How to leverage Deep Learning As a beginner

Salut!

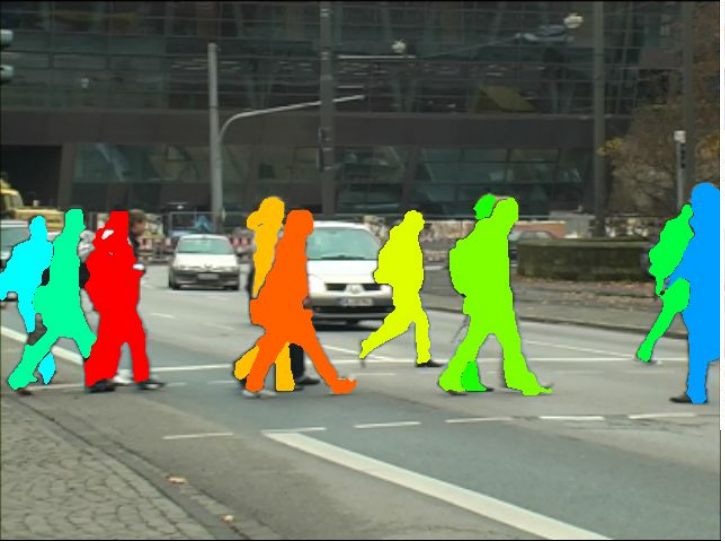
I am ***Danielius Visockas***

@dvisockas

I want You to start using

Deep Learning

We are dwarfs,
Standing on the shoulders
Of the Giants



A yellow school bus parked in a parking lot.

A red school bus parked in a parking lot.

A green school bus parked in a parking lot.

A blue school bus parked in a parking lot.

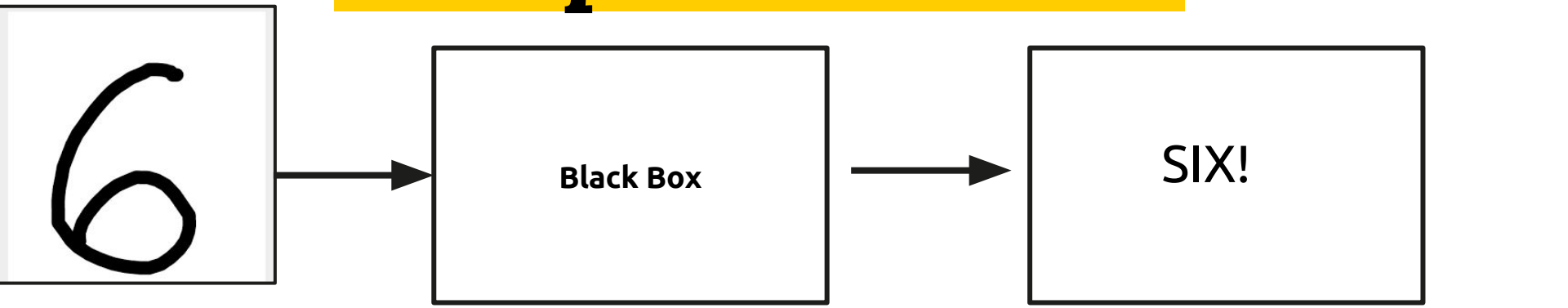
The decadent chocolate desert is on the table.

A bowl of bananas is on the table.

A vintage photo of a cat.

A vintage photo of a dog.

Computer Vision



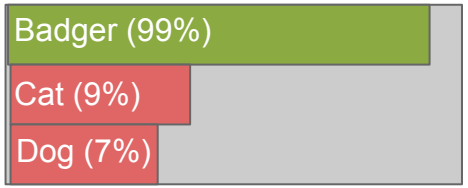
Fun fact:
~50% of our brains
Is devoted to Vision

