Arabic Handwritten Recognition

Fast.ai approach using CNN

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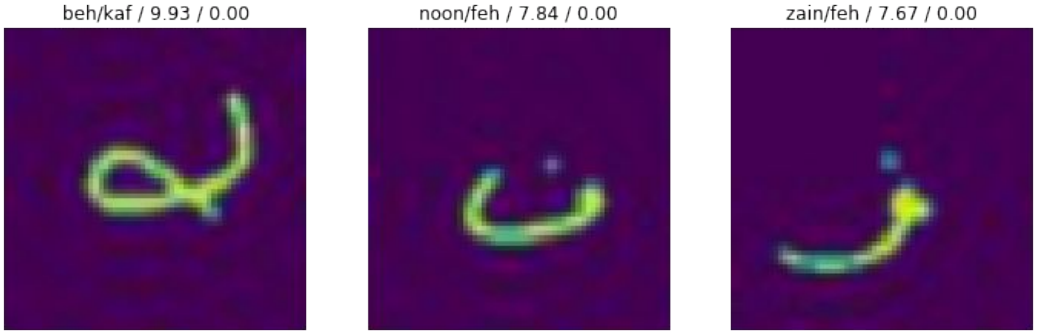
Agenda

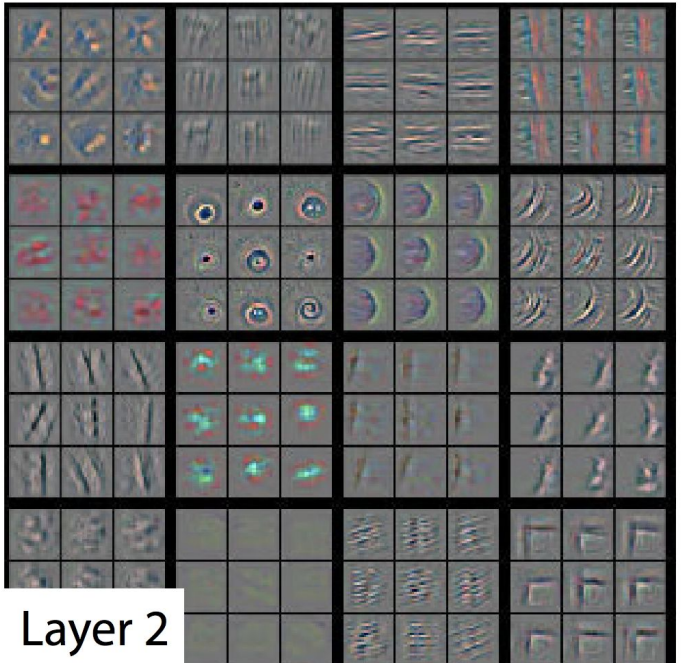
- Motivation
- Convolutional neural network - CNN
  - Resnet-50 Model
- The one cycle policy
- Future development
- Conclusion

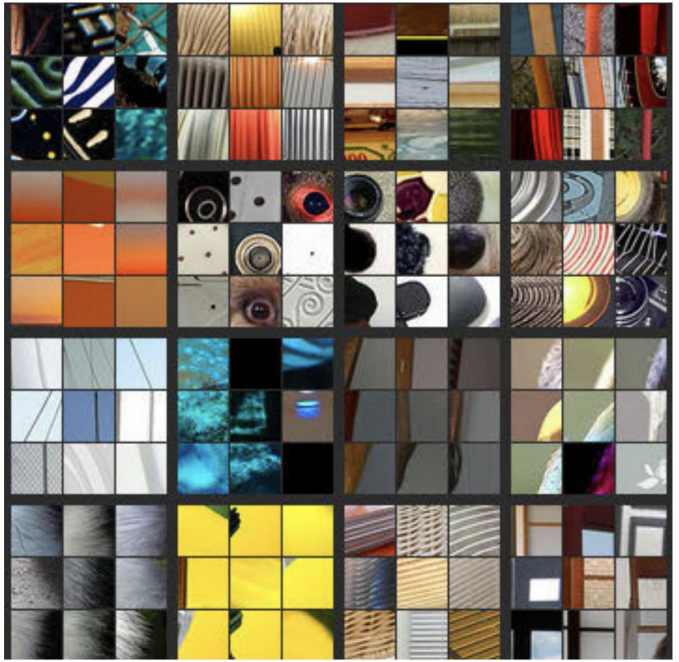
Motivation



- Lack of research
- We need it
- Ambiguity in recognizing
- Cursive handwriting makes it worse

