

# Awesome - Most Cited Deep Learning Papers

Awesome (<https://github.com/sindresorhus/awesome>)

A curated list of the most cited deep learning papers (since 2010)

I believe that there exist *classic* deep learning papers which are worth reading regardless of their applications. Rather than providing overwhelming amount of papers, I would like to provide a *curated list* of the classic deep learning papers which can be considered as *must-reads* in some area.

## Awesome list criteria

- **2016** : +30 citations : +50)
- **2015** : +100 citations : +200)
- **2014** : +200 citations : +400)
- **2013** : +300 citations : +600)
- **2012** : +400 citations : +800)
- **2011** : +500 citations : +1000)
- **2010** : +600 citations : +1200)




I need your contributions! Please read the contributing guide (<https://github.com/terryum/awesome-deep-learning-papers/blob/master/Contributing.md>) before you make a pull request.

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Total 85 papers except for the papers in *Hardware / Software*, *Papers Worth Reading*, and *Classic Papers* sections.





## Survey / Review

- Deep learning (Book, 2016), Goodfellow et al. (*Bengio*) [html] (<http://www.deeplearningbook.org/>)
- Deep learning (2015), Y. LeCun, Y. Bengio and G. Hinton [html] (<http://www.nature.com/nature/journal/v521/n7553/abs/nature14539.html>) 
- Deep learning in neural networks: An overview (2015), J. Schmidhuber [pdf] (<http://arxiv.org/pdf/1404.7828>) 
- Representation learning: A review and new perspectives (2013), Y. Bengio et al. [pdf] (<http://arxiv.org/pdf/1206.5538>) 









## Theory / Future

- Distilling the knowledge in a neural network (2015), G. Hinton et al. [pdf] (<http://arxiv.org/pdf/1503.02531>)
- Deep neural networks are easily fooled: High confidence predictions for unrecognizable images (2015), A. Nguyen et al. [pdf] (<http://arxiv.org/pdf/1412.1897>)
- How transferable are features in deep neural networks? (2014), J. Yosinski et al. (*Bengio*) [pdf] (<http://papers.nips.cc/paper/5347-how-transferable-are-features-in-deep-neural-networks.pdf>)
- Return of the devil in the details: delving deep into convolutional nets (2014), K. Chatfield et al. [pdf] (<http://arxiv.org/pdf/1405.3531>) 
- Why does unsupervised pre-training help deep learning (2010), D. Erhan et al. (*Bengio*) [pdf] ([http://machinelearning.wustl.edu/mlpapers/paper\\_files/AISTATS2010\\_ErhanCBV10.pdf](http://machinelearning.wustl.edu/mlpapers/paper_files/AISTATS2010_ErhanCBV10.pdf))
- Understanding the difficulty of training deep feedforward neural networks (2010), X. Glorot and Y. Bengio [pdf] ([http://machinelearning.wustl.edu/mlpapers/paper\\_files/AISTATS2010\\_GlorotB10.pdf](http://machinelearning.wustl.edu/mlpapers/paper_files/AISTATS2010_GlorotB10.pdf))






## Optimization / Regularization

- Batch normalization: Accelerating deep network training by reducing internal covariate shift (2015), S. Ioffe and C. Szegedy (*Google*) [pdf] (<http://arxiv.org/pdf/1502.03167>) 
- Delving deep into rectifiers: Surpassing human-level performance on imagenet classification (2015), K. He et al. (*Microsoft*) [pdf] ([http://www.cv-foundation.org/openaccess/content\\_iccv\\_2015/papers/He\\_Delving\\_Deep\\_into\\_ICCV\\_2015\\_paper.pdf](http://www.cv-foundation.org/openaccess/content_iccv_2015/papers/He_Delving_Deep_into_ICCV_2015_paper.pdf)) 
- Dropout: A simple way to prevent neural networks from overfitting (2014), N. Srivastava et al. (*Hinton*) [pdf] (<http://jmlr.org/papers/volume15/srivastava14a/srivastava14a.pdf>) 
- Adam: A method for stochastic optimization (2014), D. Kingma and J. Ba [pdf] (<http://arxiv.org/pdf/1412.6980>)
- Spatial pyramid pooling in deep convolutional networks for visual recognition (2014), K. He et al. [pdf] (<http://arxiv.org/pdf/1406.4729>)
- On the importance of initialization and momentum in deep learning (2013), I. Sutskever et al. (*Hinton*) [pdf] ([http://machinelearning.wustl.edu/mlpapers/paper\\_files/icml2013\\_sutskever13.pdf](http://machinelearning.wustl.edu/mlpapers/paper_files/icml2013_sutskever13.pdf))
- Regularization of neural networks using dropconnect (2013), L. Wan et al. (*LeCun*) [pdf] ([http://machinelearning.wustl.edu/mlpapers/paper\\_files/icml2013\\_wan13.pdf](http://machinelearning.wustl.edu/mlpapers/paper_files/icml2013_wan13.pdf))
- Improving neural networks by preventing co-adaptation of feature detectors (2012), G. Hinton et al. [pdf] (<http://arxiv.org/pdf/1207.0580.pdf>) 
- Random search for hyper-parameter optimization (2012) J. Bergstra and Y. Bengio [pdf] (<http://www.jmlr.org/papers/volume13/bergstra12a/bergstra12a>)





