tutorials/statistics-tutorial.aspx

* Calculus

https://www.coursera.org/learn/calculus1

https://www.youtube.com/embed/54_XRjHhZzI?feature=oembed

http://www-math.mit.edu/~djk/calculus_beginners/

https://www.math.hmc.edu/calculus/tutorials/

* Python

https://www.coursera.org/learn/python

https://www.coursera.org/specializations/python

http://www.tutorialspoint.com/python/

http://www.learnpython.org/

* Linear Algebra

http://stattrek.com/tutorials/matrix-algebra-tutorial.aspx

http://www.deeplearningbook.org/slides/02_linear_algebra.pdf

http://cs229.stanford.edu/section/cs229-linalg.pdf

https://www.khanacademy.org/math/linear-algebra

http://ocw.mit.edu/courses/mathematics/18-06sc-linear-algebra-fall-2011/

https://www.math.ucdavis.edu/~linear/linear.pdf

* Dimensionality Reduction

http://glowingpython.blogspot.com/2011/06/svd-decomposition-with-numpy.html

http://radialmind.blogspot.com/2009/11/svd-in-python.html

http://bigdata-madesimple.com/decoding-dimensionality-reduction-pca-and-svd/

http://blog.josephwilk.net/projects/latent-semantic-analysis-in-python.html

http://bl.ocks.org/ktaneishi/9499896#pca.js

http://www.cs.cmu.edu/~christos/TALKS/09-KDD-tutorial

http://glowingpython.blogspot.com/2011/05/latent-semantic-analysis-with-term.html

http://glowingpython.blogspot.com/2011/07/principal-component-analysis-with-numpy.html

http://glowingpython.blogspot.com/2011/09/eigenvectors-animated-gif.html

http://www.denizyuret.com/2005/08/singular-value-decomposition-notes.html

http://www.kdnuggets.com/2016/06/nutrition-principal-component-analysis-tutorial.html

http://cs.stanford.edu/people/karpathy/tsnejs/

* Logistic Regression

https://triangleinequality.wordpress.com/2013/12/02/logistic-regression/

http://www.dataschool.io/logistic-regression-in-python-using-scikit-learn/

http://deeplearning.net/software/theano/tutorial/examples.html#a-real-example-logistic-regression

http://deeplearning.net/tutorial/logreg.html

https://florianhartl.com/logistic-regression-geometric-intuition.html

* sk-learn

http://peekaboo-vision.blogspot.cz/2013/01/machine-learning-cheat-sheet-for-scikit.html

https://github.com/aigamedev/scikit-neuralnetwork

http://www.kdnuggets.com/2016/01/scikit-learn-tutorials-introduction-classifiers.html

https://github.com/mmmayo13/scikit-learn-classifiers

https://pythonprogramming.net/flat-clustering-machine-learning-python-scikit-learn/

https://www.analyticsvidhya.com/blog/2016/08/tutorial-data-science-command-line-scikit-learn/

https://www.analyticsvidhya.com/blog/2016/07/practical-guide-data-preprocessing-python-scikit-learn/

http://www.markhneedham.com/blog/2015/02/15/pythonscikit-learn-calculating-tfidf-on-how-i-met-your-mother-transcripts/

https://github.com/GaelVaroquaux/scikit-learn-tutorial

https://github.com/justmarkham/scikit-learn-videos

https://pythonprogramming.net/machine-learning-python-sklearn-intro/

* Theano

http://nbviewer.jupyter.org/github/craffel/theano-tutorial/blob/master/Theano%20Tutorial.ipynb

https://github.com/goodfeli/theano_exercises

http://deeplearning.net/tutorial/

http://deeplearning.net/reading-list

http://deeplearning.net/tutorial/dA.html

http://deeplearning.net/tutorial/deeplearning.pdf - Just tutorials from the source above

http://deeplearning.net/software/theano/ - Scientific computing framework in Python

