Title:

Deep Learning Research at Data Science Laboratory, Seoul National University

Speaker:

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Abstract:

This talk will provide an overview of the deep learning related research at Data Science Lab, SNU. In particular, I will first present a couple of recent achievements obtained by applying deep learning to biomedical big data analysis [1]: understanding the internal structure of primary DNA sequences [2] and high-throughput analysis of medical imaging data [3]. I will then introduce DeepSpark [4], a distributed and parallel deep learning framework that simultaneously exploits Apache Spark for large-scale distributed data management and Caffe for GPU-based acceleration. Finally, I will discuss the opportunities and limitations of deep learning in diverse areas of engineering and science.

References:

[1] Deep Learning in Bioinformatics, Seonwoo Min, Byunghan Lee, and Sungroh Yoon, arXiv:1603.06430 [cs.LG], March 2016.

[2] Boosted Categorical Restricted Boltzmann Machine for Computational Prediction of Splice Junctions, Taehoon Lee and Sungroh Yoon, in Proceedings of International Conference on Machine Learning (ICML), Lille, France, July 2015.

[3] FingerNet: Deeep Learning-Based Robust Finger Joint Detection from Radiographs, Sungmin Lee, Minsuk Choi, Hyun-soo Choi, and Sungroh Yoon, in Proceedings of IEEE Biomedical Circuits and Systems Conference (BioCAS), pp. 619-622, Atlanta, Georgia, USA, October 2015.

[4] DeepSpark: Spark-Based Deep Learning Supporting Asynchronous Updates and Caffe Compatibility, Hanjoo Kim, Jaehong Park, Jaehee Jang, and Sungroh Yoon, arXiv:1602.08191v2 [cs.LG], Februaray 2016. [available at http://deepspark.snu.ac.kr]