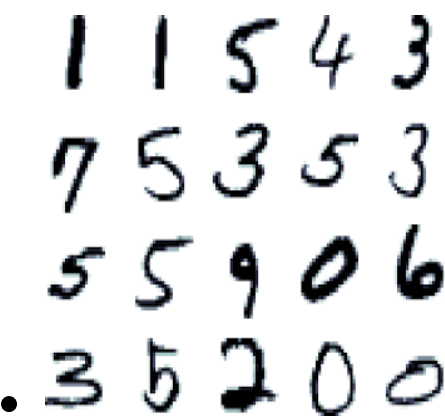**Classification datasets results**

What is the class of this image ?

Discover the current state of the art in objects classification.

- [MNIST](#)
- [CIFAR-10](#)
- [CIFAR-100](#)
- [STL-10](#)
- [SVHN](#)
- [ILSVRC2012 task 1](#)

MNIST

who is the best in MNIST ?

[MNIST](#) **50 results collected**

Units: error %

Classify handwriten digits. Some additional results are available on the [original dataset page](#).

Result	Method	Venue	Details
0.21%	[Regularization of Neural Networks using DropConnect](#)	ICML 2013	
0.23%	[Multi-column Deep Neural Networks for Image Classification](#)	CVPR 2012	
0.23%	[APAC: Augmented PAttern Classification with Neural Networks](#)	arXiv 2015	
0.24%	[Batch-normalized Maxout Network in Network](#)	arXiv 2015	Details
0.29%	[Generalizing Pooling Functions in Convolutional Neural Networks: Mixed, Gated, and Tree](#)	AISTATS 2016	Details
0.31%	[Recurrent Convolutional Neural Network for Object Recognition](#)	CVPR 2015	
0.31%	[On the Importance of Normalisation Layers in Deep Learning with Piecewise Linear Activation Units](#)	arXiv 2015	

0.31%	with Piecewise Linear Activation Units	arXiv 2015	
0.32%	Fractional Max-Pooling	arXiv 2015	Details
0.33%	Competitive Multi-scale Convolution	arXiv 2015	
0.35%	Deep Big Simple Neural Nets Excel on Handwritten Digit Recognition	Neural Computation 2010	Details
0.35%	C-SVDDNet: An Effective Single-Layer Network for Unsupervised Feature Learning	arXiv 2014	
0.37%	Enhanced Image Classification With a Fast-Learning Shallow Convolutional Neural Network	arXiv 2015	Details
0.39%	Efficient Learning of Sparse Representations with an Energy-Based Model	NIPS 2006	Details
0.39%	Convolutional Kernel Networks	arXiv 2014	Details
0.39%	Deeply-Supervised Nets	arXiv 2014	
0.4%	Best Practices for Convolutional Neural Networks Applied to Visual Document Analysis	Document Analysis and Recognition 2003	
0.40%	Hybrid Orthogonal Projection and Estimation (HOPE): A New Framework to Probe and Learn Neural Networks	arXiv 2015	
0.42%	Multi-Loss Regularized Deep Neural Network	CSVT 2015	Details
0.45%	Maxout Networks	ICML 2013	Details
0.45%	Training Very Deep Networks	NIPS 2015	Details
0.45%	ReNet: A Recurrent Neural Network Based Alternative to Convolutional Networks	arXiv 2015	
0.46%	Deep Convolutional Neural Networks as Generic Feature Extractors	IJCNN 2015	Details
0.47%	Network in Network	ICLR 2014	Details
0.52 %	Trainable COSFIRE filters for keypoint detection and pattern recognition	PAMI 2013	Details
0.53%	What is the Best Multi-Stage Architecture for Object Recognition?	ICCV 2009	Details
0.54%	Deformation Models for Image Recognition	PAMI 2007	Details
0.54%	A trainable feature extractor for handwritten digit recognition	Journal Pattern Recognition 2007	Details
0.56%	Training Invariant Support Vector Machines	Machine Learning 2002	Details
0.59%	Simple Methods for High-Performance Digit Recognition Based on Sparse Coding	TNN 2008	Details
0.62%	Unsupervised learning of invariant feature hierarchies with applications to object recognition	CVPR 2007	Details
0.62%	PCANet: A Simple Deep Learning Baseline for Image Classification?	arXiv 2014	Details
0.63%	Shape matching and object recognition using shape contexts	PAMI 2002	Details
0.64%	Beyond Spatial Pyramids: Receptive Field Learning for Pooled Image Features	CVPR 2012	
0.68%	Handwritten Digit Recognition using Convolutional Neural Networks and Gabor Filters	ICCI 2003	
0.69%	On Optimization Methods for Deep Learning	ICML 2011	
0.71%	Deep Fried Convnets	ICCV 2015	Details
0.75%	Sparse Activity and Sparse Connectivity in Supervised Learning	JMLR 2013	

