

Deep Learning

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ВМК, осень 2016

ImageNet (image-net.org)

Soccer, association football

A football game in which two teams of 11 players try to kick or head a ball into the opponents' goal

1395
pictures

90.76%
Popularity
Percentile



Numbers in brackets: (the number of synsets in the subtree).

- ImageNet 2011 Fall Release (32326)
 - plant, flora, plant life (4486)
 - geological formation, formation (1)
 - natural object (1112)
 - sport, athletics (176)
 - rowing, row (2)
 - funambulism, tightrope walking
 - judo (0)
 - blood sport (10)
 - gymnastics, gymnastic exercise
 - water sport, aquatics (19)
 - track and field (5)
 - outdoor sport, field sport (17)
 - contact sport (18)
 - boxing, pugilism, fisticuffs (
 - wrestling, rassling, grapplir
 - ice hockey, hockey, hockey
 - football, football game (5)
 - rugby, rugby football, rug
 - professional football (0)
 - American football, Amer
 - soccer, association foot
 - team sport (0)
 - racing (7)
 - athletic game (70)
 - riding, horseback riding, equite
 - archery (0)
 - cycling (3)
 - sledding (3)
 - skating (6)

Treemap Visualization

Images of the Synset

Downloads

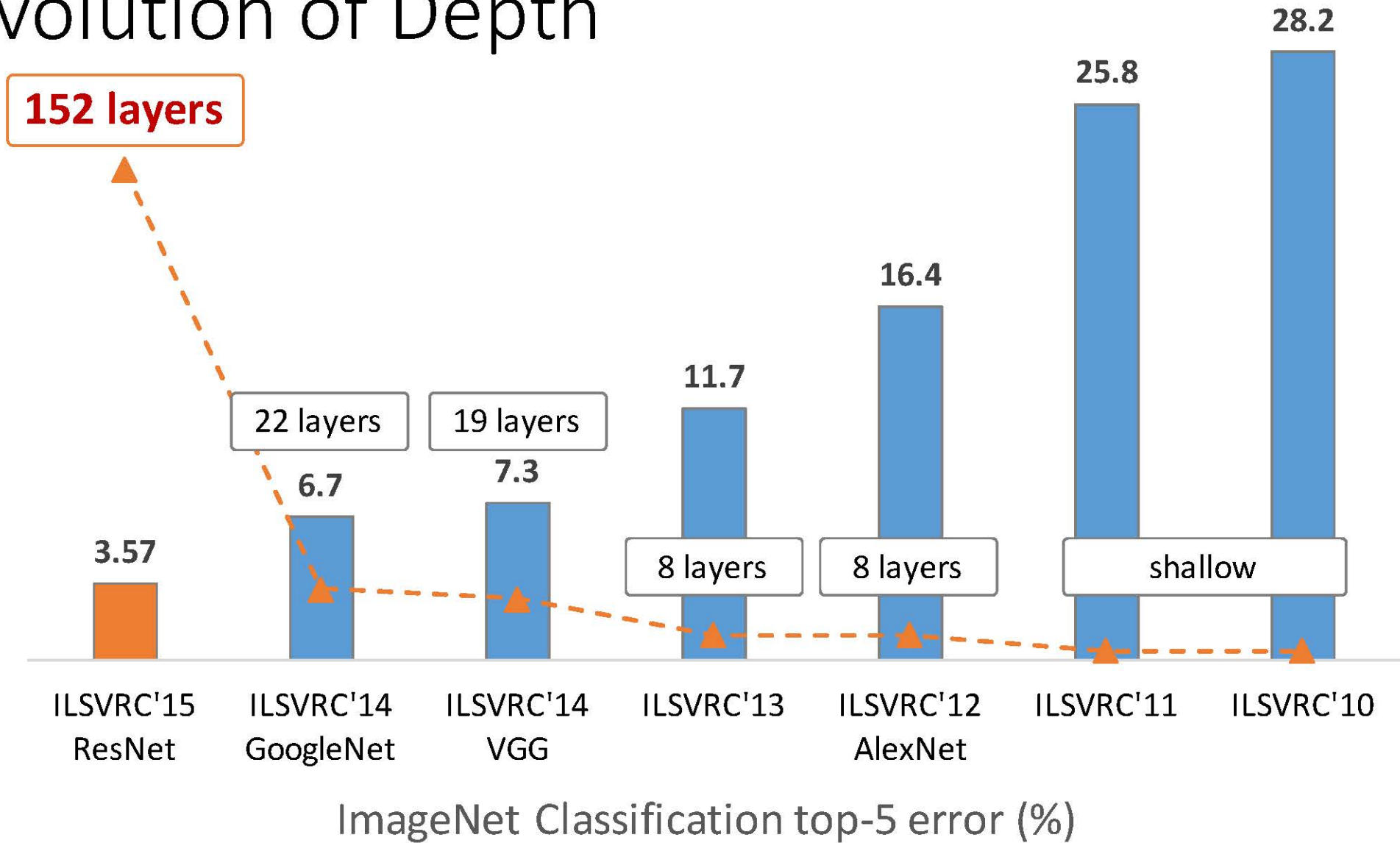


⁴Images of children synsets are not included. All images shown are thumbnails. Images may be subject to copyright.

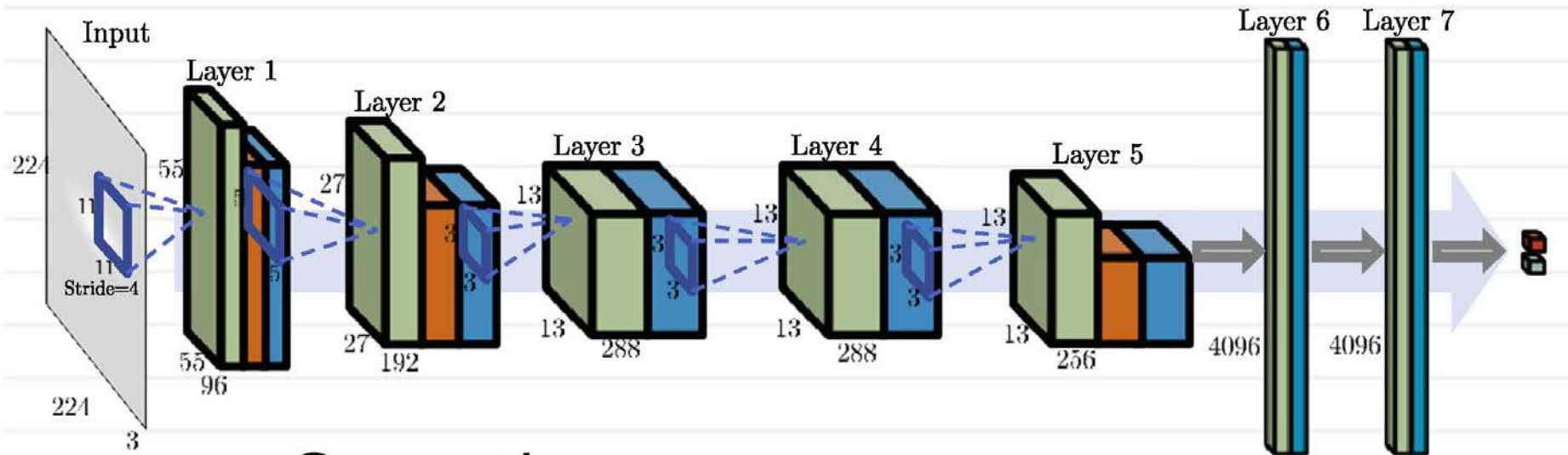
Prev 1 2 3 4 5 6 7 8 9 10 ... 39 40 Next

14,197,122 изображений
21841 категорий

Revolution of Depth



AlexNet: свёрточная нейронная сеть



Operations:

