

Colab and Caffe

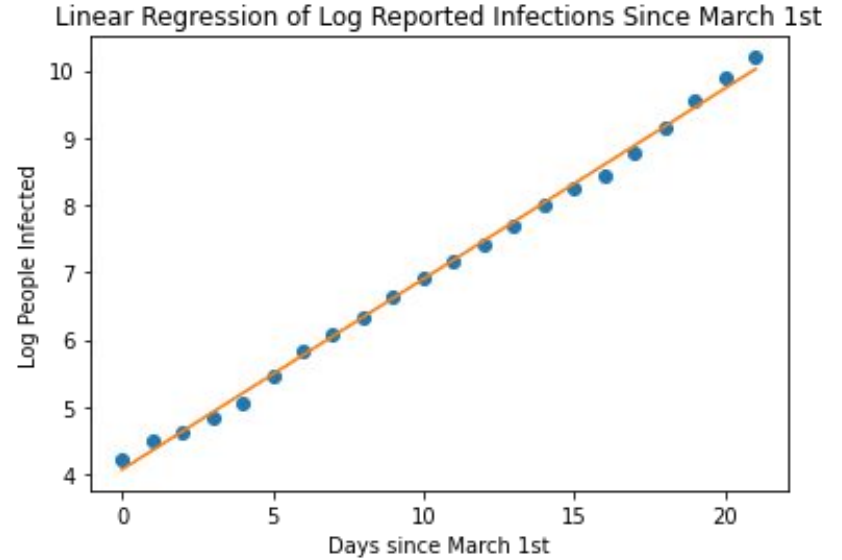
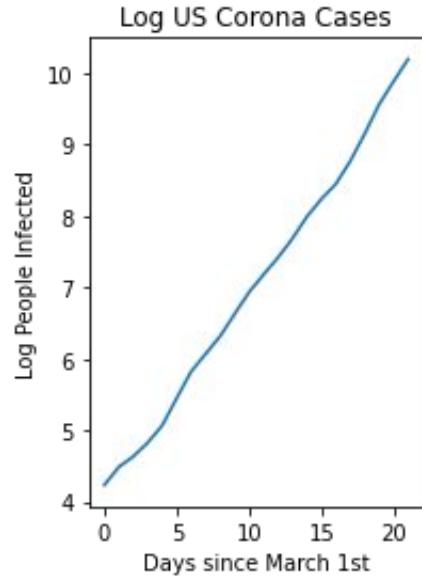
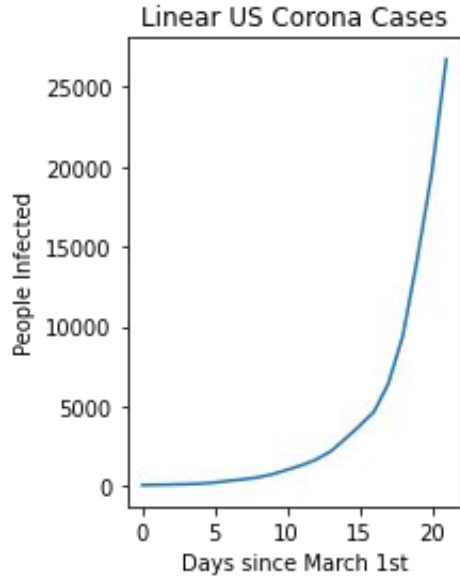
Leila Abdelrahman

Colab

What is Colab?

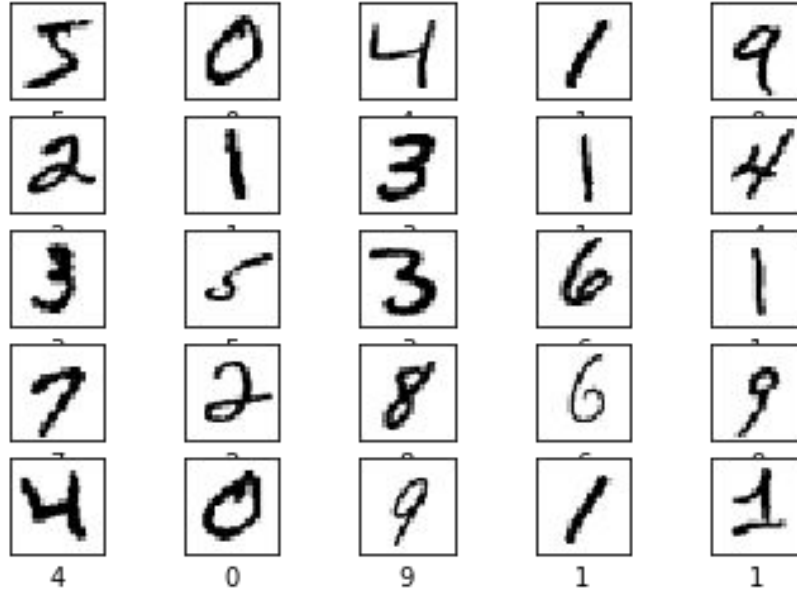
- Colab is a free service from Google to run your code on virtual machines (VMs).
- It allows you to access GPUs and structure your code in Jupyter Notebooks
- You can run Unix commands in Colab, too!

