THE UNIVERSITY  OF HONG KONG

Department of Mathematics

C O L L O Q U I U M

Proximal minimization algorithms for nonconvex and nonsmooth problems

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Abstract

We introduce a self-contained convergence analysis framework for first-order methods in the setting of nonconvex and nonsmooth optimization problems. Our approach builds on the powerful Kurdyka-Lojasiewcz property. It allows for analyzing, under mild assumptions, various classes of nonconvex and nonsmooth problems with semi-algebraic data, a property shared by many optimization models arising in various fundamental data science paradigms.

We illustrate our results by focusing on nonconvex and nonsmooth minimization problems with a composite objective, where the differentiable part of the objective is freed from the usual and restrictive global Lipschitz gradient continuity assumption. We then consider a Bregman-based proximal gradient method for the nonconvex composite model with smooth adaptable functions, which is proven to globally converge to a critical point under natural assumptions on the problem's data, and, in particular, for semi-algebraic problems.

Date:	**January 11, 2019 (Friday)**
Time:	**5:30 – 6:30pm**
Venue:	**Room 210, Run Run Shaw Bldg., HKU**

All are welcome