

FID3018 Opposition Report 3

For Vangjush Komini's session

By Abubakr Sediq Karali

karali@kt.se

The topics of the session covered calibration methods for DNN. While the first two papers deal with post training calibration that requires a validation dataset. The last paper proposed an inference time calibration. The topic is very relevant to the course and for me as part of the audience. In the session three main papers were discussed:

- On calibration of Neural Networks
- Verified Uncertainty Calibration
- Learning for Single-shot confidence calibration in neural network through stochastic inferences

The first paper introduced simple techniques to calibrate a neural network. They observed that depth, width, weight decay, and Batch Normalization are affecting the calibration. They also provide a simple and straightforward recipe for practical settings. The second paper started with the assumption that a perfect calibration does not exist. They observed that that popular recalibration methods are less calibrated than reported, and current techniques cannot estimate how miscalibrated they are. They proposed the scaling-binning calibrator, which first fits a parametric function to reduce variance and then bins the function values to actually ensure calibration. The third paper in contrast learns calibration as a part of inference time through stochastic inference.

The quality of the presentation was excellent. The best in the among the ones we had in the course. The slides are easy to watch, the figures are high in resolution and the equations are clear. However I would have appreciated a lot if the presenter provided a common introduction section where he could show a brief introduction to the field, group the papers together as in slide 31, what to expect from the discussed papers and the drawbacks for each.

The presentation took more than the required time, the presenter needs to calculate the time required for each slide and plan the presentation accordingly. The presentation however was clear. In general, the talk was organized in an easy to grasp way. The presentation highlighted the main contributions in each paper. The presenter gave a very good exposure of the technical details of individual papers and showed solid. I can argue that it was too much technical details and maybe that's why it took so long time. In the QA session, the presenter managed to address the questions put forward by the audience successfully.

Guo, Chuan, et al. "On calibration of modern neural networks." International Conference on Machine Learning. PMLR, 2017.

Kumar, Ananya, Percy Liang, and Tengyu Ma. "Verified Uncertainty Calibration."

Seo, Seonguk, Paul Hongsuck Seo, and Bohyung Han. "Learning for single-shot confidence calibration in deep neural networks through stochastic inferences." Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition. 2019.