ID de Contribution: **113** Type: **Invited talk**

An Improved Analysis of the Clipped Stochastic subGradient Method under Heavy-Tailed Noise

mercredi 30 juillet 2025 11:45 (30 minutes)

In this talk, we show novel optimal (or near optimal) convergence rates for a clipped version of the projected stochastic subgradient method. We consider nonsmooth convex problems in Hilbert spaces over possibly unbounded domains, under heavy-tailed noise that possesses only the first p moments for $p \in]1,2]$. For the last iterate, we establish convergence in expectation with rates of order $(\log^{1/p} k)/k^{(p-1)/p}$ and $1/k^{(p-1)/p}$ for infinite and finite-horizon respectively. We also derive new convergence rates, in expectation and with high probability, for the average iterate — improving the state of the art. Those results are applied to the problem of supervised learning with kernels demonstrating the effectiveness of our theory. Finally, we give preliminary experiments.

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