https://pypi.python.org/pypi/theanets

http://deeplearning.net/software/theano/tutorial/gradients.html

http://deeplearning.net/tutorial/logreg.html#logreg

http://deeplearning.net/software/theano/tutorial/

https://github.com/goodfeli/theano_exercises

https://github.com/Newmu/Theano-Tutorials

https://www.analyticsvidhya.com/blog/2016/04/neural-networks-python-theano/

http://outlace.com/Beginner-Tutorial-Theano/

http://www.marekrei.com/blog/theano-tutorial/

* Keras

https://github.com/fchollet/keras - Extension of Theano, meant specifically for ANN work

https://keras.io/

https://blog.keras.io/introducing-keras-10.html

https://blog.keras.io/keras-as-a-simplified-interface-to-tensorflow-tutorial.html

https://github.com/fchollet/keras/blob/master/examples/imdb_lstm.py

http://stackoverflow.com/questions/43457890/multiprocessing-with-gpu-in-keras

https://www.analyticsvidhya.com/blog/2016/10/tutorial-optimizing-neural-networks-using-keras-with-image-recognition-case-study/

https://blog.keras.io/running-jupyter-notebooks-on-gpu-on-aws-a-starter-guide.html

https://blog.keras.io/building-autoencoders-in-keras.html

https://blog.keras.io/how-convolutional-neural-networks-see-the-world.html

http://machinelearningmastery.com/tutorial-first-neural-network-python-keras/

https://www.datacamp.com/community/blog/keras-cheat-sheet#gs.E5Tf5x8

https://github.com/fchollet/keras-resources

* Perceptrons

+ https://datasciencelab.wordpress.com/2014/01/10/machine-learning-classics-the-perceptron/

+ https://triangleinequality.wordpress.com/2014/02/24/enter-the-perceptron/

+ http://glowingpython.blogspot.com/2011/10/perceptron.html

* word2vec/embeddings

+ http://radimrehurek.com/gensim/models/word2vec.html - Gensim implementation of Word2Vec

https://radimrehurek.com/gensim/tut1.html

https://radimrehurek.com/gensim/tutorial.html

https://code.google.com/p/word2vec/ - Google implementation of word2vec

+ http://alexminnaar.com/word2vec-tutorial-part-i-the-skip-gram-model.html - Word2Vec

http://rare-technologies.com/word2vec-tutorial/ - Gensim Word2Vec tutorial (training, loading, using, etc.)

https://rare-technologies.com/making-sense-of-word2vec/

https://rare-technologies.com/fasttext-and-gensim-word-embeddings/

https://research.facebook.com/blog/fasttext/

https://www.kaggle.com/c/word2vec-nlp-tutorial

http://www-personal.umich.edu/~ronxin/pdf/w2vexp.pdf - Detailed write-up explaining Word2Vec

https://code.google.com/p/word2vec/

https://code.google.com/p/word2vec/source/browse/trunk/

http://u.cs.biu.ac.il/~nlp/resources/downloads/word2parvec/

https://deeplearning4j.org/word2vec.html

+ http://textminingonline.com/getting-started-with-word2vec-and-glove-in-python

+ http://www.johnwittenauer.net/language-exploration-using-vector-space-models/

https://radimrehurek.com/gensim/models/doc2vec.html

* LSTM

+ https://iamtrask.github.io/2015/11/15/anyone-can-code-lstm/

+ http://colah.github.io/posts/2015-08-Understanding-LSTMs/

http://www.cs.toronto.edu/~graves/handwriting.html

https://en.wikipedia.org/wiki/Long_short-term_memory - Wikipedia article about LSTMs

https://github.com/HendrikStrobelt/lstmvis

https://github.com/wojzaremba/lstm

http://lstm.seas.harvard.edu/

https://github.com/stanfordnlp/treelstm

https://github.com/microth/PathLSTM

https://github.com/XingxingZhang/td-treelstm

+ http://deeplearning.net/tutorial/lstm.html#lstm

https://apaszke.github.io/lstm-explained.html

https://deeplearning4j.org/lstm.html

https://github.com/dennybritz/rnn-tutorial-gru-lstm

http://deeplearning.net/tutorial/lstm.html#lstm

* Embeddings

+ http://ronxin.github.io/wevi/

https://github.com/ronxin/wevi

wevi (from Rong Xin)