## Network Models

- Deep residual learning for image recognition (2016), K. He et al. (*Microsoft*) [pdf] (<http://arxiv.org/pdf/1512.03385>) :sparkles:
- Region-based convolutional networks for accurate object detection and segmentation (2016), R. Girshick et al. (*Microsoft*) [pdf] ([https://www.cs.berkeley.edu/%7Erbg/papers/pami/rcnn\\_pami.pdf](https://www.cs.berkeley.edu/%7Erbg/papers/pami/rcnn_pami.pdf))
- Going deeper with convolutions (2015), C. Szegedy et al. (*Google*) [pdf] ([http://www.cv-foundation.org/openaccess/content\\_cvpr\\_2015/papers/Szegedy\\_Going\\_Deeper\\_With\\_2015\\_CVPR\\_paper.pdf](http://www.cv-foundation.org/openaccess/content_cvpr_2015/papers/Szegedy_Going_Deeper_With_2015_CVPR_paper.pdf)) :sparkles:
- Fast R-CNN (2015), R. Girshick (*Microsoft*) [pdf] ([http://www.cv-foundation.org/openaccess/content\\_iccv\\_2015/papers/Girshick\\_Fast\\_R-CNN\\_ICCV\\_2015\\_paper.pdf](http://www.cv-foundation.org/openaccess/content_iccv_2015/papers/Girshick_Fast_R-CNN_ICCV_2015_paper.pdf)) :sparkles:
- Fully convolutional networks for semantic segmentation (2015), J. Long et al. [pdf] ([http://www.cv-foundation.org/openaccess/content\\_cvpr\\_2015/papers/Long\\_Fully\\_Convolutional\\_Networks\\_2015\\_CVPR\\_paper.pdf](http://www.cv-foundation.org/openaccess/content_cvpr_2015/papers/Long_Fully_Convolutional_Networks_2015_CVPR_paper.pdf)) :sparkles:
- Very deep convolutional networks for large-scale image recognition (2014), K. Simonyan and A. Zisserman [pdf] (<http://arxiv.org/pdf/1409.1556>) :sparkles:
- OverFeat: Integrated recognition, localization and detection using convolutional networks (2014), P. Sermanet et al. (*LeCun*) [pdf] (<http://arxiv.org/pdf/1312.6229>)
- Visualizing and understanding convolutional networks (2014), M. Zeiler and R. Fergus [pdf] (<http://arxiv.org/pdf/1311.2901>) :sparkles:
- Maxout networks (2013), I. Goodfellow et al. (*Bengio*) [pdf] (<http://arxiv.org/pdf/1302.4389v4>)
- Network in network (2013), M. Lin et al. [pdf] (<http://arxiv.org/pdf/1312.4400>)
- ImageNet classification with deep convolutional neural networks (2012), A. Krizhevsky et al. (*Hinton*) [pdf] (<http://papers.nips.cc/paper/4824-imagenet-classification-with-deep-convolutional-neural-networks.pdf>) :sparkles:
- Large scale distributed deep networks (2012), J. Dean et al. [pdf] (<http://papers.nips.cc/paper/4687-large-scale-distributed-deep-networks.pdf>) :sparkles:
- Deep sparse rectifier neural networks (2011), X. Glorot et al. (*Bengio*) [pdf] ([http://machinelearning.wustl.edu/mlpapers/paper\\_files/AISTATS2011\\_GlorotBB11.pdf](http://machinelearning.wustl.edu/mlpapers/paper_files/AISTATS2011_GlorotBB11.pdf))


