Local convergence of an algorithm for subspace identification with missing data

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Low-dimensional linear subspace approximations to high-dimensional data find application in a great variety of applications where missing data are the norm, not only because of errors and failures in data collection, but because it may be impossible to collect and process all the desired measurements.

In this poster, I will describe recent results on estimating subspace projections from incomplete data. I will discuss the convergence guarantees and performance of the algorithm GROUSE (Grassmannian Rank-One Update Subspace Estimation), a subspace tracking algorithm that performs gradient descent on the Grassmannian. I will also discuss the relationship of GROUSE with an incremental SVD algorithm, and show results of GROUSE applied to problems in computer vision.

Joint work with Stephen J. Wright.