https://levyomer.wordpress.com/2014/04/25/dependency-based-word-embeddings/

Dependency-based word embeddings

https://github.com/stanfordnlp/GloVe

http://nlp.stanford.edu/projects/glove

https://github.com/maciejkula/glove-python

http://lebret.ch/words/

word embeddings from Remi Lebret (+ a tool for generating embeddings)

http://metaoptimize.com/projects/wordreprs/

embeddings and tools for basic NLP tasks

http://wordvectors.org/suite.php

word similarity data sets

http://wordvectors.org/suite.php

http://deeplearning4j.org/eigenvector

http://wordvectors.org/

http://metaoptimize.com/projects/wordreprs/

https://github.com/semanticvectors/semanticvectors/wiki

http://clic.cimec.unitn.it/composes/semantic-vectors.html

+ https://blog.acolyer.org/2016/04/21/the-amazing-power-of-word-vectors/

+ https://www.kaggle.com/c/word2vec-nlp-tutorial/details/part-1-for-beginners-bag-of-words

+ https://www.kaggle.com/c/word2vec-nlp-tutorial/details/part-2-word-vectors

+ https://www.kaggle.com/c/word2vec-nlp-tutorial/details/part-3-more-fun-with-word-vectors

https://www.kaggle.com/c/word2vec-nlp-tutorial/details/part-4-comparing-deep-and-non-deep-learning-methods

http://ronan.collobert.com/senna/

http://ml.nec-labs.com/senna/

Code and embeddings from SENNA.

http://colinmorris.github.io/blog/1b-words-char-embeddings

http://www.cis.upenn.edu/~ungar/eigenwords/

http://www.offconvex.org/2016/07/10/embeddingspolysemy/

http://www.tensorflow.org/tutorials/word2vec/index.md

https://www.tensorflow.org/versions/r0.11/tutorials/word2vec/index.html

http://ronxin.github.io/lamvi/dist/#model=word2vec&backend=browser&query_in=good&query_out=G_bennet,B_circumstances

https://www.quora.com/How-does-word2vec-work/answer/Ajit-Rajasekharan

+ http://mccormickml.com/2016/04/12/googles-pretrained-word2vec-model-in-python/

* Autoencoders

http://cs.stanford.edu/people/karpathy/convnetjs/demo/autoencoder.html

http://ufldl.stanford.edu/tutorial/unsupervised/Autoencoders/

https://triangleinequality.wordpress.com/2014/08/12/theano-autoencoders-and-mnist/

* Introductions

+ http://www.kdnuggets.com/2016/10/beginners-guide-neural-networks-python-scikit-learn.html

http://cl.naist.jp/~kevinduh/a/deep2014/

Kevin Duh lectures

http://www.deeplearningbook.org/

Deep Learning Book

http://ciml.info/

Hal Daume's book

http://nlp.stanford.edu/courses/NAACL2013/

Deep Learning for NLP Without Magic

http://info.usherbrooke.ca/hlarochelle/neural_networks/content.html

http://www.deeplearning.net/

Tutorials, software packages, datasets, and readings (in Theano)

http://web.stanford.edu/~jurafsky/slp3/

Jurafsky - chapter 19 (?) about word2vec and related methods

http://u.cs.biu.ac.il/~yogo/nnlp.pdf

Yoav Goldberg - Primer on Neural Network Models for NLP

http://neuralnetworksanddeeplearning.com/

http://neuralnetworksanddeeplearning.com/chap1.html

http://neuralnetworksanddeeplearning.com/chap2.html

http://neuralnetworksanddeeplearning.com/chap3.html

http://neuralnetworksanddeeplearning.com/chap4.html

http://neuralnetworksanddeeplearning.com/chap5.html

http://neuralnetworksanddeeplearning.com/chap6.html

+ https://github.com/neubig/nlptutorial

http://deeplearning.net/reading-list/

* Summarization

https://github.com/gregdurrett/berkeley-doc-summarizer

http://nlp.cs.berkeley.edu/projects/summarizer.shtml

https://www.linkedin.com/pulse/lex-rank-textrank-based-document-summarization-system-niraj-kumar