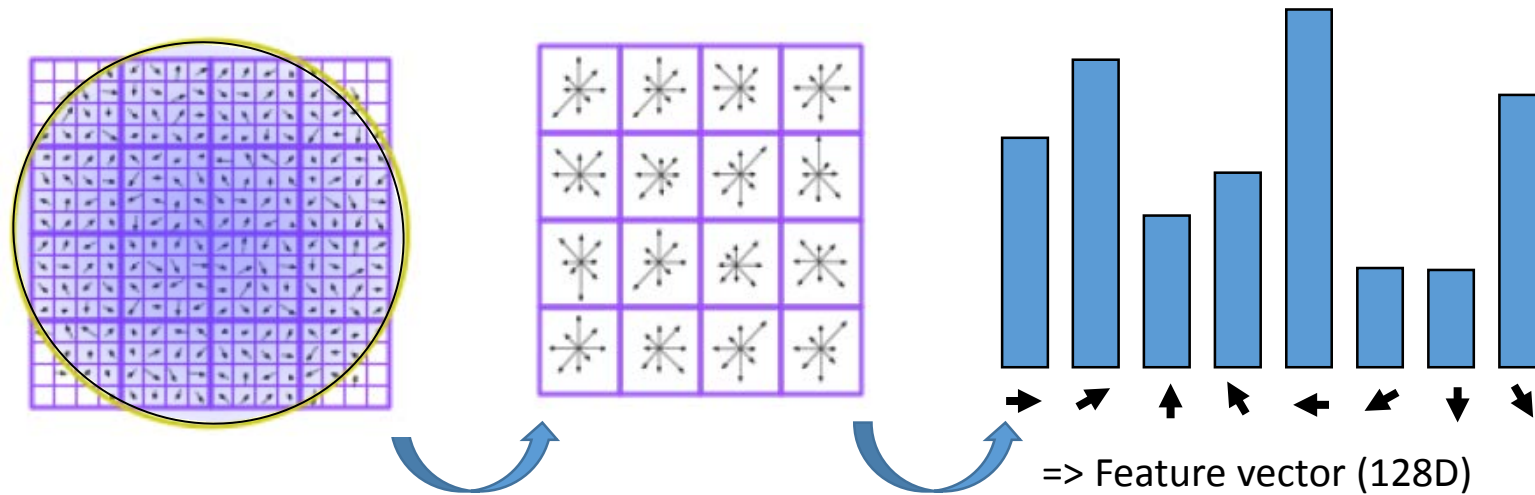
generalized convolutions

pooling (image resizing)

