Transformed Primal-Dual Methods for Non-linear Saddle Point Systems

Long Chen[1]

Abstract

In this talk, we present a transformed primal-dual gradient flow for a class of nonlinear smooth saddle point systems. We then derive several transformed primal-dual iterations by implicit Euler, explicit Euler, and implicit-explicit Euler discretization of the flow, and provide linear convergence even for non-strongly convex-concave cases. We also give a clear convergence analysis with nonlinear inexact inner solvers. This is a joint work with Ph.D student Jingrong Wei.

[1]University of California, Irvine