## Image

- Reading text in the wild with convolutional neural networks (2016), M. Jaderberg et al. (*DeepMind*) [pdf] (<http://arxiv.org/pdf/1412.1842>)
- Imagenet large scale visual recognition challenge (2015), O. Russakovsky et al. [pdf] (<http://arxiv.org/pdf/1409.0575>) :sparkles:
- Faster R-CNN: Towards Real-Time Object Detection with Region Proposal Networks (2015), S. Ren et al. [pdf] (<http://papers.nips.cc/paper/5638-faster-r-cnn-towards-real-time-object-detection-with-region-proposal-networks.pdf>) :sparkles:
- DRAW: A recurrent neural network for image generation (2015), K. Gregor et al. [pdf] (<http://arxiv.org/pdf/1502.04623>)
- Rich feature hierarchies for accurate object detection and semantic segmentation (2014), R. Girshick et al. [pdf] ([http://www.cv-foundation.org/openaccess/content\\_cvpr\\_2014/papers/Girshick\\_Rich\\_Feature\\_Hierarchies\\_2014\\_CVPR\\_paper.pdf](http://www.cv-foundation.org/openaccess/content_cvpr_2014/papers/Girshick_Rich_Feature_Hierarchies_2014_CVPR_paper.pdf)) :sparkles:
- Learning and transferring mid-Level image representations using convolutional neural networks (2014), M. Oquab et al. [pdf] ([http://www.cv-foundation.org/openaccess/content\\_cvpr\\_2014/papers/Oquab\\_Learning\\_and\\_Transferring\\_2014\\_CVPR\\_paper.pdf](http://www.cv-foundation.org/openaccess/content_cvpr_2014/papers/Oquab_Learning_and_Transferring_2014_CVPR_paper.pdf))
- DeepFace: Closing the Gap to Human-Level Performance in Face Verification (2014), Y. Taigman et al. (*Facebook*) [pdf] ([http://www.cv-foundation.org/openaccess/content\\_cvpr\\_2014/papers/Taigman\\_DeepFace\\_Closing\\_the\\_2014\\_CVPR\\_paper.pdf](http://www.cv-foundation.org/openaccess/content_cvpr_2014/papers/Taigman_DeepFace_Closing_the_2014_CVPR_paper.pdf)) :sparkles:
- Decaf: A deep convolutional activation feature for generic visual recognition (2013), J. Donahue et al. [pdf] (<http://arxiv.org/pdf/1310.1531>) :sparkles:
- Learning hierarchical features for scene labeling (2013), C. Farabet et al. (*LeCun*) [pdf] (<https://hal-enpc.archives-ouvertes.fr/docs/00/74/20/77/PDF/farabet-pami-13.pdf>)
- Learning mid-level features for recognition (2010), Y. Boureau (*LeCun*) [pdf] (<http://ece.duke.edu/%7EElcarin/boureau-cvpr-10.pdf>)





## Caption

- Show, attend and tell: Neural image caption generation with visual attention (2015), K. Xu et al. (*Bengio*) [pdf] (<http://arxiv.org/pdf/1502.03044>) :sparkles:
- Show and tell: A neural image caption generator (2015), O. Vinyals et al. [pdf] ([http://www.cv-foundation.org/openaccess/content\\_cvpr\\_2015/papers/Vinyals\\_Show\\_and\\_Tell\\_2015\\_CVPR\\_paper.pdf](http://www.cv-foundation.org/openaccess/content_cvpr_2015/papers/Vinyals_Show_and_Tell_2015_CVPR_paper.pdf)) :sparkles:
- Long-term recurrent convolutional networks for visual recognition and description (2015), J. Donahue et al. [pdf] ([http://www.cv-foundation.org/openaccess/content\\_cvpr\\_2014/papers/Girshick\\_Rich\\_Feature\\_Hierarchies\\_2014\\_CVPR\\_paper.pdf](http://www.cv-foundation.org/openaccess/content_cvpr_2014/papers/Girshick_Rich_Feature_Hierarchies_2014_CVPR_paper.pdf)) :sparkles:
- Deep visual-semantic alignments for generating image descriptions (2015), A. Karpathy and L. Fei-Fei [pdf] ([http://www.cv-foundation.org/openaccess/content\\_cvpr\\_2015/papers/Karpathy\\_Deep\\_Visual-Semantic\\_Alignments\\_2015\\_CVPR\\_paper.pdf](http://www.cv-foundation.org/openaccess/content_cvpr_2015/papers/Karpathy_Deep_Visual-Semantic_Alignments_2015_CVPR_paper.pdf)) :sparkles:






## Video / Human Activity

- Large-scale video classification with convolutional neural networks (2014), A. Karpathy et al. (*FeiFei*) [pdf] (<http://vision.stanford.edu/pdf/karpathy14.pdf>) :sparkles:
- DeepPose: Human pose estimation via deep neural networks (2014), A. Toshev and C. Szegedy (*Google*) [pdf] ([http://www.cv-foundation.org/openaccess/content\\_cvpr\\_2014/papers/Toshev\\_DeepPose\\_Human\\_Pose\\_2014\\_CVPR\\_paper.pdf](http://www.cv-foundation.org/openaccess/content_cvpr_2014/papers/Toshev_DeepPose_Human_Pose_2014_CVPR_paper.pdf))
- Two-stream convolutional networks for action recognition in videos (2014), K. Simonyan et al. [pdf] (<http://papers.nips.cc/paper/5353-two-stream-convolutional-networks-for-action-recognition-in-videos.pdf>)
- A survey on human activity recognition using wearable sensors (2013), O. Lara and M. Labrador [pdf] (<http://romisatriawahono.net/lecture/rm/survey/computer%20vision/Lara%20-%20Human%20Activity%20Recognition%20-%202013.pdf>)
- 3D convolutional neural networks for human action recognition (2013), S. Ji et al. [pdf] ([http://machinelearning.wustl.edu/mlpapers/paper\\_files/icml2010\\_JiXY10.pdf](http://machinelearning.wustl.edu/mlpapers/paper_files/icml2010_JiXY10.pdf))
- Action recognition with improved trajectories (2013), H. Wang and C. Schmid [pdf] ([http://www.cv-foundation.org/openaccess/content\\_iccv\\_2013/papers/Wang\\_Action\\_Recognition\\_with\\_2013\\_ICCV\\_paper.pdf](http://www.cv-foundation.org/openaccess/content_iccv_2013/papers/Wang_Action_Recognition_with_2013_ICCV_paper.pdf))
- Learning hierarchical invariant spatio-temporal features for action recognition with independent subspace analysis (2011), Q. Le et al. [pdf] ([http://robotics.stanford.edu/%7Ewzou/cvpr\\_LeZouYeungNg11.pdf](http://robotics.stanford.edu/%7Ewzou/cvpr_LeZouYeungNg11.pdf))



## Word Embedding

- Glove: Global vectors for word representation (2014), J. Pennington et al. [pdf] (<http://anthology.aclweb.org/D/D14/D14-1162.pdf>) :sparkles:
- Distributed representations of sentences and documents (2014), Q. Le and T. Mikolov [pdf] (<http://arxiv.org/pdf/1405.4053>) (*Google*) :sparkles:
- Distributed representations of words and phrases and their compositionality (2013), T. Mikolov et al. (*Google*) [pdf] (<http://papers.nips.cc/paper/5021-distributed-representations-of-words-and-phrases-and-their-compositionality.pdf>) :sparkles:
- Efficient estimation of word representations in vector space (2013), T. Mikolov et al. (*Google*) [pdf] (<http://arxiv.org/pdf/1301.3781>) :sparkles:
- Word representations: a simple and general method for semi-supervised learning (2010), J. Turian (*Bengio*) [pdf] (<http://www.anthology.aclweb.org/P/P10/P10-1040.pdf>)



