Intelligenza artificiale (e libera)

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MASSACHUSETTS INSTITUTE OF TECHNOLOGY
PROJECT MAC

Artificial Intelligence Group
Vision Memo. No. 100.

July 7, 1966

THE SUMMER VISION PROJECT

Seymour Papert

The summer vision project is an attempt to use our summer workers effectively in the construction of a significant part of a visual system. The particular task was chosen partly because it can be segmented into sub-problems which will allow individuals to work independently and yet participate in the construction of a system complex enough to be a real landmark in the development of "pattern recognition".

		Training		Testing	
		Tank	Truck	Tank	Truck
LVQ	Tank	0.892	0.108	0.795	0.205
	Truck	0.113	0.887	0.211	0.789
MLP	Tank	0.824	0.176	0.774	0.226
16 Hidden	Truck	0.118	0.882	0.193	0.807
MLP	Tank	0.968	0.032	0.812	0.188
3 Outputs	Truck	0.119	0.881	0.216	0.784

Table 1: Neural Networks Performance Summary
Confusion Matrices

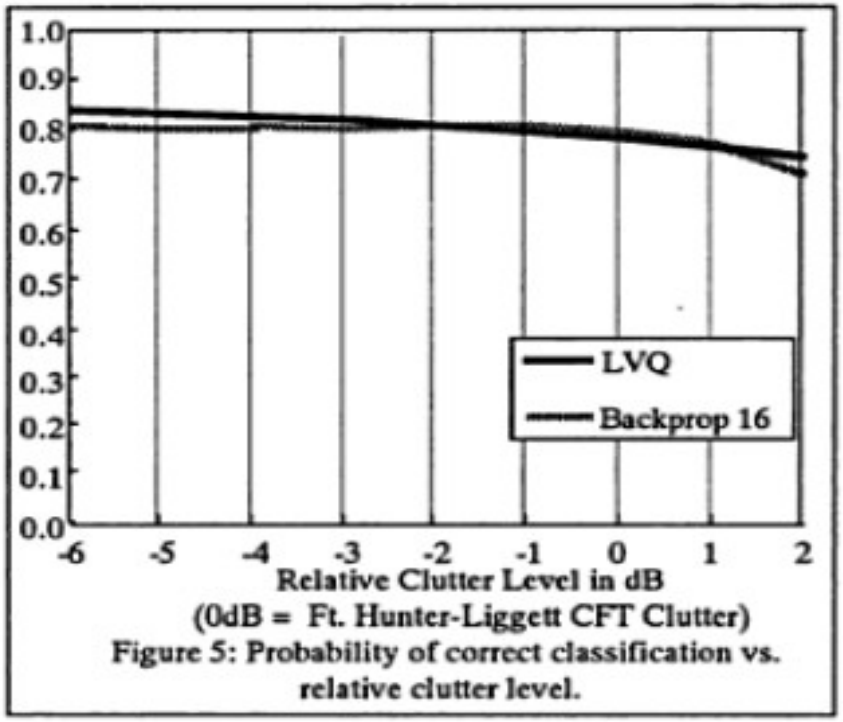


Figure 5: Probability of correct classification vs. relative clutter level.

4.0 RESULTS:

The Multi-Level Perceptron and the Learning Vector Quantizer were capable of classifying tanks and trucks to roughly 80%. A summary of confusion matrices for a sampling of some networks is given in Table 1. Robustness t clutter levels was high, varying little from -6dB attenuated to +2dB amplified clutter. Figure 5 shows the performance as a function of clutter for the MLP and LVQ networks.

5.0 CONCLUSIONS:

Neural networks are a viable technology approach to classifying tanks from trucks using MMW profile signatures. Of particular significance is the demonstrated robustness to clutter corruption. Tanks and trucks were classified to ~80% confidence level even when high clutter was included. This level of performance held for all possible target aspects. Both MLP and LVQ networks exhibited comparable success.

1. Jackel bets (one fancy dinner) that by March 14, 2000, people will understand
quantitatively why big neural nets working on large databases are not so bad.
(Understanding means that there will be clear conditions and bounds)

Vapnik bets (one fancy dinner) that Jackel is wrong.

But .. If Vapnik figures out the bounds and conditions, Vapnik still wins the bet.

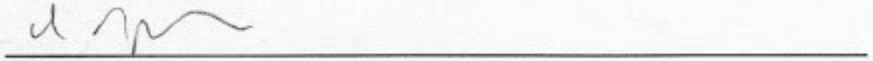
****

2. Vapnik bets (one fancy dinner) that by March 14, 2005, no one in his right mind will use neural nets that are essentially like those used in 1995.