Simple Demo: Making Plots in Colab



Colab Notebook Link [Here](#)

Challenging Demo: Running a NeuralNet in Colab



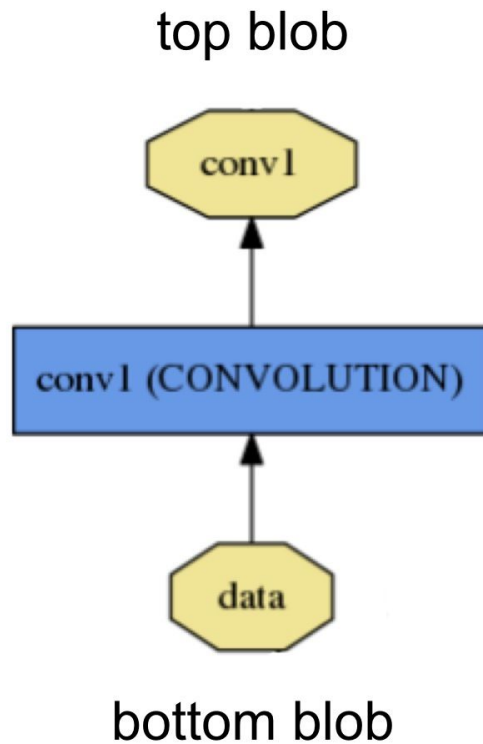
Colab Notebook Link [Here](#)

Caffe

Benefits of Caffe

- Entirely open source library with pretrained models that you can download and use
- Allows you to easily switch and configure from CPU to GPU

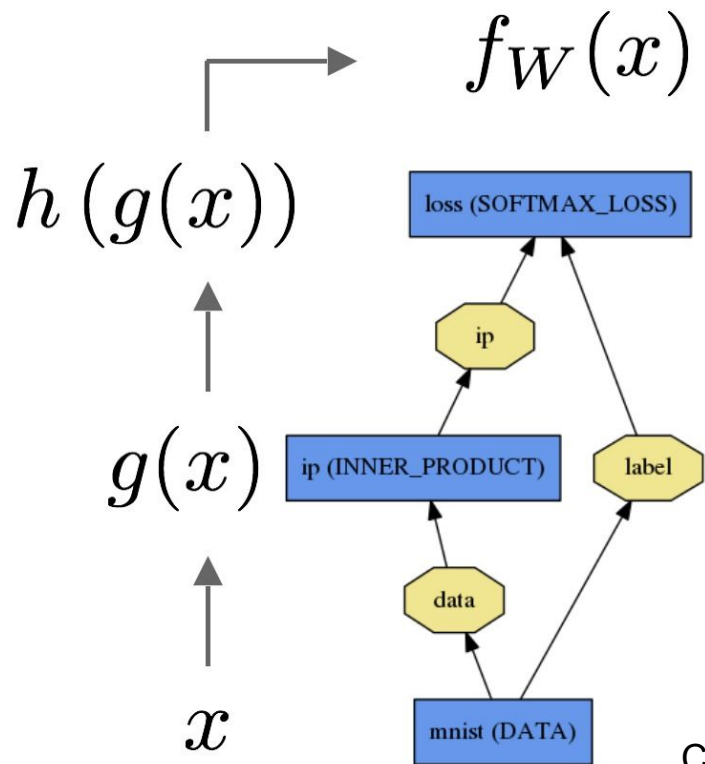
Blobs: Data points



Credit:

https://caffe.berkeleyvision.org/tutorial/forward_backward.html

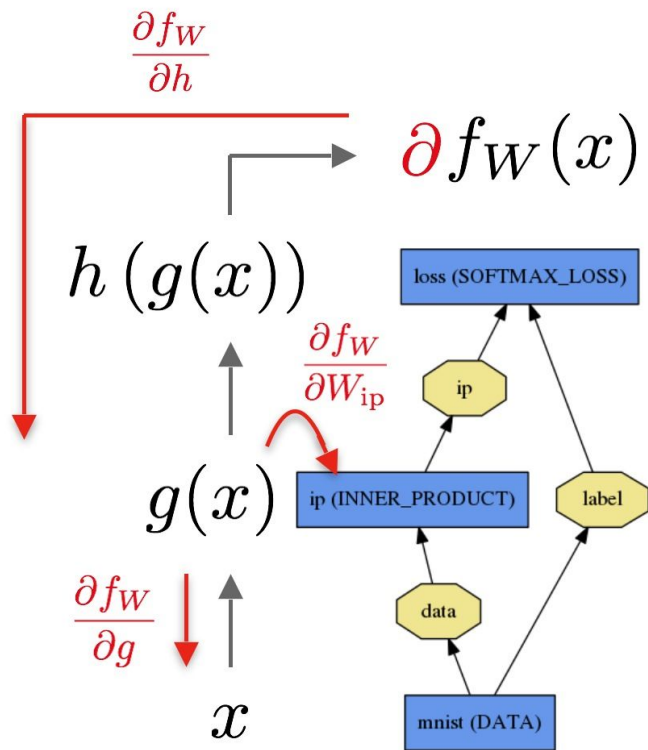
Forward Passes



Credit:

https://caffe.berkeleyvision.org/tutorial/forward_backward.html

Backward Pass



Credit:

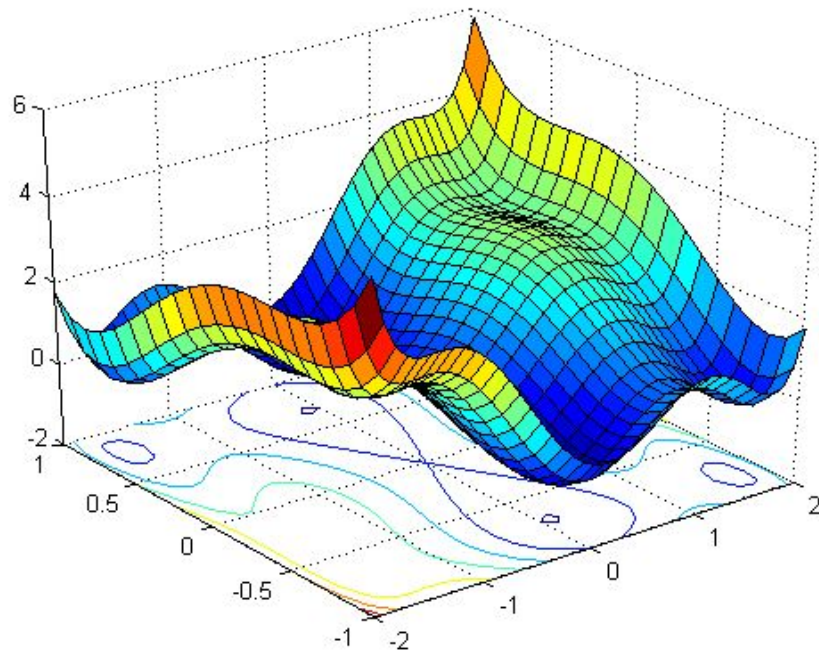
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Loss Function

$$CCE(p, t) = - \sum_{c=1}^C t_{o,c} \log(p_{o,c})$$

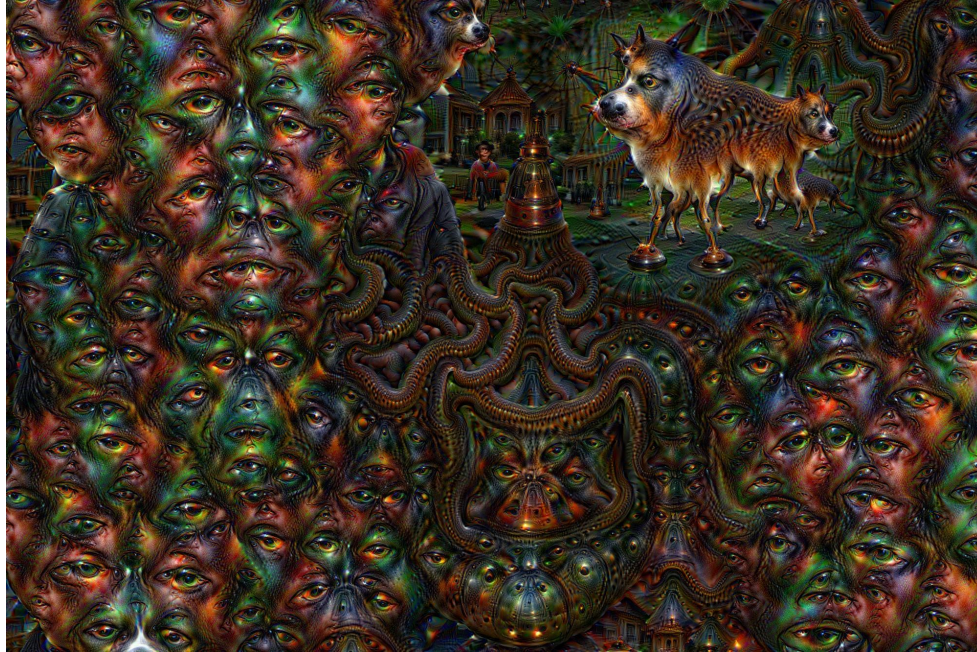
Loss Function Solvers

- Stochastic Gradient Descent (type: "SGD"),
- AdaDelta (type: "AdaDelta"),
- Adaptive Gradient (type: "AdaGrad"),
- Adam (type: "Adam"),
- Nesterov's Accelerated Gradient (type: "Nesterov") and
- RMSprop (type: "RMSProp")



Caffe con Colab

Challenging Demo: Implement a Generative Model



Colab Notebook Link [Here](#)