## Machine Translation / QnA

- Towards ai-complete question answering: A set of prerequisite toy tasks (2015), J. Weston et al. [pdf] (<http://arxiv.org/pdf/1502.05698>)
- Neural machine translation by jointly learning to align and translate (2014), D. Bahdanau et al. (*Bengio*) [pdf] (<http://arxiv.org/pdf/1409.0473>) 
- Sequence to sequence learning with neural networks (2014), I. Sutskever et al. [pdf] (<http://papers.nips.cc/paper/5346-sequence-to-sequence-learning-with-neural-networks.pdf>) 
- Learning phrase representations using RNN encoder-decoder for statistical machine translation (2014), K. Cho et al. (*Bengio*) [pdf] (<http://arxiv.org/pdf/1406.1078>)
- A convolutional neural network for modelling sentences (2014), N. Kalchbrenner et al. [pdf] (<http://arxiv.org/pdf/1404.2188v1>)
- Convolutional neural networks for sentence classification (2014), Y. Kim [pdf] (<http://arxiv.org/pdf/1408.5882>)
- The stanford coreNLP natural language processing toolkit (2014), C. Manning et al. [pdf] (<http://www.surdeanu.info/mihai/papers/acl2014-corenlp.pdf>) 
- Recursive deep models for semantic compositionality over a sentiment treebank (2013), R. Socher et al. [pdf] (<http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.383.1327&rep=rep1&type=pdf>) 
- Natural language processing (almost) from scratch (2011), R. Collobert et al. [pdf] (<http://arxiv.org/pdf/1103.0398>) 
- Recurrent neural network based language model (2010), T. Mikolov et al. [pdf] ([http://www.fit.vutbr.cz/research/groups/speech/servite/2010/rnnlm\\_mikolov.pdf](http://www.fit.vutbr.cz/research/groups/speech/servite/2010/rnnlm_mikolov.pdf))


## Speech / Etc.

- Automatic speech recognition - A deep learning approach (Book, 2015), D. Yu and L. Deng (*Microsoft*) [html] (<http://www.springer.com/us/book/9781447157786>)
- Speech recognition with deep recurrent neural networks (2013), A. Graves (*Hinton*) [pdf] (<http://arxiv.org/pdf/1303.5778.pdf>)
- Deep neural networks for acoustic modeling in speech recognition: The shared views of four research groups (2012), G. Hinton et al. [pdf] ([http://www.cs.toronto.edu/%7Easamir/papers/SPM\\_DNN\\_12.pdf](http://www.cs.toronto.edu/%7Easamir/papers/SPM_DNN_12.pdf)) 
- Context-dependent pre-trained deep neural networks for large-vocabulary speech recognition (2012) G. Dahl et al. [pdf] (<http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.337.7548&rep=rep1&type=pdf>) 
- Acoustic modeling using deep belief networks (2012), A. Mohamed et al. (*Hinton*) [pdf] ([http://www.cs.toronto.edu/%7Easamir/papers/speechDBN\\_jrnl.pdf](http://www.cs.toronto.edu/%7Easamir/papers/speechDBN_jrnl.pdf))


## RL / Robotics

- Mastering the game of Go with deep neural networks and tree search (2016), D. Silver et al. (*DeepMind*) [pdf] (<http://terryum/awesome-deep-learning-papers/blob/master/Mastering%20the%20game%20of%20Go%20with%20deep%20neural%20networks%20and%20tree%20search>) 
- Human-level control through deep reinforcement learning (2015), V. Mnih et al. (*DeepMind*) [pdf] (<http://www.davidqu.com:8888/research/nature14236.pdf>) 
- Deep learning for detecting robotic grasps (2015), I. Lenz et al. [pdf] ([http://www.cs.cornell.edu/%7Easaxena/papers/lenz\\_lee\\_saxena\\_deep\\_learning\\_grasping\\_ijrr2014.pdf](http://www.cs.cornell.edu/%7Easaxena/papers/lenz_lee_saxena_deep_learning_grasping_ijrr2014.pdf))
- Playing atari with deep reinforcement learning (2013), V. Mnih et al. (*DeepMind*) [pdf] (<http://arxiv.org/pdf/1312.5602.pdf>)

## Unsupervised

- Generative adversarial nets (2014), I. Goodfellow et al. (*Bengio*) [pdf] (<http://papers.nips.cc/paper/5423-generative-adversarial-nets.pdf>)
- Auto-encoding variational Bayes (2013), D. Kingma and M. Welling [pdf] (<http://arxiv.org/pdf/1312.6114>)
- Building high-level features using large scale unsupervised learning (2013), Q. Le et al. [pdf] (<http://arxiv.org/pdf/1112.6209>) 
- An analysis of single-layer networks in unsupervised feature learning (2011), A. Coates et al. [pdf] ([http://machinelearning.wustl.edu/mlpapers/paper\\_files/AISTATS2011\\_CoatesNL11.pdf](http://machinelearning.wustl.edu/mlpapers/paper_files/AISTATS2011_CoatesNL11.pdf))
- Stacked denoising autoencoders: Learning useful representations in a deep network with a local denoising criterion (2010), P. Vincent et al. (*Bengio*) [pdf] (<http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.297.3484&rep=rep1&type=pdf>)
- A practical guide to training restricted boltzmann machines (2010), G. Hinton [pdf] (<http://www.csri.utoronto.ca/%7EHinton/absps/guideTR.pdf>)
- Stacked denoising autoencoders: Learning useful representations in a deep network with a local denoising criterion (2010), P. Vincent et al. (*Bengio*) [pdf] (<http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.297.3484&rep=rep1&type=pdf>)