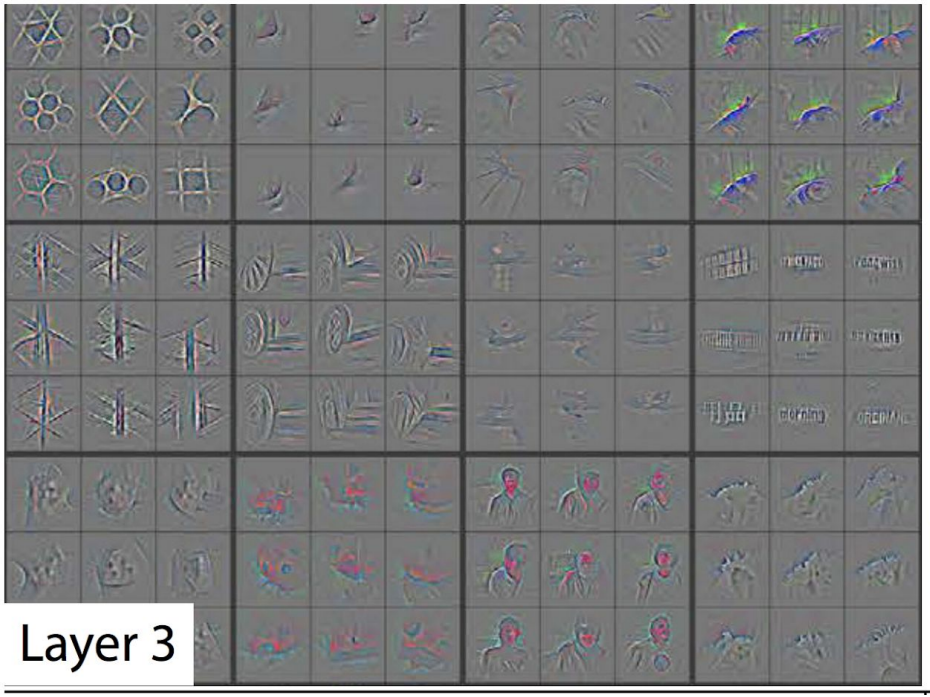
Convolutional neural network - CNN





https://github.com/hiromis/notes/blob/master/Lesson1.md

Convolutional neural network - CNN