elementwise non-linearity

matrix multiplication

12 лет назад: дескриптор SIFT

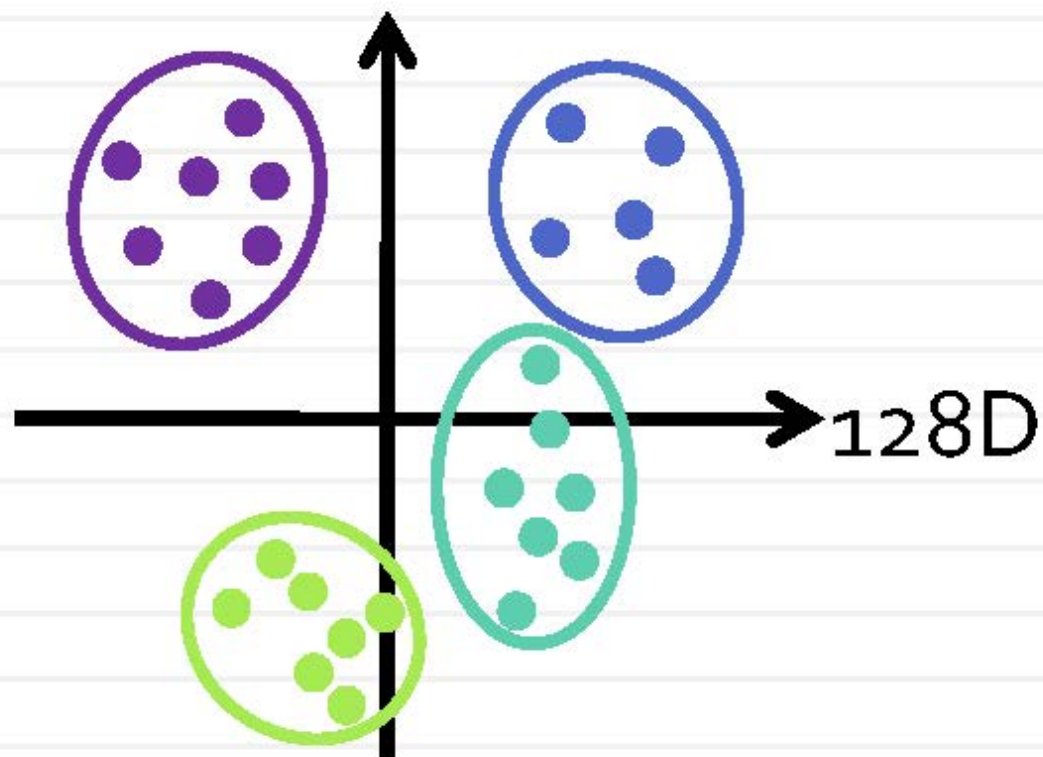


D. Lowe. Distinctive Image Features from Scale-invariant Keypoints, 2004.

12 лет назад: визуальные слова

VideoGoogle

