

CRUNCH Seminars at Brown, Division of Applied Mathematics

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Notes on Bayesian deep learning

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Making accurate and safe predictions using deep learning requires our models to know what they do not know. In other words, predictions should always be accompanied by the model's confidence in them. To this aim, the Bayesian framework allows the model to incorporate more than one hypothesis for making predictions based on the plausibility of each hypothesis. In this presentation, the Bayesian framework in conjunction with modern deep learning will be discussed. Topics covered are the motivation for incorporating uncertainty into our predictions, Bayesian hierarchical modeling, hyperparameters and hyperpriors, approximate inference techniques and model selection.