Image classification

Input an Image

Extract features

Classify features into labels



ImageNet competition

And the rise of Convolutional Neural Networks

2010

Year of start

2017

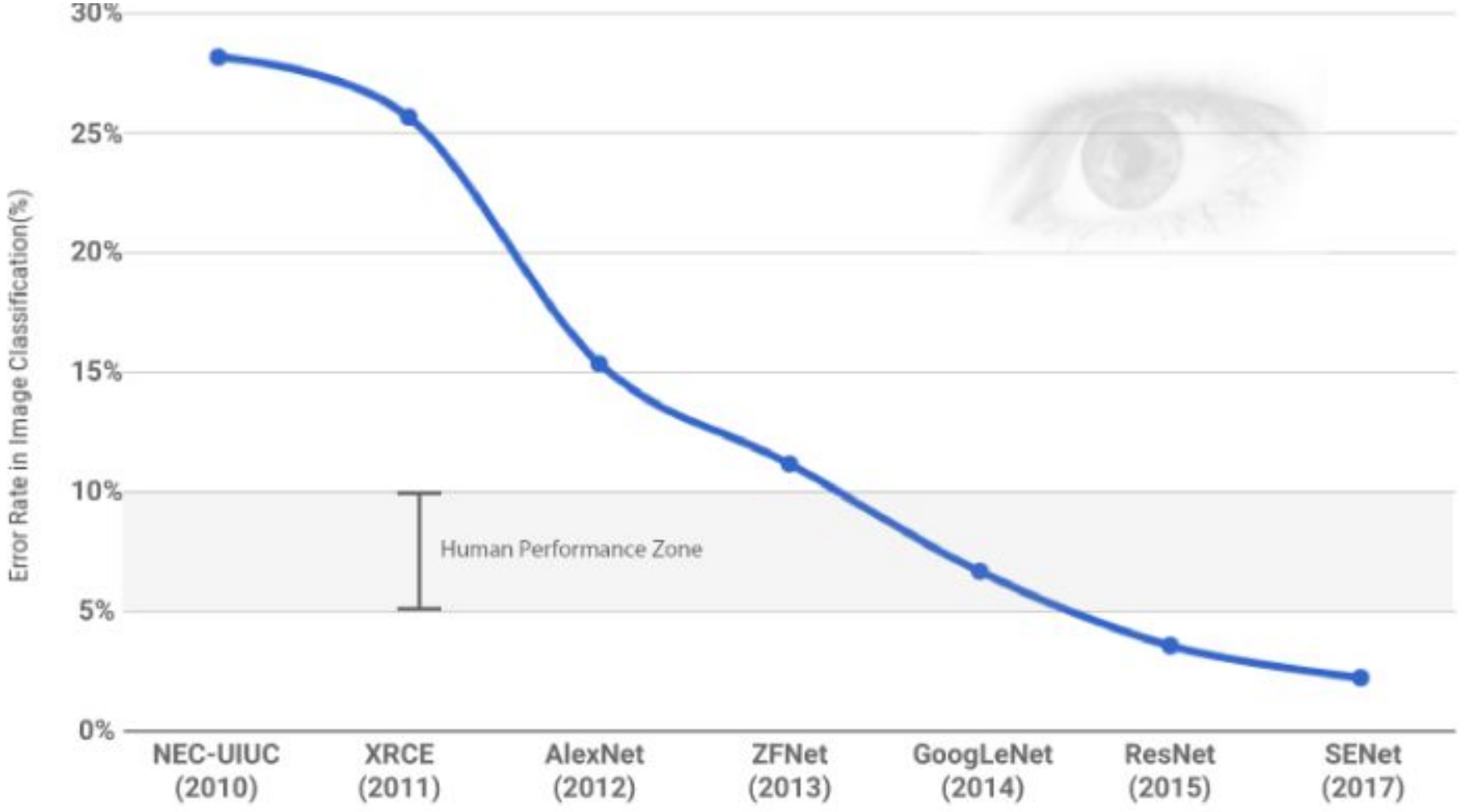
Last competition round

10M+

Hand annotated images

1000

Categories to predict


30%
25%
20%
15%
10%
5%
0%
Error Rate in Image Classification(%)
Human Performance Zone
NEC-UIUC (2010)
XRCE (2011)
AlexNet (2012)
ZFNet (2013)
GoogLeNet (2014)
ResNet (2015)
SENet (2017)

So *what*?