https://research.googleblog.com/2016/08/text-summarization-with-tensorflow.html?m=1

http://rare-technologies.com/text-summarization-with-gensim/

https://rare-technologies.com/text-summarization-in-python-extractive-vs-abstractive-techniques-revisited/

https://github.com/tensorflow/models/tree/master/textsum

https://github.com/harvardnlp/NAMAS

https://github.com/carpedm20/neural-summary-tensorflow

* Neural Machine Translation

http://lisa.iro.umontreal.ca/mt-demo

https://github.com/mila-udem/blocks-examples/tree/master/machine_translation

https://github.com/nyu-dl/dl4mt-tutorial

dl4mt

https://github.com/lmthang/nmt.matlab

https://github.com/neubig/nmt-tips

https://github.com/jonsafari/nmt-list

+ https://research.googleblog.com/2016/09/a-neural-network-for-machine.html

+ https://devblogs.nvidia.com/parallelforall/introduction-neural-machine-translation-with-gpus/

+ https://devblogs.nvidia.com/parallelforall/introduction-neural-machine-translation-gpus-part-2/

+ https://devblogs.nvidia.com/parallelforall/introduction-neural-machine-translation-gpus-part-3/

+ https://research.googleblog.com/2016/11/zero-shot-translation-with-googles.html

https://sites.google.com/site/acl16nmt/

* Natural Language Generation

https://github.com/simplenlg

https://github.com/nltk/nltk_contrib/tree/master/nltk_contrib/fuf

https://aclweb.org/aclwiki/index.php?title=Downloadable_NLG_systems

* Question Answering

http://www.kdnuggets.com/2015/11/deep-learning-visual-question-answering.html

https://github.com/jcoreyes/NLQA

https://github.com/jcoreyes/NLQA/tree/master/qanta

https://rajpurkar.github.io/SQuAD-explorer/

https://github.com/fh295/DefGen2

http://www.visualqa.org/

http://cs.nyu.edu/~kcho/DMQA/

* NLP General

http://blog.mashape.com/list-of-25-natural-language-processing-apis/

25 NLP APIs

+ http://www.denizyuret.com/2015/07/parsing-with-word-vectors.html

http://www.denizyuret.com/2015/03/parallelizing-parser.html

http://memkite.com/deep-learning-bibliography/#natural_language_processing

http://www.kdnuggets.com/2015/12/natural-language-processing-101.html

+ https://techcrunch.com/2016/07/20/google-launches-new-api-to-help-you-parse-natural-language/

http://www.degeneratestate.org/posts/2016/Apr/20/heavy-metal-and-natural-language-processing-part-1/

http://www.degeneratestate.org/posts/2016/Sep/12/heavy-metal-and-natural-language-processing-part-2/

http://metamind.io/research/multiple-different-natural-language-processing-tasks-in-a-single-deep-model/

https://gigadom.wordpress.com/2015/10/02/natural-language-processing-what-would-shakespeare-say/

https://blog.monkeylearn.com/the-definitive-guide-to-natural-language-processing/

