

Group 2 Machine Learning II Final Project --- Crowd Counting

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The objective of the project is to perform image analysis in order to count the number of people in each still image- this is called crowd counting. The motivation behind this project is to analyze the mobility in various public areas such as malls, to ensure safety and better organization. This dataset contains around 2GB of worth of image data. Each image has 480x640 pixels with 3 channels, the recording is of a mall of a webcam, the recording is of the same spot in the mall, but there are different numbers of people in each image. The images are provided as a binary file of NumPy, but we also have access to the JPG images. We will attempt to use a combination of CNN, RNN and other networks taught in class, as we have not learned all the networks, we cannot accurately predict which network will be used. We will customize the network used in order to improve accuracy. The three frameworks taught to us are Keras, Pytorch, and Tensorflow. Currently, we plan to use Keras and TensorFlow, but in future training, there may be adjustments. The final selection of the framework will be judged based on the project dataset. The metrics will be the values of accuracy, Cohen Kappa, F1 score, and error.

Link to the data set:

<https://www.kaggle.com/fmena14/crowd-counting>

References:

GitHub of professor Amir Jafari, PhD: <https://github.com/amir-jafari>

Neural Network Design (2nd Edition): <http://hagan.okstate.edu/nnd.html>

The official website of Keras: <https://keras.io>

The official website of TensorFlow: <https://www.tensorflow.org>

The official website of Pytorch: <https://pytorch.org>

The official website of scikit-learn: <https://scikit-learn.org/stable/>

Project Plan:

Time	Work
11/11	Group Proposal
11/11 - 11/15	Read data to GPU, split data
11/16 - 11/29	Train data
11/30 - 12/6	Project Report and Presentation
12/7	Final Deliverables