## Hardware / Software

- TensorFlow: Large-scale machine learning on heterogeneous distributed systems (2016), M. Abadi et al. (*Google*) [pdf] (<http://arxiv.org/pdf/1603.04467>)
- Theano: A Python framework for fast computation of mathematical expressions, R. Al-Rfou et al. (*Bengio*)
- MatConvNet: Convolutional neural networks for matlab (2015), A. Vedaldi and K. Lenc [pdf] (<http://arxiv.org/pdf/1412.4564>)
- Caffe: Convolutional architecture for fast feature embedding (2014), Y. Jia et al. [pdf] (<http://arxiv.org/pdf/1408.5093>) 

## Papers Worth Reading

*Newly released papers which do not meet the criteria but worth reading*

- Identity Mappings in Deep Residual Networks (2016), K. He et al. (*Microsoft*) [pdf] (<https://arxiv.org/pdf/1603.05027v2.pdf>)
- Adversarially learned inference (2016), V. Dumoulin et al. [web] (<https://ishmaelbelghazi.github.io/ALI/>) [pdf] (<https://arxiv.org/pdf/1606.00704v1>)
- Understanding convolutional neural networks (2016), J. Koushik [pdf] (<https://arxiv.org/pdf/1605.09081v1>)
- SqueezeNet: AlexNet-level accuracy with 50x fewer parameters and < 1MB model size (2016), F. Iandola et al. [pdf] (<http://arxiv.org/pdf/1602.07360>)
- Learning to compose neural networks for question answering (2016), J. Andreas et al. [pdf] (<http://arxiv.org/pdf/1601.01705>)
- Learning hand-eye coordination for robotic grasping with deep learning and large-scale data collection (2016) (*Google*), S. Levine et al. [pdf] (<http://arxiv.org/pdf/1603.02199v3>)
- Taking the human out of the loop: A review of bayesian optimization (2016), B. Shahriari et al. [pdf] (<https://www.cs.ox.ac.uk/people/nando.defreitas/publications/BayesOptLoop.pdf>)
- Eie: Efficient inference engine on compressed deep neural network (2016), S. Han et al. [pdf] (<http://arxiv.org/pdf/1602.01528>)
- Adaptive Computation Time for Recurrent Neural Networks (2016), A. Graves [pdf] (<http://arxiv.org/pdf/1603.08983>)
- Pixel recurrent neural networks (2016), A. van den Oord et al. (*DeepMind*) [pdf] (<http://arxiv.org/pdf/1601.06759v2.pdf>)
- LSTM: A search space odyssey (2015), K. Greff et al. [pdf] (<http://arxiv.org/pdf/1503.04069>)
- Training very deep networks (2015), R. Srivastava et al. [pdf] (<http://papers.nips.cc/paper/5850-training-very-deep-networks.pdf>)


## Classic Papers

*Classic papers (1997~2009) which cause the advent of deep learning era*

- Learning deep architectures for AI (2009), Y. Bengio. [pdf] (<http://sanhv.com/download/soft/machine%20learning,%20artificial%20intelligence,%20mathematics%20ebooks/ML/learning%20deep%20architectures%20for%20/>)