* NLTK

http://www.nltk.org/book/

NLTK Book

https://pythonprogramming.net/tokenizing-words-sentences-nltk-tutorial/

https://www.youtube.com/watch?v=FLZvOKSCkxY&list=PLQVvvaa0QuDf2JswnfiGkliBInZnIC4HL

http://textminingonline.com/dive-into-nltk-part-i-getting-started-with-nltk

Tokenizing words and sentences

http://glowingpython.blogspot.com/2013/07/combining-scikit-learn-and-ntlk.html

* Image Processing

https://pythonprogramming.net/image-recognition-python/

* Support Vector Machines

https://pythonprogramming.net/linear-svc-example-scikit-learn-svm-python/

http://tullo.ch/articles/svm-py/

https://github.com/ajtulloch/svmpy

https://www.quora.com/What-does-support-vector-machine-SVM-mean-in-laymans-terms

https://www.quora.com/How-does-deep-learning-work-and-how-is-it-different-from-normal-neural-networks-and-or-SVM

https://github.com/mesnilgr/nbsvm

https://www.csie.ntu.edu.tw/%7Ecjlin/libsvm/

* Conditional Random Fields

http://sourceforge.net/projects/crfpp/files/crfpp/0.54/

http://blog.echen.me/2012/01/03/introduction-to-conditional-random-fields/

* Convolutional NN

+ http://www.wildml.com/2015/11/understanding-convolutional-neural-networks-for-nlp/

http://stats.stackexchange.com/questions/114385/what-is-the-difference-between-convolutional-neural-networks-restricted-boltzma

+ http://www.wildml.com/2015/12/implementing-a-cnn-for-text-classification-in-tensorflow/

http://www.kdnuggets.com/2015/11/understanding-convolutional-neural-networks-nlp.html

http://cs.stanford.edu/people/karpathy/convnetjs/

http://colah.github.io/posts/2014-07-Understanding-Convolutions/

http://colah.github.io/posts/2014-07-Conv-Nets-Modular/

http://cs231n.github.io/convolutional-networks/

http://www.kdnuggets.com/2016/06/peeking-inside-convolutional-neural-networks.html

http://www.kdnuggets.com/2015/11/understanding-convolutional-neural-networks-nlp.html

http://www.kdnuggets.com/2015/04/inside-deep-learning-computer-vision-convolutional-neural-networks.html

+ http://www.kdnuggets.com/2016/09/beginners-guide-understanding-convolutional-neural-networks-part-1.html

+ http://www.kdnuggets.com/2016/09/beginners-guide-understanding-convolutional-neural-networks-part-2.html

http://brohrer.github.io/how_convolutional_neural_networks_work.html

https://github.com/hohoCode/textSimilarityConvNet

+ https://www.analyticsvidhya.com/blog/2016/04/deep-learning-computer-vision-introduction-convolution-neural-networks/

+ http://www.kdnuggets.com/2016/11/intuitive-explanation-convolutional-neural-networks.html

https://github.com/dennybritz/cnn-text-classification-tf

http://scs.ryerson.ca/~aharley/vis/conv/

+ https://ujjwalkarn.me/2016/08/11/intuitive-explanation-convnets/

https://github.com/yoonkim/CNN_sentence

https://adeshpande3.github.io/adeshpande3.github.io/A-Beginner's-Guide-To-Understanding-Convolutional-Neural-Networks/

https://adeshpande3.github.io/adeshpande3.github.io/A-Beginner's-Guide-To-Understanding-Convolutional-Neural-Networks-Part-2/

http://homepages.inf.ed.ac.uk/mlap/resources/cnnhlights/

+ https://algobeans.com/2016/01/26/introduction-to-convolutional-neural-network/

* Recurrent NN

+ http://www.wildml.com/2015/09/recurrent-neural-networks-tutorial-part-1-introduction-to-rnns/

+ http://www.wildml.com/2015/09/recurrent-neural-networks-tutorial-part-2-implementing-a-language-model-rnn-with-python-numpy-and-theano/

+ http://www.wildml.com/2015/10/recurrent-neural-networks-tutorial-part-3-backpropagation-through-time-and-vanishing-gradients/

