January 20-22, 2016

Advanced Lecture by Pr Yuri Nesterov

« Advanced Convex Optimization »

« In this course, we address a wide spectrum of questions related to theoretical justification of optimization algorithms and complexity of optimization problems. We start from deriving the lower complexity bounds for different classes of Black-Box convex optimization problems and providing them with optimal methods. Our second topic is the second-order schemes with global complexity guarantees. After that, we discuss different approaches of Structural Optimization, which lead to significant acceleration of Black-Boxminimization methods. The first of these topics is the theory of self-concordantfunctions and polynomial-time interior-point methods. For large-scale optimization, we describe the smoothing technique. Finally, we present new subgradient methods with sublinear iteration cost, which can be applied for solving huge-scale optimization problems. »