Sivic & Zisserman, ICCV 2003



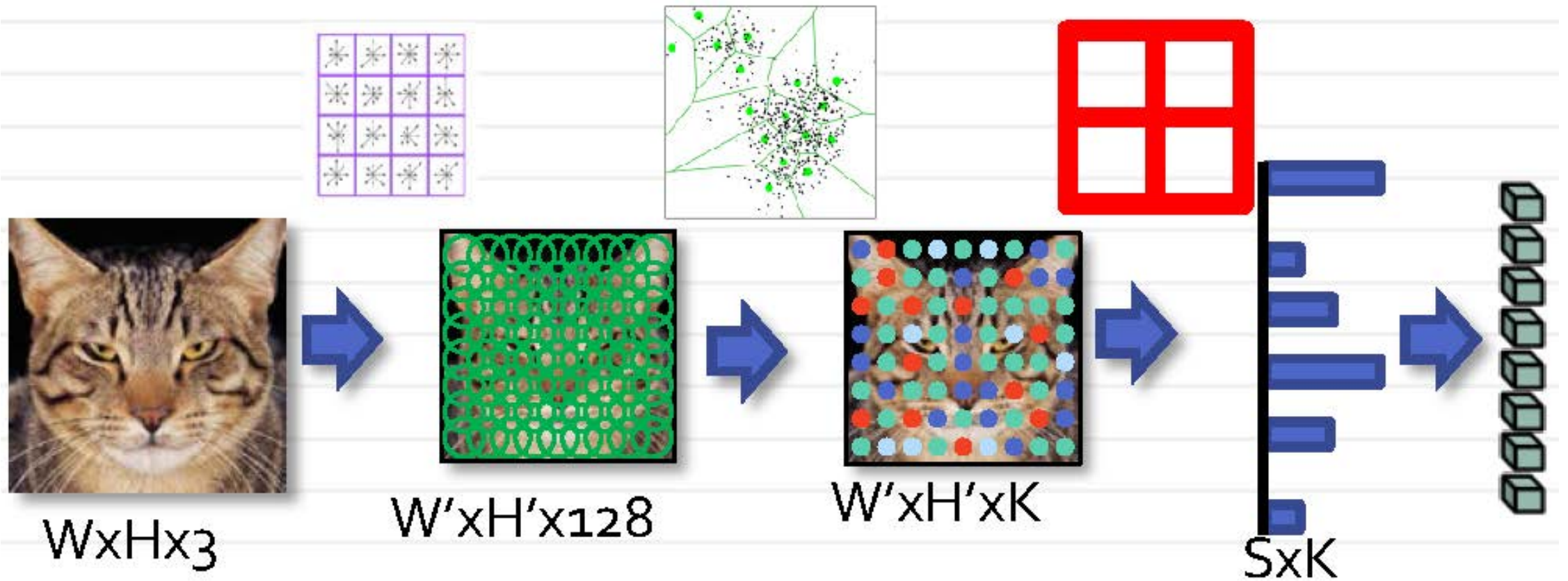
12 лет назад: визуальные слова

VideoGoogle

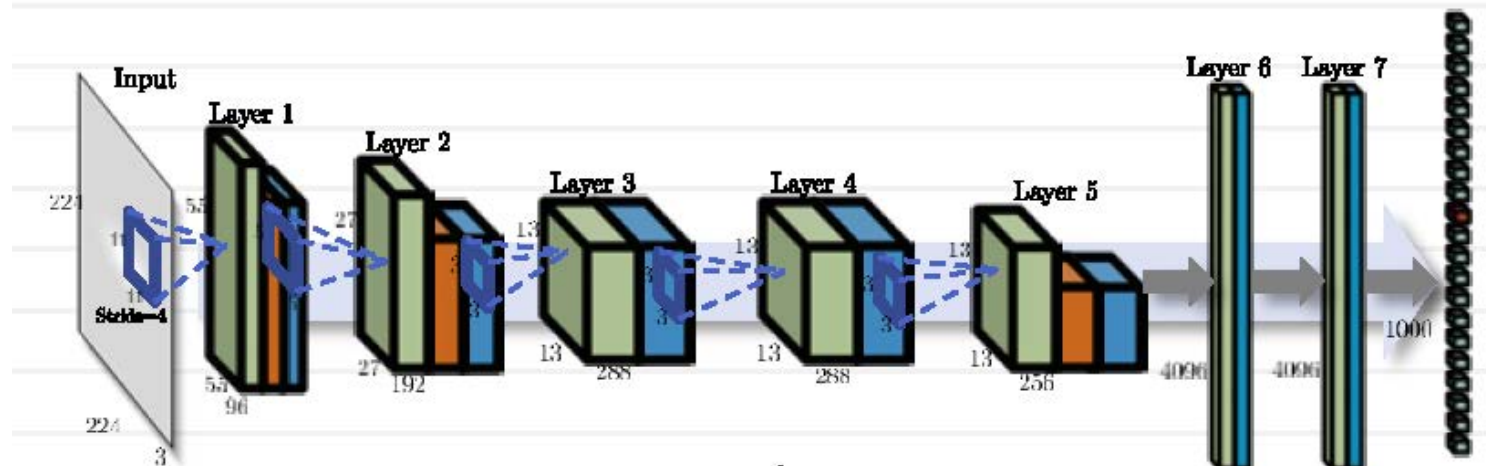
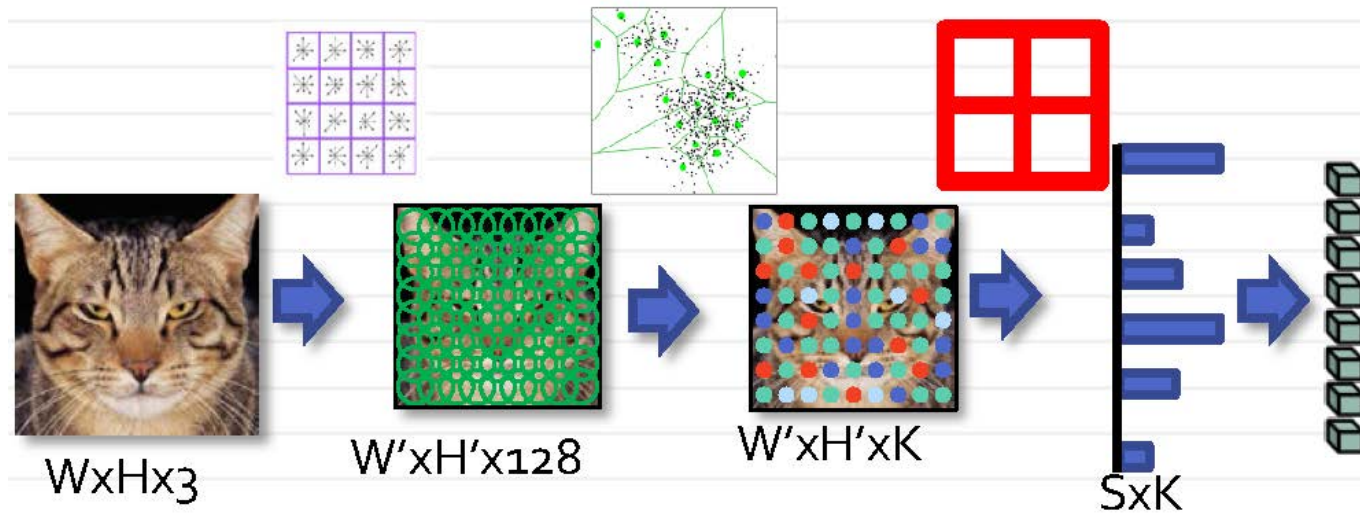
Sivic & Zisserman, ICCV 2003