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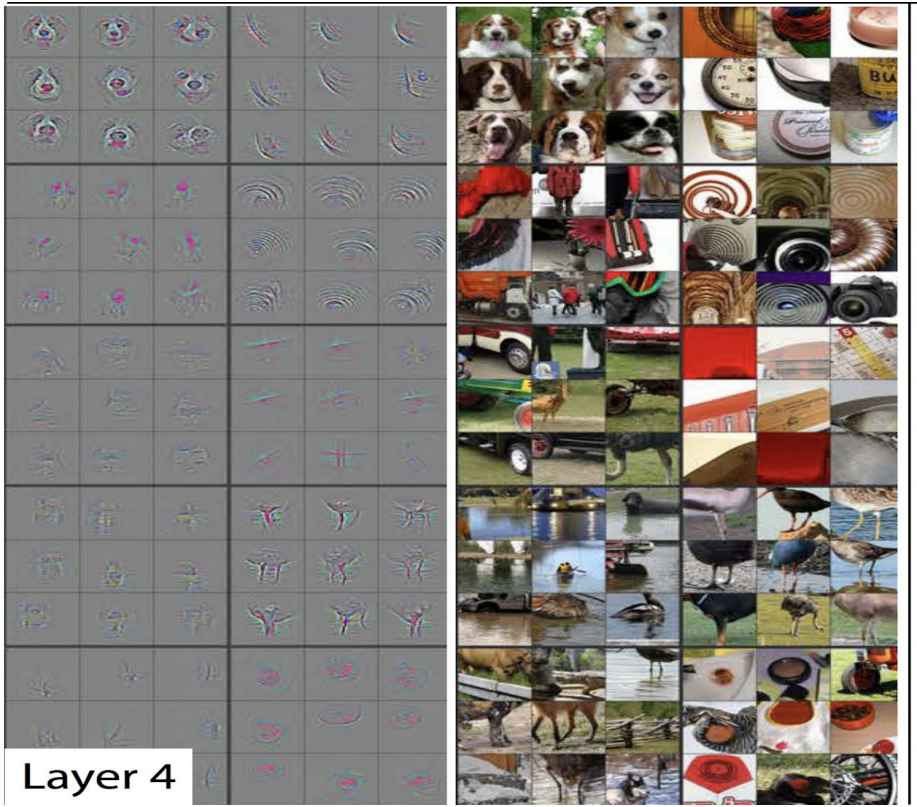
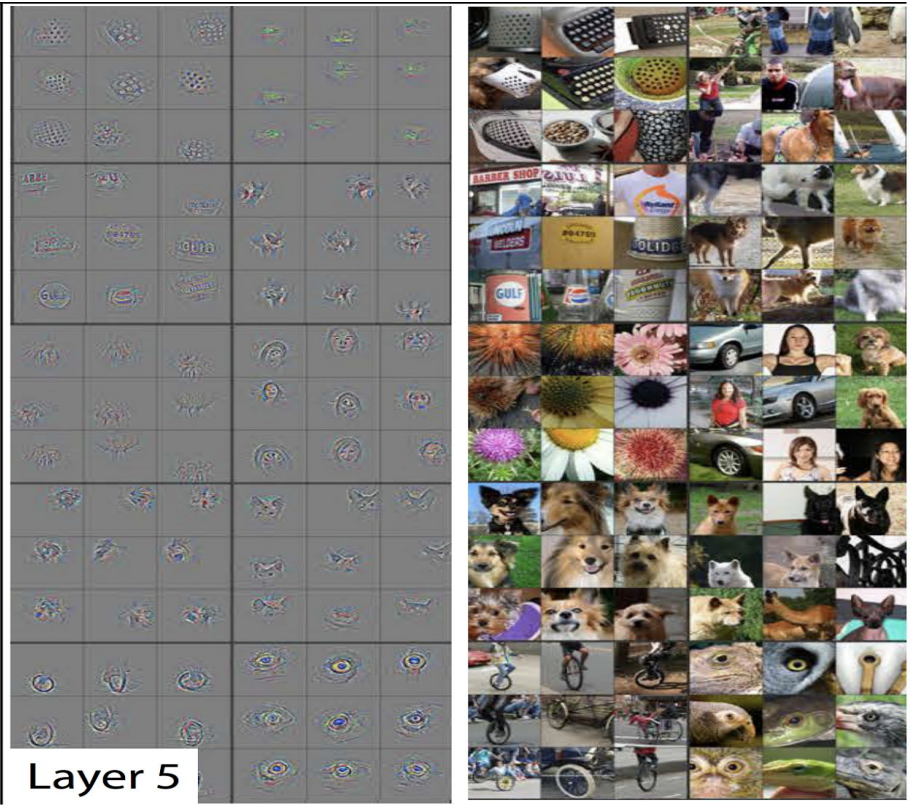
Convolutional neural network - CNN





