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Project Title:	**Measuring mutual information in Neural Networks**
Examination:	**Computer Science Tripos – Part II, July 2001**
Word Count:	**6208**[1]
Line Count:	**1303**[2]
Project Originator:	Dr. Damon Wischik
Supervisor:	Prof. Alan Mycroft

Original Aims of the Project

The aim of the project was to reproduce Tishby's results, and see if they robust. Explore ideas that Tishby presented in his paper, such as:

- Compression in Neural Networks – if a Neural Network can lose information, if so how it happens what assumptions are made.
- Compression Phase in Neural Networks – Tishby claims that the reason why Neural Networks generalize is because they learn how to compress the input representation. It would be interesting to explore if his claims hold any water.

Work Completed

Reproduced Tishby's code and experiments. Extended the code to reproduce experiments conducted by Saxe. Extended the code to explore A Novel Mutual Information Estimation Idea. Produced code to plot the Information Plane as well as visualize the process in a video format.

Special Difficulties

- Getting Mutual Information Estimation to work was tricky and took a big chunk of time. Had to abandon some methods as they were too complex and required too much time.
- Wasn't able to conduct all the experiments I wanted – Such as testing different Datasets. The code supports such experiments, but I wasn't able to get them done in time.

[1]This word count was computed by `detex *.tex | tr -cd '0-9A-Za-z \n' | wc -w`

[2]This line count was computed by `wc -l **/*.py`