*Individual Title and Authors-- TODO*

*Introduction*

Research Problem: Most machine learning algorithms will require parameters that are not learned by the algorithm and are provided to the algorithm – these are called Hyperparameters. The hyperparameters appear to have a strong effect on the performance of the machine learning algorithm. They may take a long time to tune.

So, our research question will try to show the effect of varying the hyperparameters on SVM, CNN and GAN. Also, the second question is - how effective optimization strategies are?

*Related Work*

TODO – Robert. VO – CNN hyperparameters. Ruxy – SVM hyperparameters

*Methodology*

format of the data - MNIST

pre-processing the data – flattening into vector, normalization, split into test and training. Validation?

machine learning algorithms – Kernel SVM, CNN, GAN.

How we chose the parameters ? – initial suggested values came from online material examples… As the aim of the project was about tuning the hyperparameters we ll describe the choice in detais. …..Parameters tested via Grid search, Adam optimizer etc.

How we choose the plots?

level of uncertainty – We have not covered the full extent of hyperparameters applicable to CNN and GAN, but rather chose particular hyperparameters for the indication.

*Results & Discussion*

TODO…..

*Limitations & Outlook*

.suggestions for further research – try more hyperparameters (multi-dimensional search), try other machine learning algorithms, try additional optimization strategies, any work that we have not finished, try a different dataset – not MNIST