- Convolutional deep belief networks for scalable unsupervised learning of hierarchical representations (2009), H. Lee et al. [pdf] (<http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.149.802&rep=rep1&type=pdf>)
- Greedy layer-wise training of deep networks (2007), Y. Bengio et al. [pdf] ([http://machinelearning.wustl.edu/mlpapers/paper\\_files/NIPS2006\\_739.pdf](http://machinelearning.wustl.edu/mlpapers/paper_files/NIPS2006_739.pdf))
- Reducing the dimensionality of data with neural networks, G. Hinton and R. Salakhutdinov. [pdf] (<http://homes.mpi-inf-heidelberg.mpg.de/~7Emhelmsta/pdf/2006%20Hinton%20Salakhutdinov%20Science.pdf>)
- A fast learning algorithm for deep belief nets (2006), G. Hinton et al. [pdf] (<http://nuyoo.utm.mx/%7Ejjf/rna/A8%20A%20fast%20learning%20algorithm%20for%20deep%20belief%20nets.pdf>)
- Gradient-based learning applied to document recognition (1998), Y. LeCun et al. [pdf] (<http://yann.lecun.com/exdb/publis/pdf/lecun-01a.pdf>)
- Long short-term memory (1997), S. Hochreiter and J. Schmidhuber. [pdf] (<http://www.mitpressjournals.org/doi/pdfplus/10.1162/neco.1997.9.8.1735>)

## Distinguished Researchers

*Distinguished deep learning researchers who have published +3 : +6) papers which are on the awesome list* (The papers in *Hardware / Software, Papers Worth Reading, Classic Papers* sections are excluded in counting.)

- Jian Sun (<https://scholar.google.ca/citations?user=ALVSZAYAAAAJ>), *Microsoft Research* 
- Geoffrey Hinton (<https://scholar.google.ca/citations?user=JicYPdAAAAAJ>), *Google, University of Toronto* 
- Quoc Le (<https://scholar.google.ca/citations?user=vfT6-XIAAAAAJ>), *Google* 
- Yann LeCun (<https://scholar.google.ca/citations?user=WLN3QrAAAAAJ>), *Facebook, New York University* 
- Yoshua Bengio (<https://scholar.google.ca/citations?user=kukA0LcAAAAAJ>), *University of Montreal* 
- Aaron Courville (<https://scholar.google.ca/citations?user=km6CP8cAAAAAJ>), *University of Montreal*
- Alex Graves (<https://scholar.google.ca/citations?user=DaFHynwAAAAAJ>), *Google DeepMind*
- Andrej Karpathy (<https://scholar.google.ca/citations?hl=en&user=l8WuQJgAAAAAJ>), *OpenAI*
- Andrew Ng (<https://scholar.google.ca/citations?user=JgDKULMAAAAAAJ>), *Baidu*
- Andrew Zisserman (<https://scholar.google.ca/citations?user=UZ5wscMAAAAAAJ>), *University of Oxford*
- Christopher Manning (<https://scholar.google.ca/citations?hl=en&user=1zmD0dwAAAAAJ>), *Stanford University*
- David Silver (<https://scholar.google.ca/citations?user=-8DNE4UAAAAAJ>), *Google DeepMind*
- Dong Yu ([https://scholar.google.ca/citations?hl=en&user=tMY31\\_gAAAAAJ](https://scholar.google.ca/citations?hl=en&user=tMY31_gAAAAAJ)), *Microsoft Research*
- Ross Girshick (<https://scholar.google.ca/citations?user=W8VIEZgAAAAAJ>), *Facebook*
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- Ilya Sutskever ([https://scholar.google.ca/citations?user=x04W\\_mMAAAAAAJ](https://scholar.google.ca/citations?user=x04W_mMAAAAAAJ)), *OpenAI*
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- Li Fei-Fei (<https://scholar.google.ca/citations?hl=en&user=rDfyQnIAAAAAAJ>), *Stanford University*
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- Ruslan Salakhutdinov (<https://scholar.google.ca/citations?user=ITZ1e7MAAAAAAJ>), *CMU*
- Tomas Mikolov (<https://scholar.google.ca/citations?hl=en&user=oBu8kMMAAAAAAJ>), *Facebook*
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Thank you for all your contributions. Please make sure to read the contributing guide (<https://github.com/terryum/awesome-deep-learning-papers/blob/master/Contributing.md>) before you make a pull request.

You can follow my facebook page (<https://www.facebook.com/terryum.io/>) or google plus (<https://plus.google.com/+TerryTaeWoongUm/>) to get useful information about machine learning and robotics. If you want to have a talk with me, please send me a message to my facebook page (<https://www.facebook.com/terryum.io/>).

You can also check out my blog (<http://terryum.io/>) where I share my thoughts on my research area (deep learning for human/robot motions). I got some thoughts while making this list and summerized them in a blog post, "Some trends of recent deep learning researches" ([http://terryum.io/ml\\_theory/2016/06/05/DeepLearningPapers/](http://terryum.io/ml_theory/2016/06/05/DeepLearningPapers/)).

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