Jackel bets (one fancy dinner) that Vapnik is wrong

3/14/95

V. Vapnik



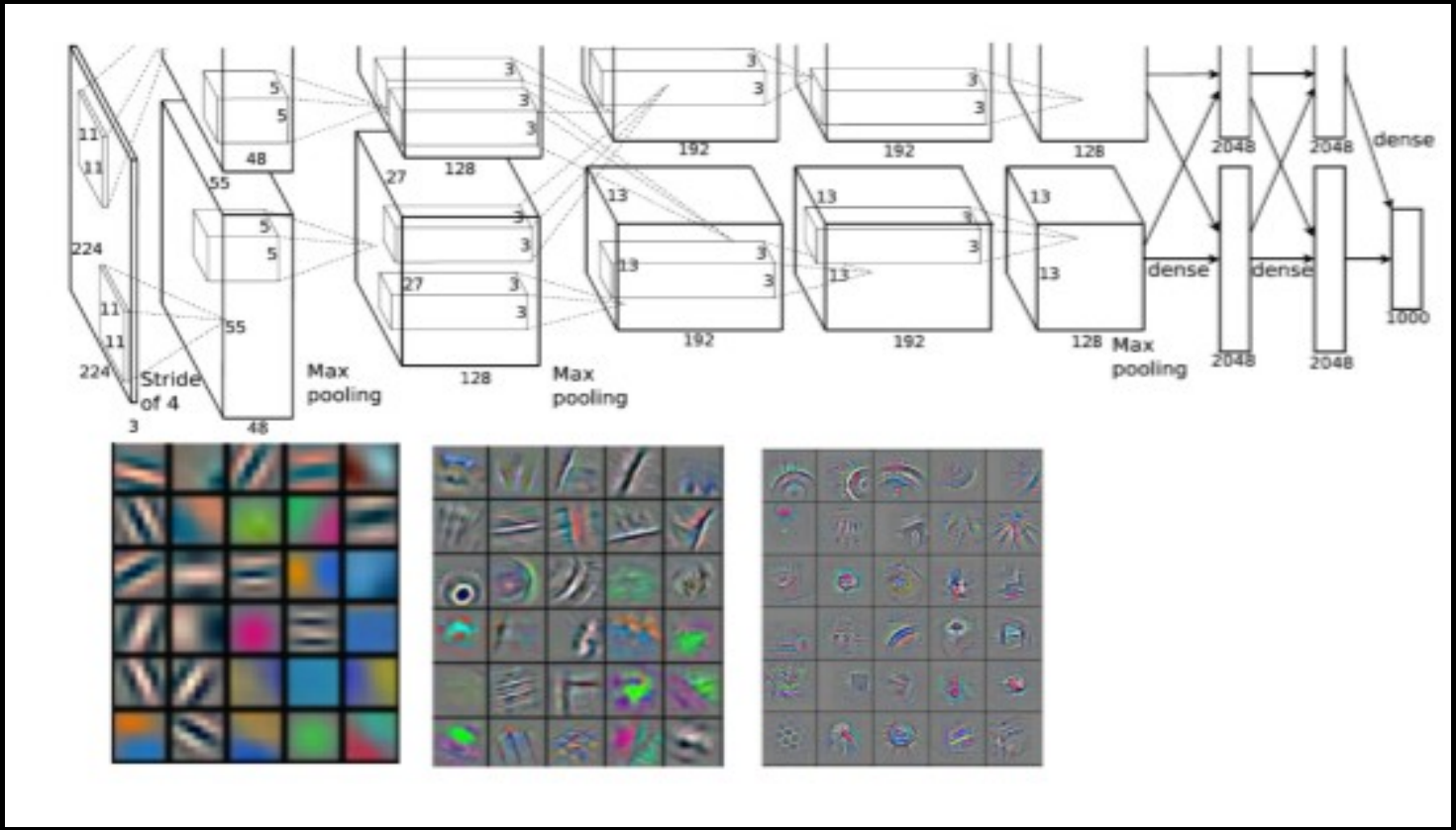
3/14//95

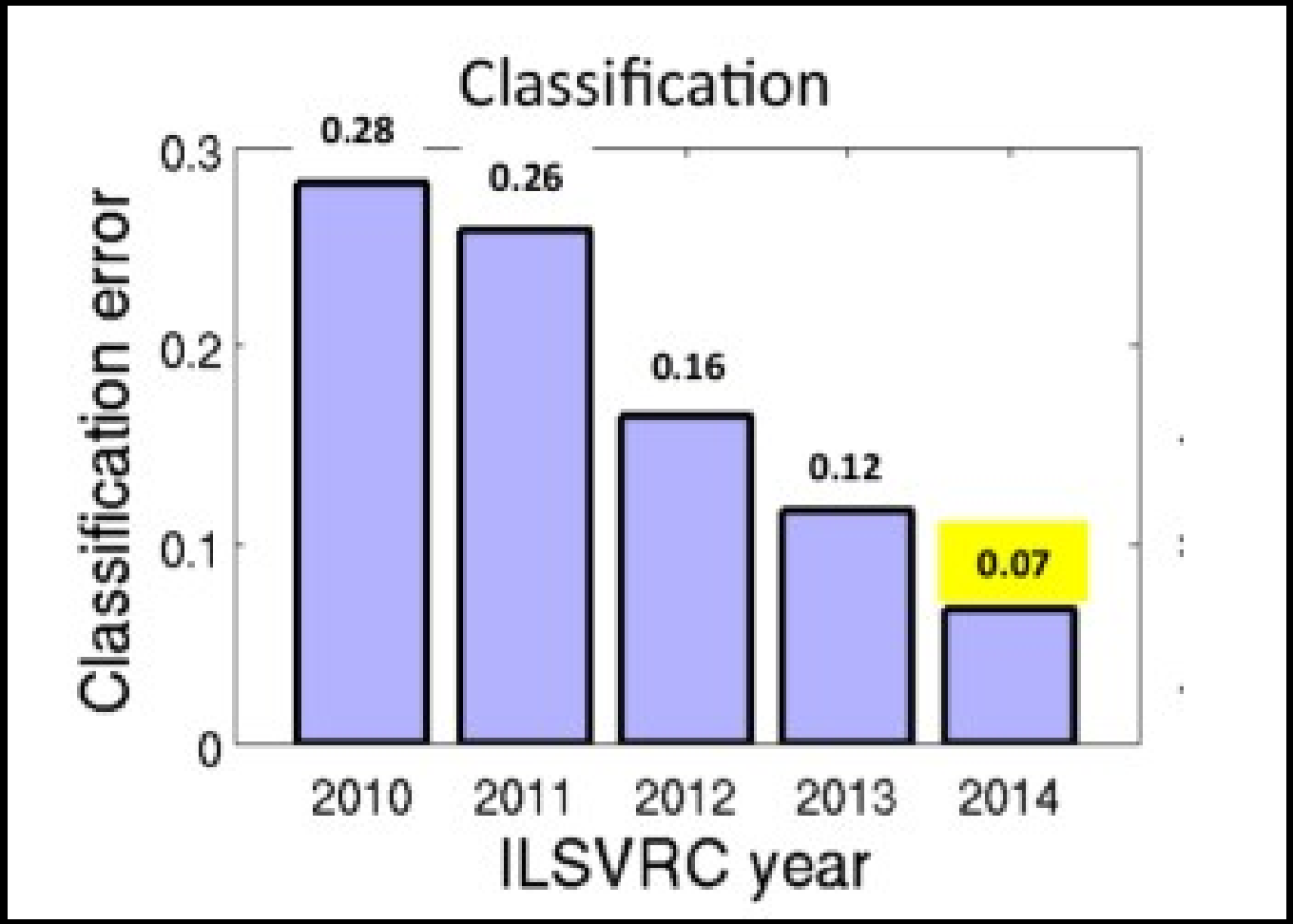
L. Jackel

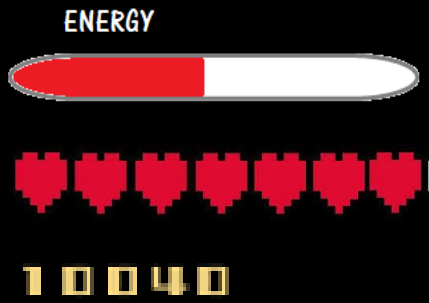
3/14/95

Witnessed by Y. LeCun

“Here's to the crazy ones…”

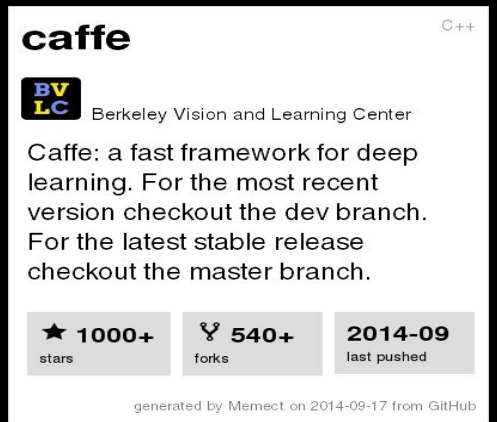



Classification
Classification error
0.3
0.2
0.1
0
0.28
0.26
0.16
0.12
0.07
2010
2011
2012
2013
2014
ILSVRC year