0.78%	[Explaining and Harnessing Adversarial Examples](#)	ICLR 2015	Details
0.82%	Convolutional Deep Belief Networks for Scalable Unsupervised Learning of Hierarchical Representations	ICML 2009	
0.84%	[Supervised Translation-Invariant Sparse Coding](#)	CVPR 2010	Details
0.94%	Large-Margin kNN Classification using a Deep Encoder Network	2009	
0.95%	[Deep Boltzmann Machines](#)	AISTATS 2009	
1.01%	[BinaryConnect: Training Deep Neural Networks with binary weights during propagations](#)	NIPS 2015	Details
1.1%	[StrongNet: mostly unsupervised image recognition with strong neurons](#)	technical report on ALGLIB website 2014	Details
1.12%	CS81: Learning words with Deep Belief Networks	2008	
1.19%	Convolutional Neural Networks	2003	Details
1.2%	Reducing the dimensionality of data with neural networks	2006	
1.40%	[Convolutional Clustering for Unsupervised Learning](#)	arXiv 2015	Details
1.5%	Deep learning via semi-supervised embedding	2008	
14.53%	[Deep Representation Learning with Target Coding](#)	AAAI 2015	

Something is off, something is missing ? Feel free to [fill in the form](#).

CIFAR-10

who is the best in CIFAR-10 ?

[**CIFAR-10**](#) **49 results collected**

Units: accuracy %

Classify [32x32 colour images](#).

Result	Method	Venue	Details
96.53%	[Fractional Max-Pooling](#)	arXiv 2015	Details
95.59%	[Striving for Simplicity: The All Convolutional Net](#)	ICLR 2015	Details
94.16%	[All you need is a good init](#)	ICLR 2016	Details
94%	[Lessons learned from manually classifying CIFAR-10](#)	unpublished 2011	Details
93.95%	[Generalizing Pooling Functions in Convolutional Neural Networks: Mixed, Gated, and Tree](#)	AISTATS 2016	Details
93.72%	[Spatially-sparse convolutional neural networks](#)	arXiv 2014	
93.63%	[Scalable Bayesian Optimization Using Deep Neural Networks](#)	ICML 2015	

