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Log-sum penalized Poisson loss minimization for matrix recovery. (Chinese. English summary)
Zbl 07233681

Summary: In engineering applications, including intelligent transportation systems, data mining, distance measurements etc., most of the matrix recovery models are proposed based on the convex relaxation of matrix rank function, and the significant recovery performances have been obtained. However, the studies of compression sensing show that the convex relaxation function has many disadvantages in the signal recovery task. In this paper, the non-convex relaxation function is thus exploited to solve the matrix recovery problem under Poisson noise. In specific, a Log-sum function regularized recovery model is introduced, and then an efficient algorithm is designed for the proposed model and its convergence result is also provided. Experimental results on the simulated and real data demonstrate that the proposed method can obtain better recovery performance compared with the existing methods.

MSC:
15-XX Linear and multilinear algebra; matrix theory

Keywords:
matrix recovery; non-convex relaxation; Log-sum function; Poisson noise

Full Text: DOI