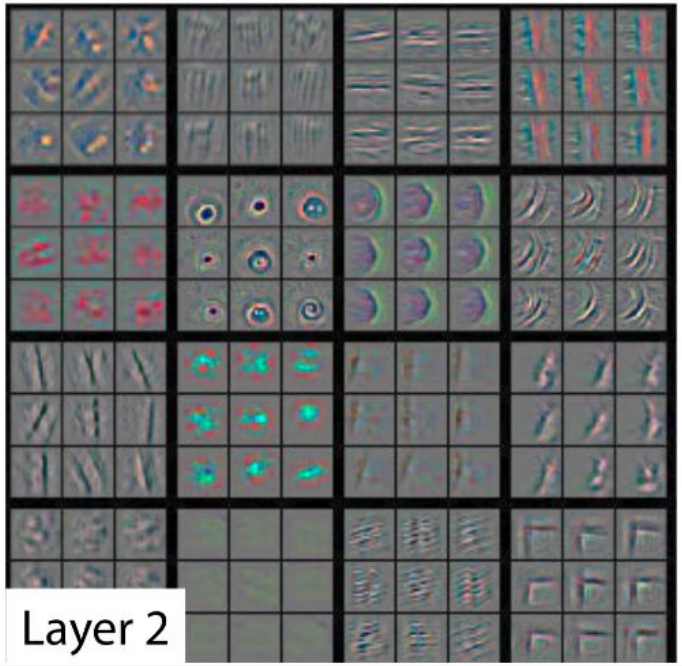
Need a lot of data & GPUs & time...

Those filters ain’t gonna learn themselves

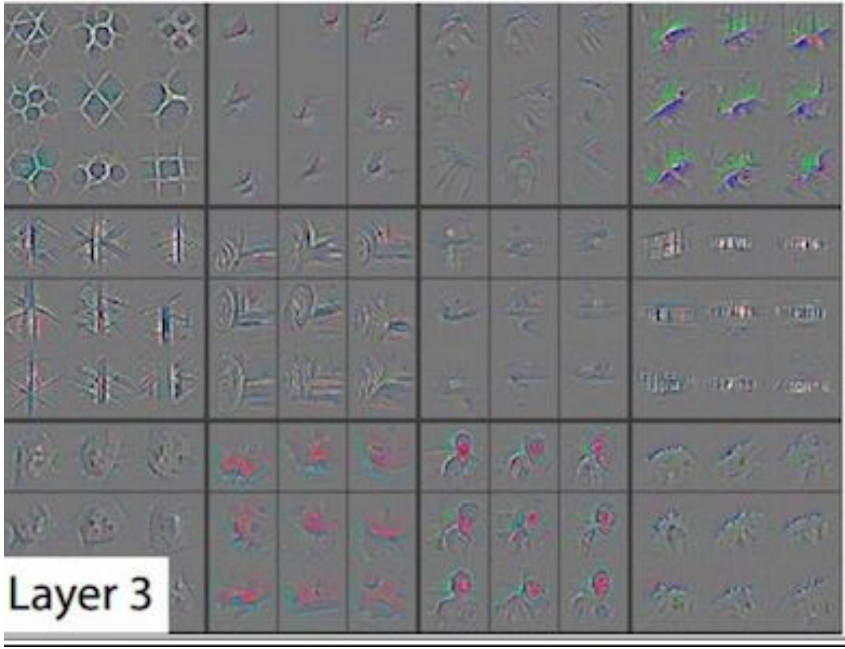
I forgot to tell you one thing..