93.65%	Scalable Bayesian Optimization Using Deep Neural Networks	ICML 2015	
93.57%	Deep Residual Learning for Image Recognition	arXiv 2015	Details
93.45%	Fast and Accurate Deep Network Learning by Exponential Linear Units	arXiv 2015	Details
93.34%	Universum Prescription: Regularization using Unlabeled Data	arXiv 2015	
93.25%	Batch-normalized Maxout Network in Network	arXiv 2015	Details
93.13%	Competitive Multi-scale Convolution	arXiv 2015	
92.91%	Recurrent Convolutional Neural Network for Object Recognition	CVPR 2015	Details
92.49%	Learning Activation Functions to Improve Deep Neural Networks	ICLR 2015	Details
92.45%	cifar.torch	unpublished 2015	Details
92.40%	Training Very Deep Networks	NIPS 2015	Details
92.23%	Stacked What-Where Auto-encoders	arXiv 2015	
91.88%	Multi-Loss Regularized Deep Neural Network	CSVT 2015	Details
91.78%	Deeply-Supervised Nets	arXiv 2014	Details
91.73%	BinaryConnect: Training Deep Neural Networks with binary weights during propagations	NIPS 2015	Details
91.48%	On the Importance of Normalisation Layers in Deep Learning with Piecewise Linear Activation Units	arXiv 2015	
91.40%	Spectral Representations for Convolutional Neural Networks	NIPS 2015	
91.2%	Network In Network	ICLR 2014	Details
91.19%	Speeding up Automatic Hyperparameter Optimization of Deep Neural Networks by Extrapolation of Learning Curves	IJCAI 2015	Details
90.78%	Deep Networks with Internal Selective Attention through Feedback Connections	NIPS 2014	Details
90.68%	Regularization of Neural Networks using DropConnect	ICML 2013	
90.65%	Maxout Networks	ICML 2013	Details
90.61%	Improving Deep Neural Networks with Probabilistic Maxout Units	ICLR 2014	Details
90.5%	Practical Bayesian Optimization of Machine Learning Algorithms	NIPS 2012	Details
89.67%	APAC: Augmented PAttern Classification with Neural Networks	arXiv 2015	
89.14%	Deep Convolutional Neural Networks as Generic Feature Extractors	IJCNN 2015	Details
89%	ImageNet Classification with Deep Convolutional Neural Networks	NIPS 2012	Details
88.80%	Empirical Evaluation of Rectified Activations in Convolution Network	ICML workshop 2015	Details
88.79%	Multi-Column Deep Neural Networks for Image Classification	CVPR 2012	Details
87.65%	ReNet: A Recurrent Neural Network Based Alternative to Convolutional Networks	arXiv 2015	
86.70%	An Analysis of Unsupervised Pre-training in Light of Recent Advances	ICLR 2015	Details
84.87%	Stochastic Pooling for Regularization of Deep Convolutional Neural Networks	arXiv 2013	
84.4%	Improving neural networks by preventing co-adaptation of feature detectors	arXiv 2012	Details
83.96%	Discriminative Learning of Sum-Product Networks	NIPS 2012	
82.9%	Stable and Efficient Representation Learning with Nonnegativity Constraints	ICML 2014	Details
82.2%	Learning Invariant Representations with Local Transformations	ICML 2012	Details

82.2%	Learning Invariant Representations with Local Transformations	ICML 2012	Details
82.18%	Convolutional Kernel Networks	arXiv 2014	Details
82%	Discriminative Unsupervised Feature Learning with Convolutional Neural Networks	NIPS 2014	Details
80.02%	Learning Smooth Pooling Regions for Visual Recognition	BMVC 2013	
80%	Object Recognition with Hierarchical Kernel Descriptors	CVPR 2011	
79.7%	Learning with Recursive Perceptual Representations	NIPS 2012	Details
79.6 %	An Analysis of Single-Layer Networks in Unsupervised Feature Learning	AISTATS 2011	Details
78.67%	PCANet: A Simple Deep Learning Baseline for Image Classification?	arXiv 2014	Details
75.86%	Enhanced Image Classification With a Fast-Learning Shallow Convolutional Neural Network	arXiv 2015	Details

Something is off, something is missing ? Feel free to **fill in the form**.

CIFAR-100

who is the best in CIFAR-100 ?

CIFAR-100 **31 results collected**
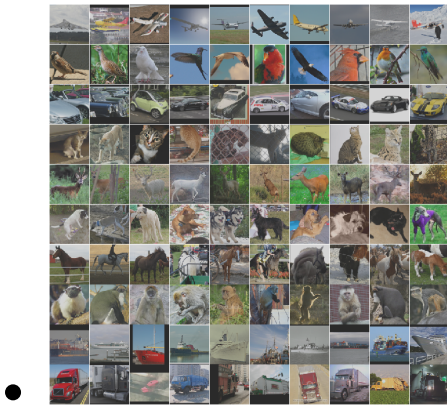
Units: accuracy %

Classify 32x32 colour images.