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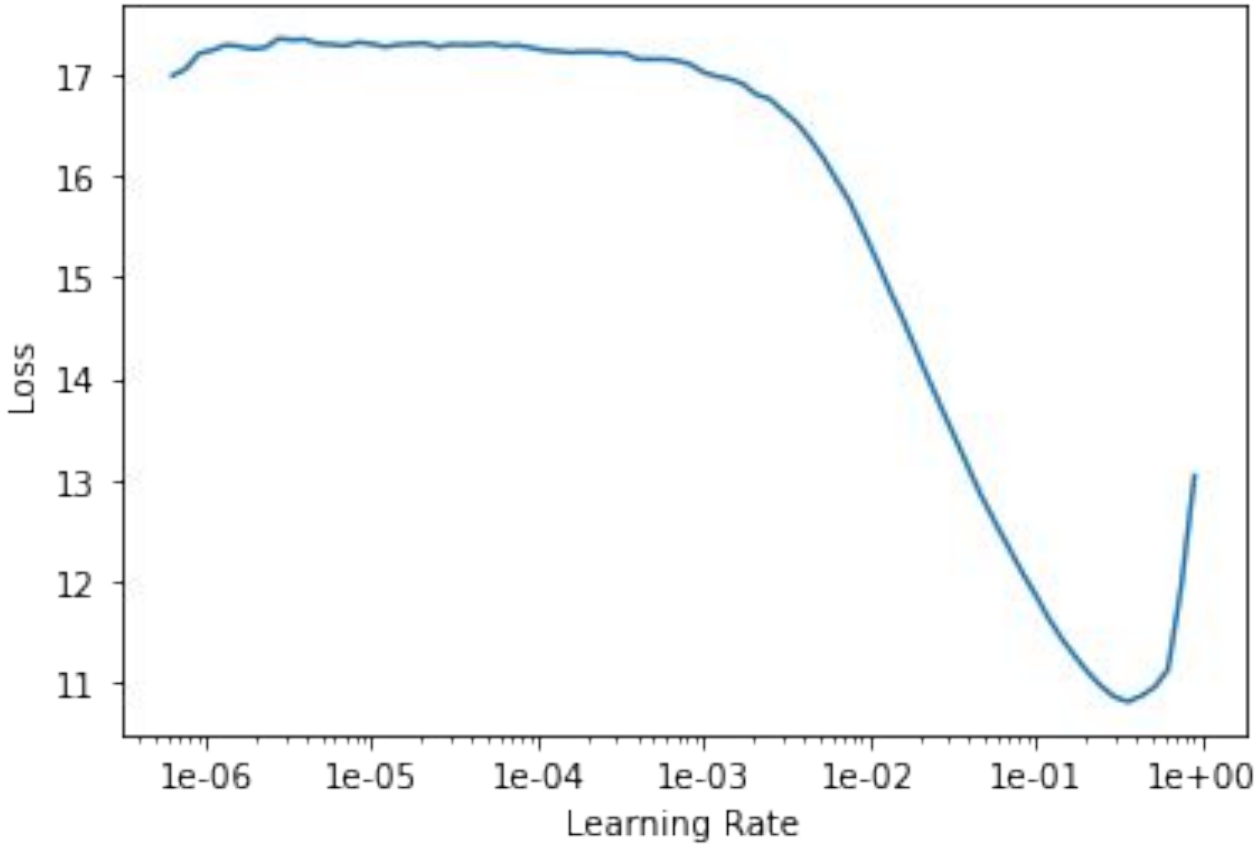
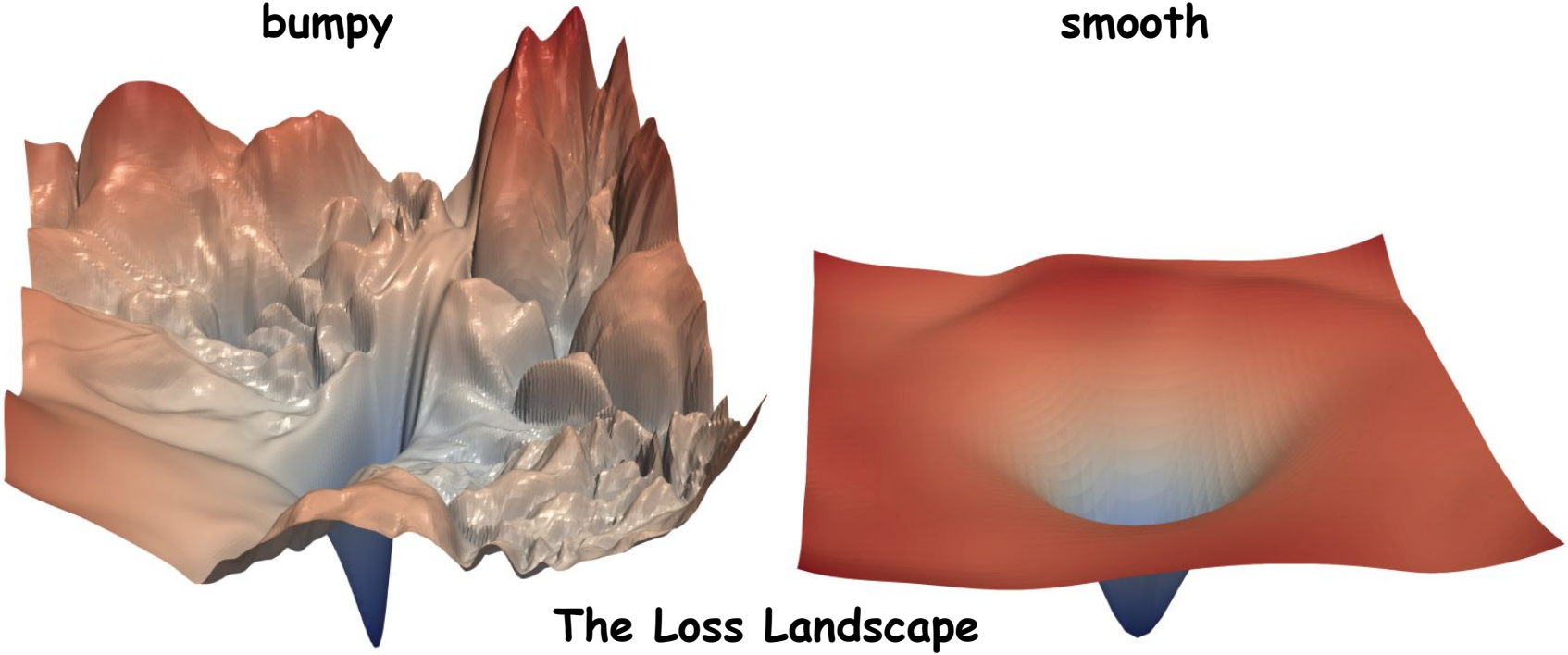
The one cycle policy



The one cycle policy



https://arxiv.org/abs/1712.09913

Final Results

High Accuracy Arabic Handwritten Characters Recognition Using Error Back Propagation Artificial Neural Networks	Assist. Prof. Majida Ali Abed Assist. Prof. Dr. Hamid Ali Abed Alasad	**93.61%**	***February 2015***
Convolutional Neural Network Model for Arabic Handwritten Characters Recognition	Murtada Khalafallah Elbashir1,2, Mohamed Elhafiz Mustafa1,3	**93.5%**	**November 2018**
ARABIC HANDWRITTEN CHARACTER RECOGNITION BASED ON DEEP CONVOLUTIONAL NEURAL NETWORKS	Khaled S. Younis1	**97.6%**	**December 2017**
Arabic-Handwritten-Characters-Recognition using CNN_ResNet-18	Senan Jadeed	**97.23%**	**March 2020**
Arabic-Handwritten-Characters-Recognition using CNN_ResNet-150	Senan Jadeed	**98.74%**	**March 2020**

Future development

- Better dataset that includes more handwriting styles
- Positional Characters recognition
- Words recognition
- Full texts recognitions

Let's do a trial run