This is **public/open/free**

Layer 1



Layer 2



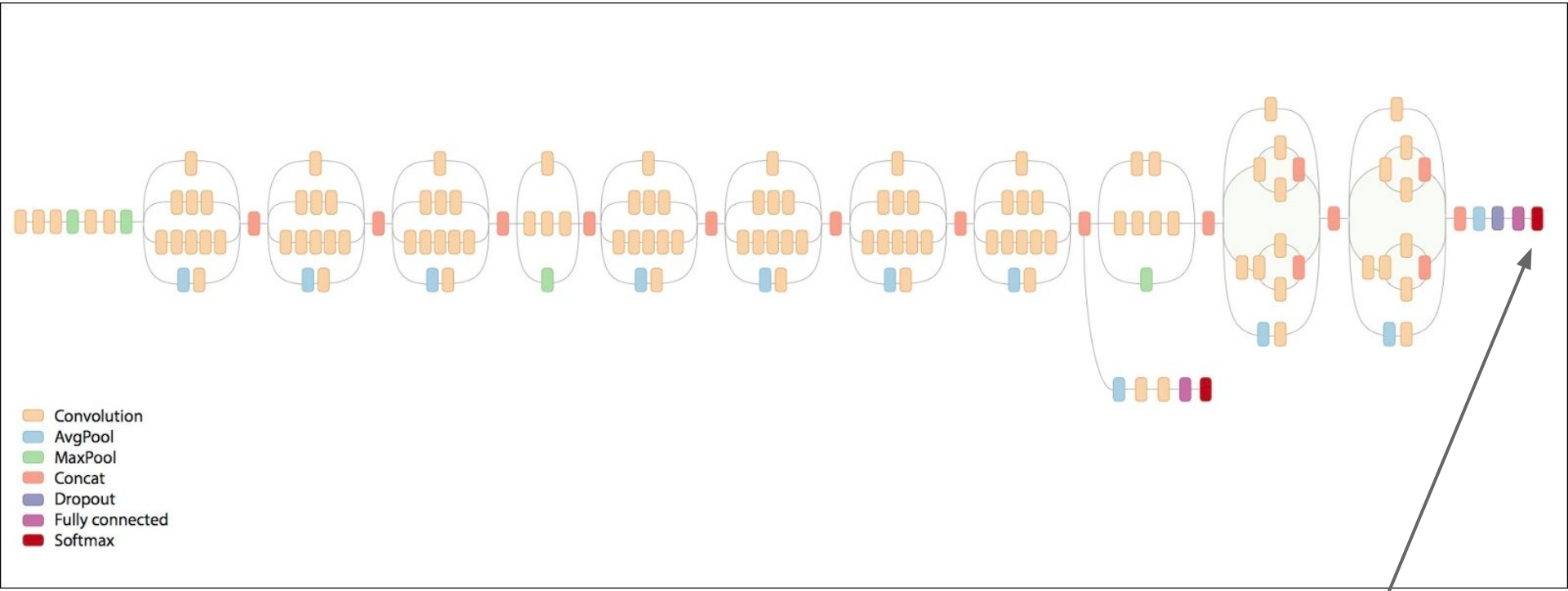
Layer 3

Now we're talking

Which learned filters
Respond to which classes
In my Data

Transfer learning

To the rescue

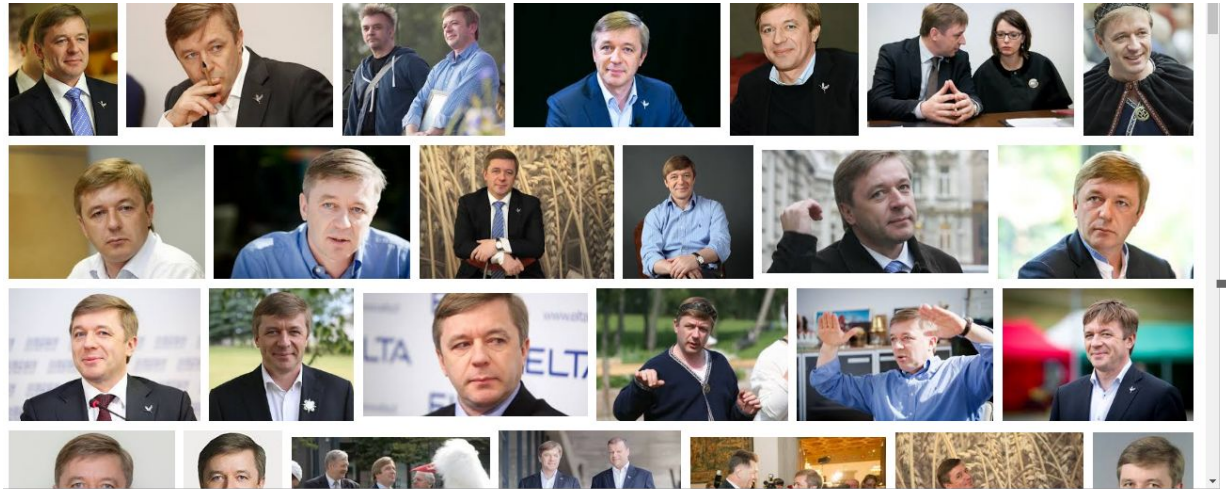


We'll be changing only this part

Let’s do a project

- Gather some data
- Label that data
- Train that small part of Inception
- Predict a label for never seen images

Let’s get political



Ramūnas

Aurelijus

It’s that simple*

*Oversimplification

Download Inception

https://github.com/dvisockas/retrain

Optimization

- Increase training steps
- Get more (diverse) data
- Google

Project ideas

- Classify Tinder girls into yes/no
- Personal face recognizer
- Person recognizer


Thank you!
Questions? Feedback?