Analysis Seminar

Separable Bregman Framework For Sparsity Constrained Nonlinear Optimization

By

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Abstract: We consider the minimization of a continuously differentiable function over a cardinality constraint. We focus on smooth and relatively smooth functions. These smoothness criteria result in new descent lemmas. Based on the new descent lemmas, novel optimality conditions and algorithms are developed, which extend the previously proposed hard-thresholding algorithms. We give a theoretical analysis of these algorithms, and reproduce a convergence result with elementary analysis techniques. In particular, we focus on the square of the weighted l_2 norm.
We apply our algorithms to compressed sensing problems to demonstrate the theoretical findings and the enhancements achieved through the proposed framework.

Date: Monday, March 17, 2025
Time: 15:40-16:40
Place: Mathematics Seminar Room, SA – 141