Image Classification

Am I a Dog or a Cat?

Neuronal Nets with Statistical Learning

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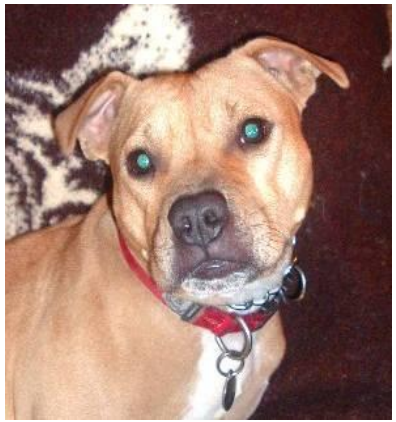
Roadmap and Goals

- Problem Statement
- Introduction
- Progress of work
- Expectations

Problem Statement

Data

- Kaggle competition
- Test data: 12,500
- Train data: 25,000



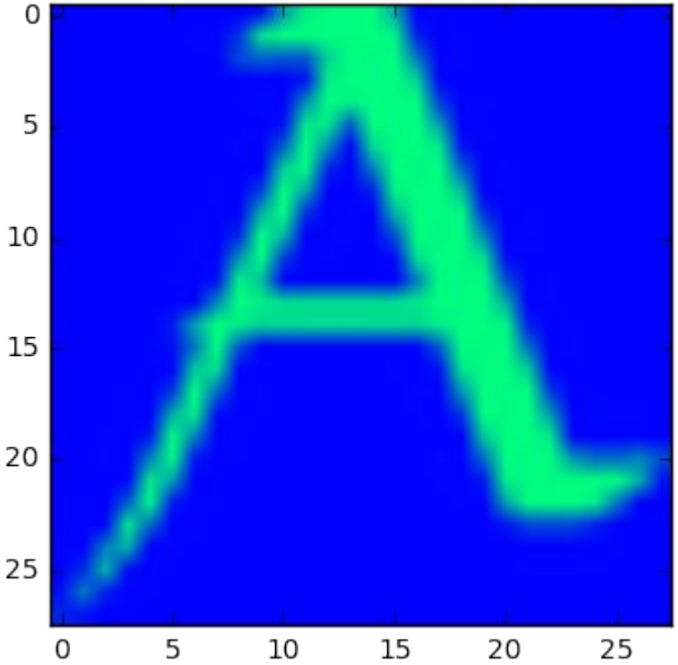
Framework

- Gitlab repository
  - https://gitlab.com/adityaraj/NeuralNetworkKaggleCompetition
- Mainly Python 3

Progress of Work

Letter Recognition

- Udacity
  - ‘Deep Learning’
- Images of letters
  - 28*28 pixels
  - Two colors



Letter Recognition

- Calculate ssim
  - Luminance
  - Contrast
  - Structure
- Predict output with regression
- Insert images into neural net