Result	Method	Venue	Details
75.72%	Fast and Accurate Deep Network Learning by Exponential Linear Units	arXiv 2015	Details
75.7%	Spatially-sparse convolutional neural networks	arXiv 2014	
73.61%	Fractional Max-Pooling	arXiv 2015	Details
72.60%	Scalable Bayesian Optimization Using Deep Neural Networks	ICML 2015	
72.44%	Competitive Multi-scale Convolution	arXiv 2015	
72.34%	All you need is a good init	ICLR 2015	Details
71.14%	Batch-normalized Maxout Network in Network	arXiv 2015	Details
70.80%	On the Importance of Normalisation Layers in Deep Learning with Piecewise Linear Activation Units	arXiv 2015	
69.17%	Learning Activation Functions to Improve Deep Neural Networks	ICLR 2015	Details
69.12%	Stacked What-Where Auto-encoders	arXiv 2015	
68.53%	Multi-Loss Regularized Deep Neural Network	CSVT 2015	Details
68.40%	Spectral Representations for Convolutional Neural Networks	NIPS 2015	
68.25%	Recurrent Convolutional Neural Network for Object Recognition	CVPR 2015	
67.76%	Training Very Deep Networks	NIPS 2015	Details

67.68%	[Deep Convolutional Neural Networks as Generic Feature Extractors](#)	IJCNN 2015	Details
67.63%	[Generalizing Pooling Functions in Convolutional Neural Networks: Mixed, Gated, and Tree](#)	AISTATS 2016	Details
67.38%	[HD-CNN: Hierarchical Deep Convolutional Neural Network for Large Scale Visual Recognition](#)	ICCV 2015	
67.16%	[Universum Prescription: Regularization using Unlabeled Data](#)	arXiv 2015	
66.29%	[Striving for Simplicity: The All Convolutional Net](#)	ICLR 2014	
66.22%	[Deep Networks with Internal Selective Attention through Feedback Connections](#)	NIPS 2014	
65.43%	[Deeply-Supervised Nets](#)	arXiv 2014	Details
64.77%	[Deep Representation Learning with Target Coding](#)	AAAI 2015	
64.32%	[Network in Network](#)	ICLR 2014	Details
63.15%	[Discriminative Transfer Learning with Tree-based Priors](#)	NIPS 2013	Details
61.86%	[Improving Deep Neural Networks with Probabilistic Maxout Units](#)	ICLR 2014	
61.43%	[Maxout Networks](#)	ICML 2013	Details
60.8%	[Stable and Efficient Representation Learning with Nonnegativity Constraints](#)	ICML 2014	Details
59.75%	[Empirical Evaluation of Rectified Activations in Convolution Network](#)	ICML workshop 2015	Details
57.49%	[Stochastic Pooling for Regularization of Deep Convolutional Neural Networks](#)	arXiv 2013	
56.29%	[Learning Smooth Pooling Regions for Visual Recognition](#)	BMVC 2013	Details
54.23%	[Beyond Spatial Pyramids: Receptive Field Learning for Pooled Image Features](#)	CVPR 2012	

Something is off, something is missing ? Feel free to *[fill in the form](#)*.

STL-10

who is the best in STL-10 ?

[STL-10](#) **18 results collected**

Units: accuracy %

Similar to CIFAR-10 but with 96x96 images. [Original dataset website](#).

Result	Method	Venue	Details
74.33%	[Stacked What-Where Auto-encoders](#)	arXiv 2015	
74.10%	[Convolutional Clustering for Unsupervised Learning](#)	arXiv 2015	Details