+ http://www.wildml.com/2015/10/recurrent-neural-network-tutorial-part-4-implementing-a-grulstm-rnn-with-python-and-theano/

http://www.kdnuggets.com/2015/12/deep-learning-outgrows-bag-words-recurrent-neural-networks.html

http://www.kdnuggets.com/2015/06/rnn-tutorial-sequence-learning-recurrent-neural-networks.html

http://www.kdnuggets.com/2015/10/recurrent-neural-networks-tutorial.html

+ http://karpathy.github.io/2015/05/21/rnn-effectiveness/

http://colah.github.io/posts/2014-07-NLP-RNNs-Representations/

https://github.com/karpathy/char-rnn

http://www.kdnuggets.com/2016/05/intro-recurrent-networks-tensorflow.html

http://www.kdnuggets.com/2015/10/recurrent-neural-networks-tutorial.html

http://www.kdnuggets.com/2015/06/rnn-tutorial-sequence-learning-recurrent-neural-networks.html

http://www.kdnuggets.com/2015/11/samim-recurrent-neural-net-describe-images-taylor-swift.html

http://research.microsoft.com/en-us/projects/rnn/

http://www.rnnlm.org/

http://distill.pub/2016/augmented-rnns/

https://github.com/distillpub/post--augmented-rnns

https://github.com/dennybritz/tf-rnn

https://github.com/dennybritz/rnn-tutorial-rnnlm

http://www.wildml.com/2016/08/rnns-in-tensorflow-a-practical-guide-and-undocumented-features/

https://github.com/shawnwun/RNNLG

https://github.com/isi-nlp/Zoph_RNN

https://github.com/facebook/Stack-RNN

https://github.com/kjw0612/awesome-rnn

* Sequence to sequence

+ http://www.tensorflow.org/tutorials/seq2seq/index.md

https://github.com/harvardnlp/seq2seq-attn

+ https://www.tensorflow.org/versions/r0.12/tutorials/seq2seq/index.html#sequence-to-sequence-models

https://github.com/farizrahman4u/seq2seq

* k-means

https://datasciencelab.wordpress.com/2013/12/12/clustering-with-k-means-in-python/

https://datasciencelab.wordpress.com/2014/01/21/selection-of-k-in-k-means-clustering-reloaded/

http://glowingpython.blogspot.com/2012/04/k-means-clustering-with-scipy.html

https://codesachin.wordpress.com/2015/11/14/k-means-clustering-with-tensorflow/

http://stanford.edu/class/ee103/visualizations/kmeans/kmeans.html

* k-nearest neighbors

http://glowingpython.blogspot.com/2012/04/k-nearest-neighbour-classifier.html

http://glowingpython.blogspot.com/2012/04/k-nearest-neighbor-search.html

* Recursive NN

+ http://www.kdnuggets.com/2016/06/recursive-neural-networks-tensorflow.html

+ https://pseudoprofound.wordpress.com/2016/06/20/recursive-not-recurrent-neural-nets-in-tensorflow/

* Network Analysis

http://snap.stanford.edu/node2vec/

http://glowingpython.blogspot.com/2012/11/first-steps-with-networx.html

http://glowingpython.blogspot.com/2013/02/betweenness-centrality.html

https://snap.stanford.edu/data/

https://pypi.python.org/pypi/python-graph

http://glowingpython.blogspot.com/2011/05/four-ways-to-compute-google-pagerank.html

https://www.quora.com/Is-there-a-simple-explanation-of-the-Louvain-Method-of-community-detection

* Tagging and Parsing

https://spacy.io/blog/parsing-english-in-python

Parsing English in Python

https://github.com/clir/clearnlp

https://pypi.python.org/pypi/bllipparser/

https://github.com/BLLIP/bllip-parser

http://nlp.stanford.edu/software/lex-parser.shtml

http://nlp.stanford.edu/software/tagger.shtml

https://code.google.com/p/universal-pos-tags/

http://www.ark.cs.cmu.edu/TweetNLP/

https://code.google.com/p/berkeleyparser

http://www.cs.columbia.edu/~mcollins/code.html

http://www.ark.cs.cmu.edu/TurboParser/

http://demo.ark.cs.cmu.edu/parse

+
https://github.com/tensorflow/models/tree/master/syntaxnet/syntaxnet/models/parsey_mcparseface

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