ID de Contribution: **211** Type: **Invited talk**

Taming the Curse of Dimension/Horizon in Multistage Stochastic Programming

mardi 29 juillet 2025 11:30 (25 minutes)

Algorithms for solving Multistage Stochastic Programming (MSP) are long known to suffer from the curse of dimension and horizon. Stochastic Dual Dynamic Programming (SDDP) for stage-wise independence MSP problem admits a complexity of scales exponentially with respect to the decision dimension d in terms of accuracy ϵ, i.e., $O(\epsilon^{-d})$. On the other hand, Stochastic Approximation (SA) and Sample Average Approximation (SAA) type of methods admit a complexity that scales exponentially with respect to the horizon T, i.e., $O(\epsilon^{-T})$ for general MSP. In this talk, we discuss a novel approximation-based algorithm that achieves $O(poly(1/\epsilon))$ dependence in a class of MSP problems.

Authors: HU, Yifan (EPFL); KRAUSE, Andreas; KUHN, Daniel (EPFL)

Orateur: HU, Yifan (EPFL)

Classification de Session: Mini-symposium

Classification de thématique: Mini-symposium: Taming the Curse of Dimension in Multistage Stochastic Programming