Calculating Mutual Information in Deep Neural Networks
Progress Report

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Success Criteria

Success criteria have been achieved, I am now able to reproduce the results in Tishby's paper[1]. That is, I am able to reproduce the information plane results that show the drift and the compression phase of a Neural Network for the specific parameters that Tishby used, and to show that the results are stable with variations to the parameters such as: batch size, network shape, training size.

Current Progress, Planned work

I am not yet able to confirm or deny Tishby's results when varying the Dataset activation function or the Mutual Information estimators (MIE), as there has been some difficulty getting sensible result from the Mutual Information estimators I was able to find, the current plan in this regard is to try to use the same estimator that was used in Saxe's paper [2] and see what results the I can get with only varying the MIE as Saxe's paper changed

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[1] https://arxiv.org/abs/1703.00810
[2] https://openreview.net/forum?id=ry_WPG-A-