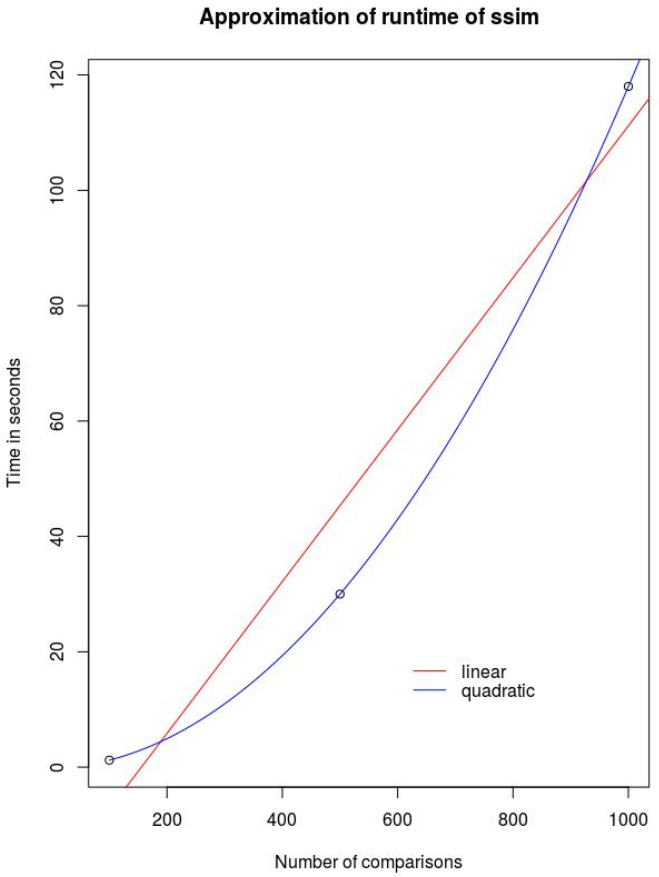
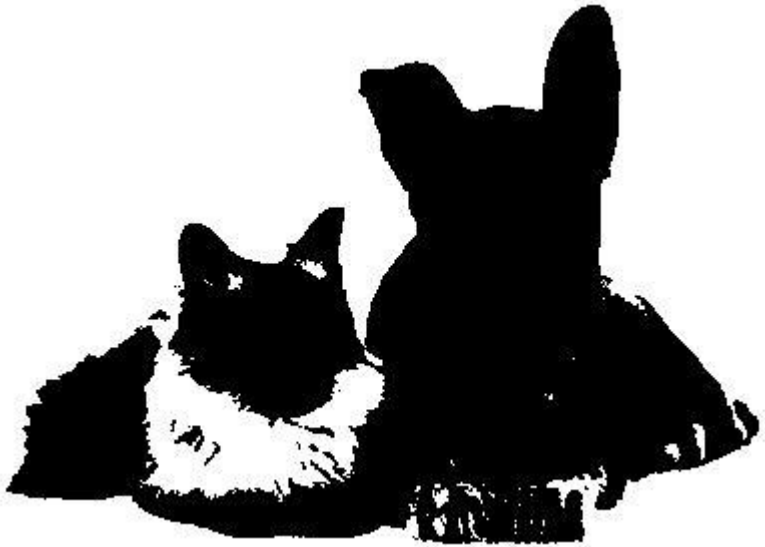
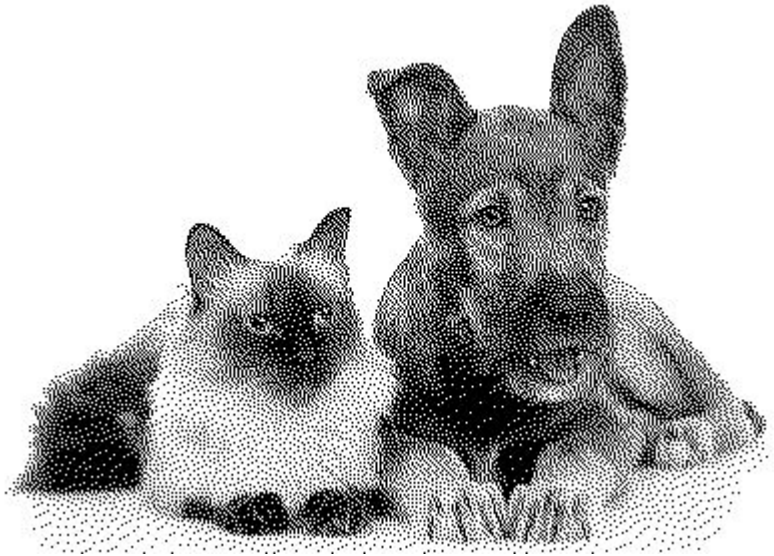
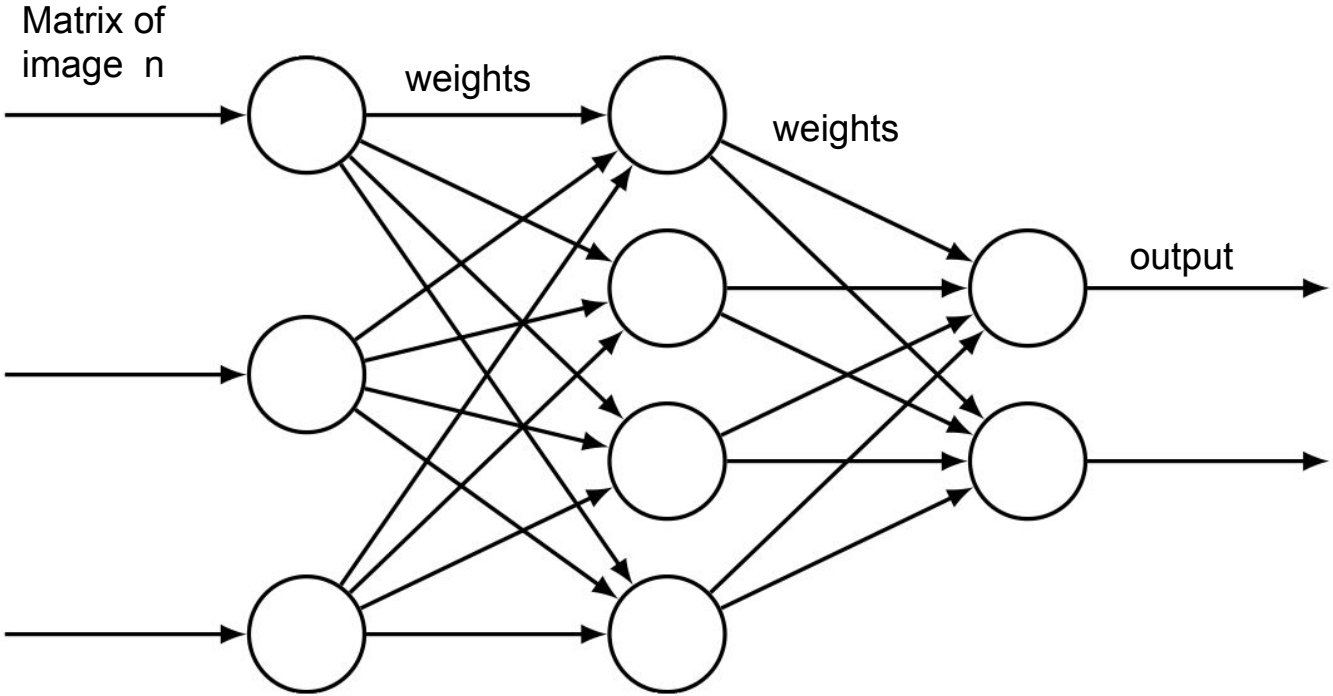


