

Bayesian Deep Learning and a Probabilistic Perspective of Generalization

Shubham Gupta

March 4, 2020

1 Introduction

- I found this paper from Andrew Gordon Wilson's twitter account (@andrewgwils) and the tweet/summary is available here
- This is another paper following the recent discussion around Bayesian Deep Learning, and I only decided to read this for fun!

2 Paper Introduction

- Parameter count is a poor indicator of generalization ability.
- Generalization depends on:
 - Support
 - Inductive biases of a model

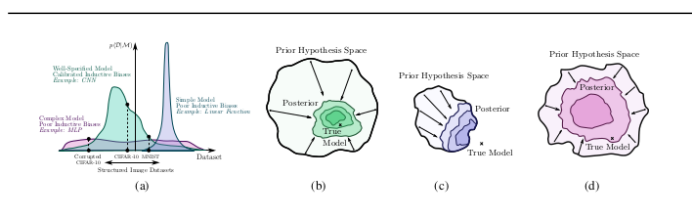


Figure 1: Probabilistic Perspective on Generalization

- For the given evidence (marginal likelihood), we have: $p(D|M) = \int p(D|M, w)p(w)dw$
- *Support* is: $p(D|M) \neq 0$
- *Inductive Biases*: Relative prior probabilities of different datasets i.e. distribution of support given by $p(D|M)$

3 Next

- Didn't really understand this paper. I will get back to it in sometime.