Distributed Optimization of All-in-one SVMs for Extreme Classification

Workshop Keynote Talk

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ABSTRACT

Training of multi-class or multi-label classification machines are embarrassingly parallelizable via the one-vs.-rest approach. However, training of all-in-one multi-class learning machines such as multinomial logistic regression or all-in-one multi-class SVMs (MC-SVMs) is not parallelizable out of the box. In my talk, I present optimization strategies to distribute the training of all-in-one multi-class SVMs over the classes, which makes them appealing for the use in extreme classification.

CCS CONCEPTS

• **Theory of computation** → **Distributed algorithms**; **Support vector machines**; • **Mathematics of computing** → *Solvers*; *Mathematical optimization*; *Quadratic programming*; • **Computing methodologies** → *Supervised learning by classification*; Structured outputs;

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BIO

Since 2017 Marius Kloft is a professor of machine learning at the Department of Computer Science of TU Kaiserslautern. Prior to joining TUK, he was a junior professor at HU Berlin (2014-2017) and a joint postdoctoral fellow at Courant Institute and MSKCC, working with M. Mohri, C. Cortes, and G. Rätsch. MK is interested in theory and algorithms of statistical machine learning and its applications, especially in statistical genetics. He has been working on, e.g., multiple kernel learning, multi-task learning, anomaly detection, extreme classification, and adversarial learning for computer security. He has co-organized workshops on multiple kernel learning, multi-task learning, anomaly detection, and extreme classification at NIPS (2010, 2013, 2014, 2017), ICML (2016), and Dagstuhl (2015, 2018). For his research, MK received the Google Most Influential Papers 2013 award.

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