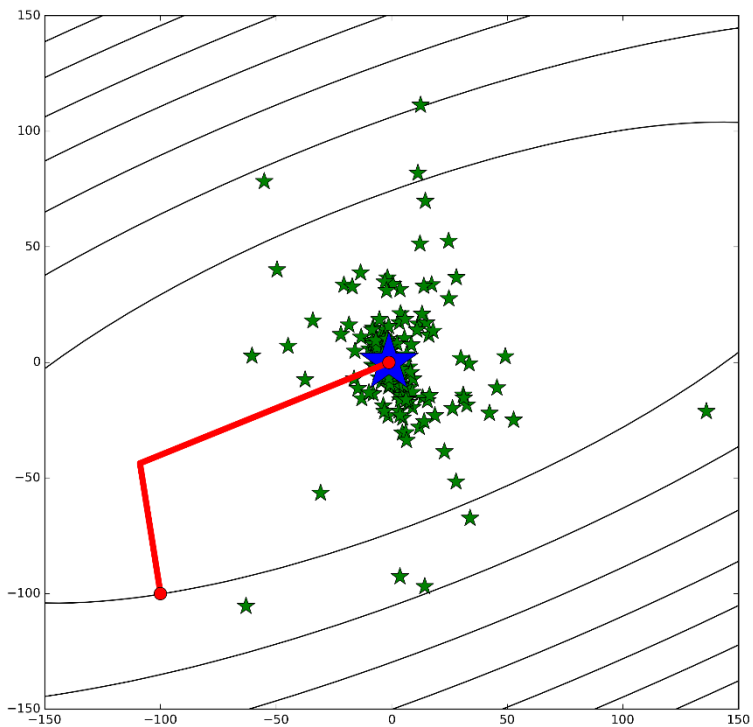
12 лет назад: SIFT + мешок визуальных слов + классификатор



