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Off-the-Grid Low-Rank Matrix Recovery: Seismic Data Reconstruction

This talk discusses a modified low-rank matrix recovery work-flow that admits unstructured observations. By incorporating a regularization operator which accurately maps structured data to unstructured data, into the nuclear-norm minimization problem, this approach is able to compensate for data irregularity. Furthermore, by construction this formulation yields output that is supported on a structured grid. Recovery error bounds are established for the methodology with matrix sensing and matrix completion numerical experiments including applications to seismic trace interpolation to demonstrate the potential of the approach.