ENERGY
10040

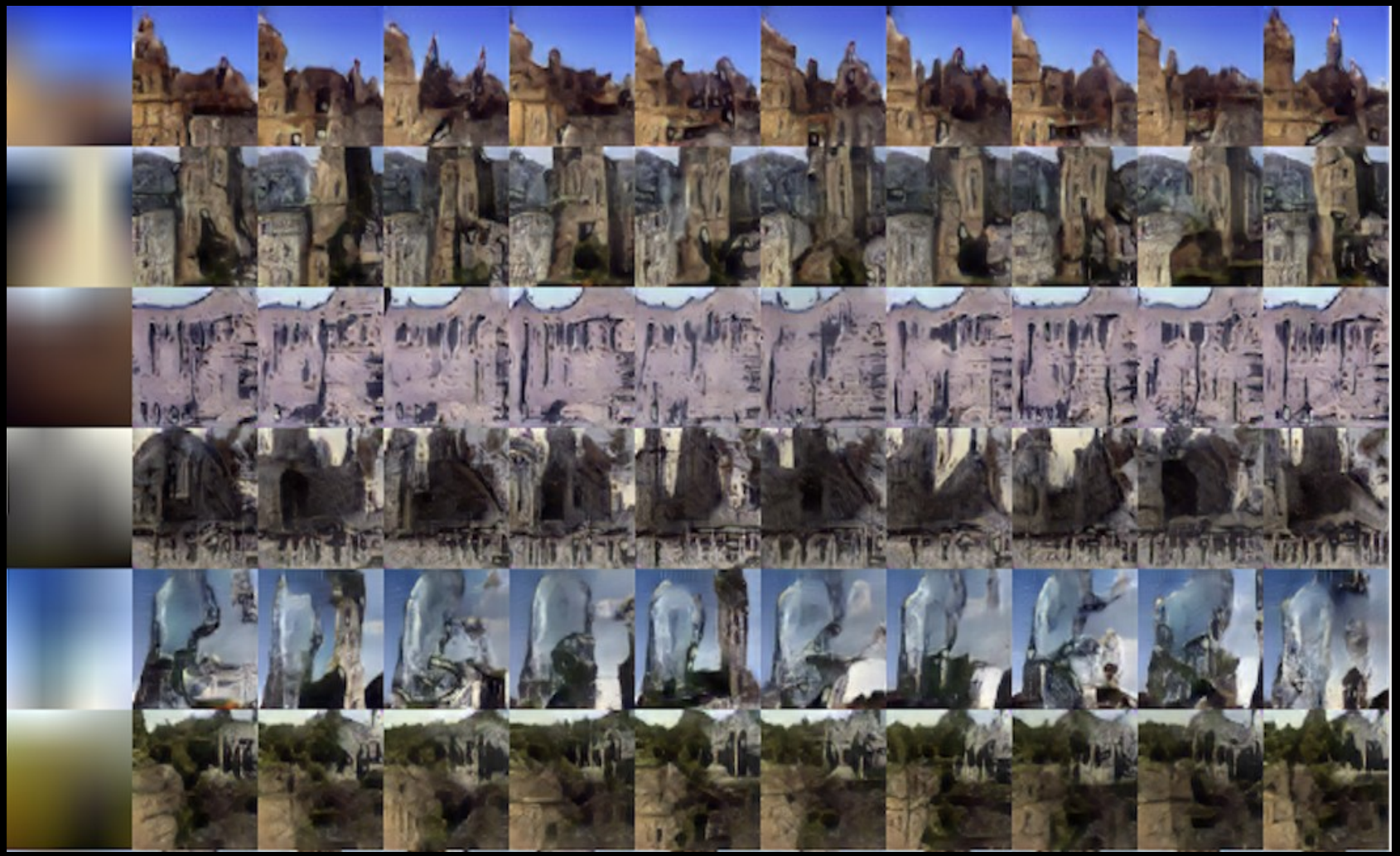
OpenCV
scikit
learn

theano


caffe
C++
BVLC
Berkeley Vision and Learning Center
Caffe: a fast framework for deep learning. For the most recent version checkout the dev branch. For the latest stable release checkout the master branch.
★ 1000+
stars
540+
forks
2014-09
last pushed
generated by Memect on 2014-09-17 from GitHub

torch
Memory

Può una macchina avere immaginazione?



Eyescream: http://soumith.ch/eyescream Code available: https://github.com/facebook/eyescream
“Deep Generative Image Models using a Laplacian Pyramid of Adversarial Networks” , Emily Denton, Soumith Chintala, Arthur Szlam, Rob Fergus

“I bravi artisti copiano, i grandi artisti rubano”

E se Van Gogh fosse nato a Brescia?

“A Neural Algorithm of Artistic Style”, Leon A. Gatys, Alexander S. Ecker, Matthias Bethge

Link at the paper and code available at: http://gitxiv.com/posts/jG46ukGod8R7Rdtud/a-neural-algorithm-of-artistic-style

Thank you!

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