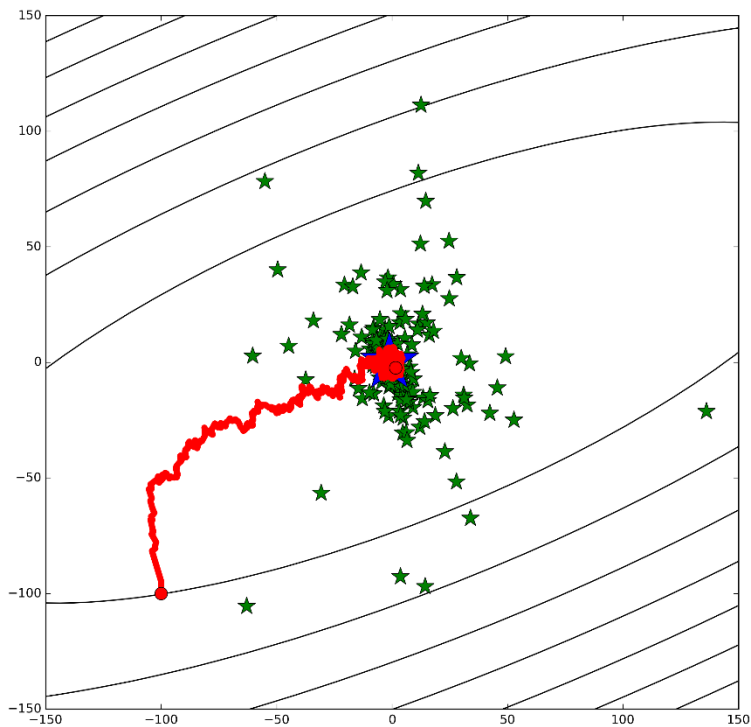
CNN vs. SIFT+мешок слов+классификатор



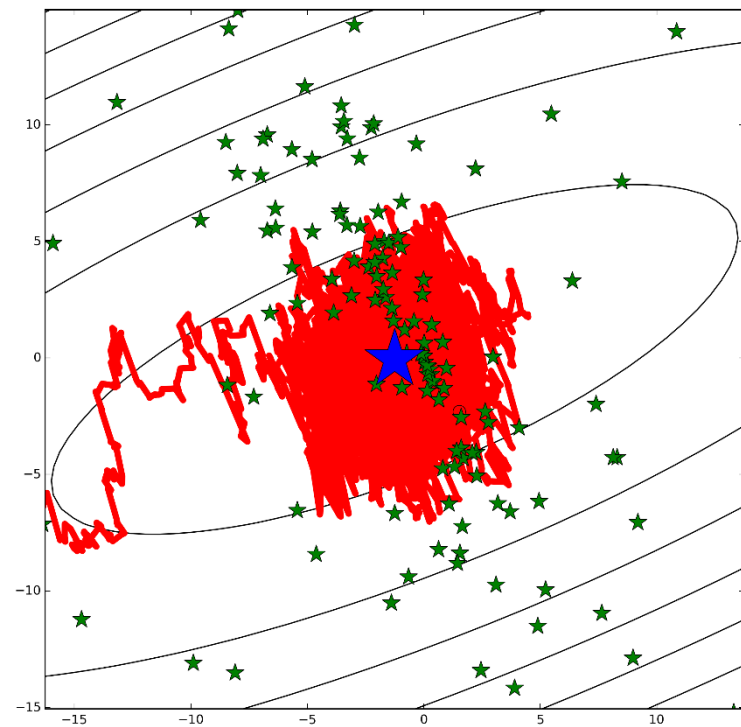
GD vs. SGD



Град. спуск

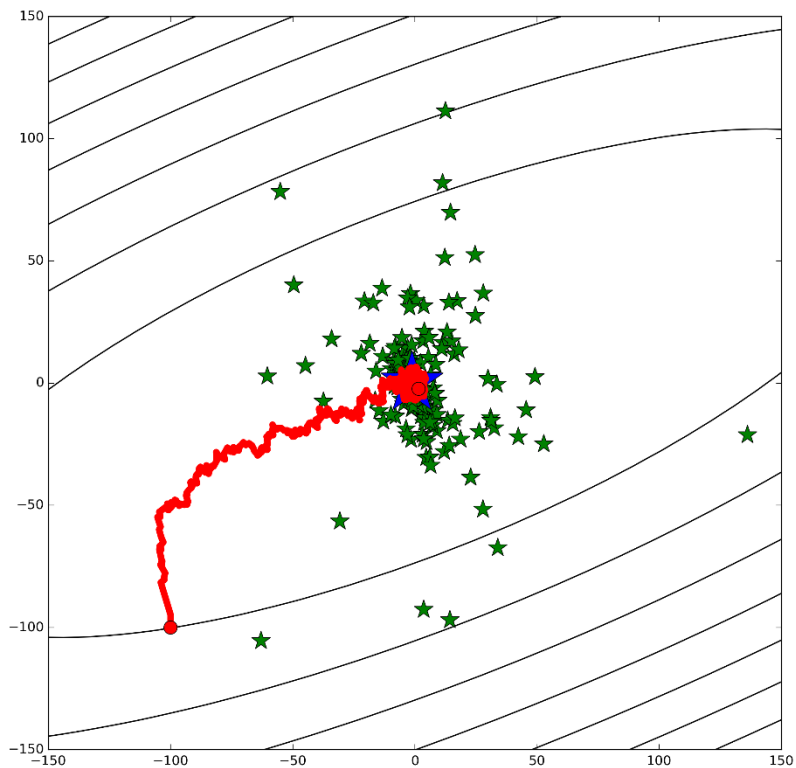


Стох. град. спуск

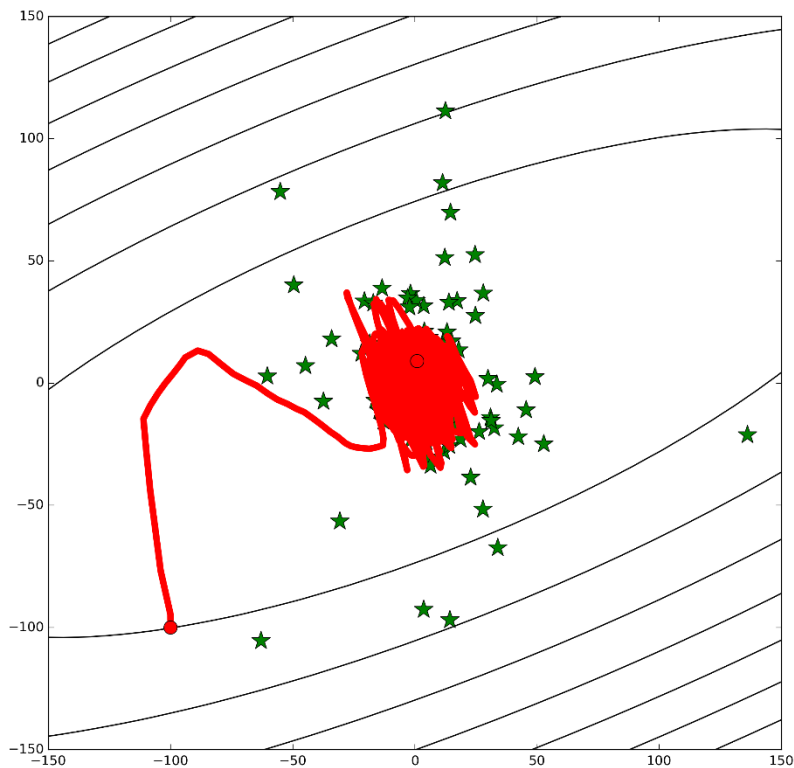


Стох. град. спуск
в окрестности оптимума

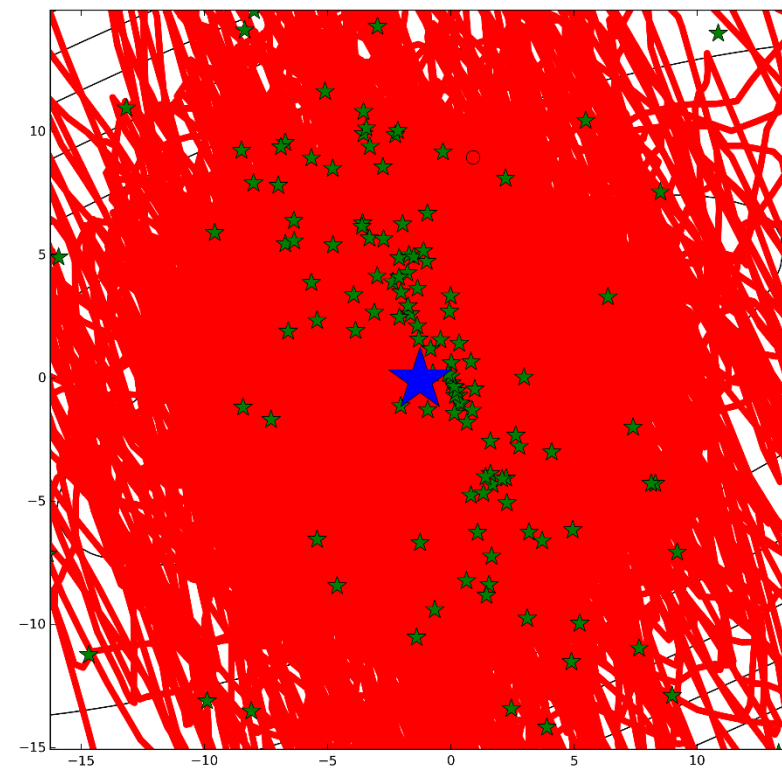
SGD vs. SGD+mom



Стох. град. спуск



Стох. град. спуск
+ моментум



Стох. град. спуск
+ моментум
в окрестности оптимума

Литература

- deeplearningbook.org – основная книга по Deep Learning
- J. Nocedal, S. Wright. Numerical Optimization, 2006 – лучшая книга по классической оптимизации, в ней также рассматривается автоматическое дифференцирование
- M. Schmidt. Notes on Big-n Problems – обзор методов стохастической оптимизации