Machine Learning Reading Notes

Brendan Duke

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1 Definitions

Deep Neural Networks (DNNs) are engineered systems inspired by the biological brain [1].

2 Paper Summaries

2.1 DeepPose: Human Pose Estimation via Deep Neural Networks [2]

This paper uses DNNs as a method for human pose estimation.

2.2 Dropout: A Simple Way to Prevent Neural Networks from Overfitting [3]

Dropout is a technique used to overcome the problem of overfitting in deep neural nets with large numbers of parameters. The idea is to train using many "thinned" networks, chosen by randomly removing subsets of units and their connections. The predictions from the thinned networks are approximately averaged at test time by using a single, unthinned, network with reduced weights.

- Existing regularization methods: stopping training as soon as validation error stops improving, L1 and L2 regularization, and weight sharing [4].

References

[1] I. Goodfellow, Y. Bengio, and A. Courville, "Deep learning," 2016, book in preparation for MIT Press. [Online]. Available: http://www.deeplearningbook.org

[2] A. Toshev and C. Szegedy, "Deeppose: Human pose estimation via deep neural networks," *CoRR*, vol. abs/1312.4659, 2013. [Online]. Available: http://arxiv.org/abs/1312.4659

[3] N. Srivastava, G. Hinton, A. Krizhevsky, I. Sutskever, and R. Salakhutdinov, "Dropout: A simple way to prevent neural networks from overfitting," *J. Mach. Learn. Res.*, vol. 15, no. 1, pp. 1929–1958, Jan. 2014. [Online]. Available: http://dl.acm.org/citation.cfm?id=2627435.2670313

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