

Optimization and Equilibrium Seminar

Speaker: David Torregrosa Belén (Centro de Modelamiento Matemático)

Title: Randomized block-coordinate descent beyond gradient global Lipschitz continuity.

Abstract: Randomized block-coordinate algorithms are recognized to furnish efficient iterative schemes for addressing large-scale problems, especially when the computation of full derivatives entails substantial memory requirements and computational efforts. Classically, the convergence analysis of these methods relies on a standard assumption of global Lipschitz continuity of partial gradients of differentiable functions. This compromises its applicability to situations where gradient Lipschitz continuity is violated, for instance, in nonnegative matrix factorization or recovery of signals from quadratic measurements. In this talk, we present a randomized block proximal gradient algorithm for addressing the sum of a separable (nonsmooth) proper lower-semicontinuous function and a differentiable function whose partial gradients are assumed to be Lipschitz continuous only locally. At each iteration, the method adaptively selects a proximal stepsize to satisfy a sufficient decrease condition without prior knowledge of the local Lipschitz moduli of the partial gradients of the differentiable function. We conduct a thorough analysis of the convergence of the method and illustrate its performance in an experiment in image compression.

Miércoles 30 de Abril de 2025, a las 16:15 hrs.

Sala de Seminarios John Von Neumann del Centro de Modelamiento Matemático (Beauchef 851, Edificio Norte, Piso 7).



