Matrix Completion: Optimization Methods and Applications

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Matrix completion (MC) is an important technique which is aimed to recover a low-rank or nearly low-rank matrix from undersampled/incomplete data. Its application varies from wireless communications, recommendation systems, images inpainting, missing data imputation. In this talk we focus on the convex programming reformulation and discuss optimization approaches ranging from iterative methods based on the SVD decomposition to relaxed Interior Point methods. Computational results are reported with a special focus on the imputation of missing data in a real onshore wind farm. The data are organized into a matrix in a daily range and MC approaches are used to recover the missing data, showing that MC is a reliable and parameter-free tuning tool to impute missing data in these applications.