74.10%	Convolutional Clustering for Unsupervised Learning	arXiv 2015	Details
73.15%	Deep Representation Learning with Target Coding	AAAI 2015	
72.8% (±0.4%)	Discriminative Unsupervised Feature Learning with Convolutional Neural Networks	NIPS 2014	Details
70.20 % (±0.7 %)	An Analysis of Unsupervised Pre-training in Light of Recent Advances	ICLR 2015	Details
70.1% (±0.6%)	Multi-Task Bayesian Optimization	NIPS 2013	Details
68.23% ± 0.5	C-SVDDNet: An Effective Single-Layer Network for Unsupervised Feature Learning	arXiv 2014	
68% (±0.55%)	Committees of deep feedforward networks trained with few data	arXiv 2014	
67.9% (±0.6%)	Stable and Efficient Representation Learning with Nonnegativity Constraints	ICML 2014	Details
64.5% (±1%)	Unsupervised Feature Learning for RGB-D Based Object Recognition	ISER 2012	Details
62.32%	Convolutional Kernel Networks	arXiv 2014	Details
62.3% (±1%)	Discriminative Learning of Sum-Product Networks	NIPS 2012	
61.0% (±0.58%)	No more meta-parameter tuning in unsupervised sparse feature learning	arXiv 2014	
61%	Deep Learning of Invariant Features via Simulated Fixations in Video	NIPS 2012 2012	
60.1% (±1%)	Selecting Receptive Fields in Deep Networks	NIPS 2011	
58.7%	Learning Invariant Representations with Local Transformations	ICML 2012	
58.28%	Pooling-Invariant Image Feature Learning	arXiv 2012	Details
56.5%	Deep Learning of Invariant Features via Simulated Fixations in Video	NIPS 2012	Details

Something is off, something is missing ? Feel free to **fill in the form**.

SVHN

who is the best in SVHN ?

SVHN **17 results collected**

Units: error %

> The Street View House Numbers (SVHN) Dataset.
>
> SVHN is a real-world image dataset for developing machine learning and object recognition algorithms with minimal requirement on data preprocessing and formatting. It can be seen as

similar in flavor to MNIST(e.g., the images are of small cropped digits), but incorporates an order of magnitude more labeled data (over 600,000 digit images) and comes from a significantly harder, unsolved, real world problem (recognizing digits and numbers in natural scene images). SVHN is obtained from house numbers in Google Street View images.

Result	Method	Venue	Details
1.69%	[Generalizing Pooling Functions in Convolutional Neural Networks: Mixed, Gated, and Tree](#)	AISTATS 2016	Details
1.76%	[Competitive Multi-scale Convolution](#)	arXiv 2015	
1.77%	[Recurrent Convolutional Neural Network for Object Recognition](#)	CVPR 2015	Details
1.81%	[Batch-normalized Maxout Network in Network](#)	arXiv 2015	Details
1.92%	[Deeply-Supervised Nets](#)	arXiv 2014	
1.92%	[Multi-Loss Regularized Deep Neural Network](#)	CSVT 2015	Details
1.94%	[Regularization of Neural Networks using DropConnect](#)	ICML 2013	
1.97%	[On the Importance of Normalisation Layers in Deep Learning with Piecewise Linear Activation Units](#)	arXiv 2015	
2%	[Estimated human performance](#)	NIPS 2011	Details
2.15%	[BinaryConnect: Training Deep Neural Networks with binary weights during propagations](#)	NIPS 2015	
2.16%	[Multi-digit Number Recognition from Street View Imagery using Deep Convolutional Neural Networks](#)	ICLR 2014	Details
2.35%	[Network in Network](#)	ICLR 2014	Details
2.38%	[ReNet: A Recurrent Neural Network Based Alternative to Convolutional Networks](#)	arXiv 2015	
2.47%	[Maxout Networks](#)	ICML 2013	Details
2.8%	[Stochastic Pooling for Regularization of Deep Convolutional Neural Networks](#)	arXiv 2013	Details
3.96%	[Enhanced Image Classification With a Fast-Learning Shallow Convolutional Neural Network](#)	arXiv 2015	Details
4.9%	[Convolutional neural networks applied to house numbers digit classification](#)	ICPR 2012	Details

Something is off, something is missing ? Feel free to [fill in the form](#).

ILSVRC2012 task 1

who is the best in ILSVRC2012 task 1 ?

-

ILSVRC2012 task 1

Units: Error (5 guesses)

1000 categories [classification challenge](). With tens of thousands of training, validation and testing images.

See this interesting [comparative analysis]().

Results are collected in the following [external webpage]()

Last updated on 2016-02-22.

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Built using [middleman]() and [bootstrap]().