Image to black and white





Design of Neural Net



Weight Update Function

$$W_{k,j} \leftarrow W_{k,j} + \alpha * a_k * \Delta_j$$

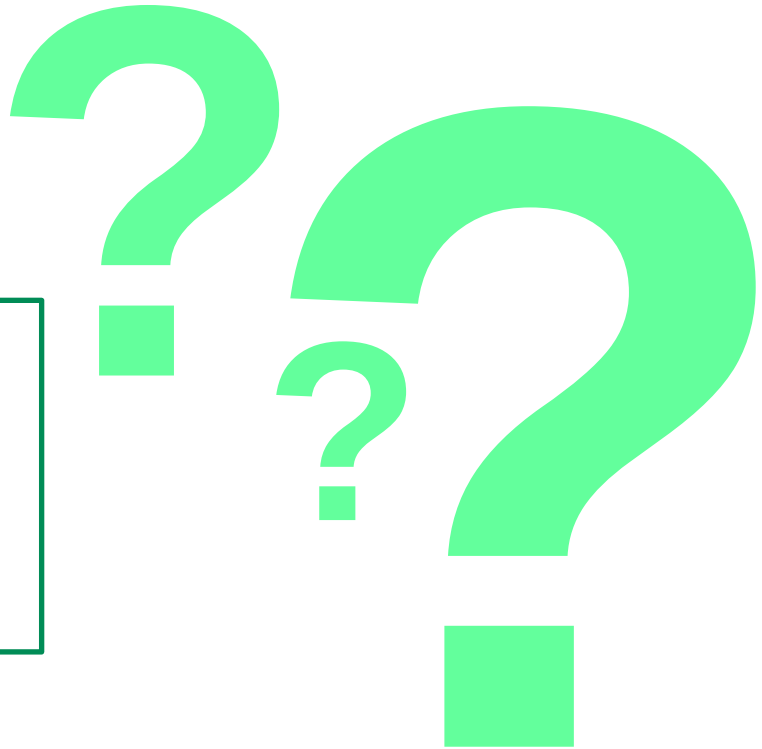
$$Where:$$

$$\Delta_j = Error_i * g_i'(input)$$

$$\alpha = Learning\ Rate$$

$$a_k = g(input)_k$$

Any questions?



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