Discrete Optimization and Machine Learning Seminar
TU Munich, Winter Term 2019

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Discrete Optimization for boosting Machine Learning algorithms

[1] Deep neural networks and mixed integer linear optimization.
M. Fischetti, and J. Jo. *Constraints*, 23(3):296–309, 2018.

[2] Online learning of combinatorial objects via extended formulation.
H. Rahmanian, D.P. Helmbold, and S.V.N. Vishwanathan. *International Conference on Algorithmic Learning Theory*, 2018.

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[3] One of:
Machine learning and data mining with combinatorial optimization algorithms.
D.S. Hochbaum. *Recent Advances in Optimization and Modeling of Contemporary Problems*, 109–129, 2018.

A comparative study of the leading machine learning techniques and two new optimization algorithms.
P. Baumann, D.S. Hochbaum, and Y.T. Yang. *European Journal of Operational Research*, 272(3), 1041–1057, 2019.

[4] Streaming weak submodularity: interpreting neural networks on the fly.
E. Elenberg, A.G. Dimakis, M. Feldman and A. Karbasi. *Advances in Neural Information Processing Systems*, 4044–4054, 2017.

[5] Understanding deep neural networks with rectified linear units.
R. Arora, A. Basu, P. Mianjy, and A. Mukherjee. *International Conference on Learning Representations*, 2018.

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[6] Reinforcement learning for integer programming: learning to cut.
Y. Tang, S. Agrawal, and Y. Faenza. *arXiv*:1906.04859, 2019.

[7] A machine learning-based approximation of strong branching.
A. Marcos Alvarez, Q. Louveaux, and L. Wehenkel. *INFORMS Journal on Computing*, 29(1):185-195, 2017.

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[8] One of:
Learning heuristics over large graphs via deep reinforcement learning.
A. Mittal, A. Dhawan, S. Medya, S. Ranu, and A. Singh. *arXiv*:1903.03332, 2019.

Learning combinatorial optimization algorithms over graphs.
H. Dai, E. Khalil, Y. Zhang, B. Dilkina, and L. Song. *Advances in Neural Information Processing Systems*, 6348–6358, 2017.

[9] Attention, learn to solve routing problems!
W. Kool, H. van Hoof, and M. Welling. *International Conference on Learning Representations*, 2019.