



Karlstad Applied Analysis Seminar (2021)

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Heuristic methods for rank minimization with applications

Abstract

Several applied problems can be elegantly formulated as rank minimization, e.g. design of electric circuits with minimal number of elements, minimal Euclidean embedding or low-rank completion of matrices as in the Netflix challenge. In this talk, two heuristic methods for rank minimization from [1,2] are discussed and possible application to minimization of numerical dispersion and dispersion design are presented.

[1] Fazel, Maryam, Haitham Hindi, and Stephen P. Boyd. "Log-det heuristic for matrix rank minimization with applications to Hankel and Euclidean distance matrices." Proceedings of the 2003 American Control Conference, 2003.. Vol. 3. IEEE, 2003. [2] Mohan, Karthik, and Maryam Fazel. "Reweighted nuclear norm minimization with application to system identification." Proceedings of the 2010 American Control Conference. IEEE, 2010. [3] Tkachuk, Anton. "Customization of reciprocal mass matrices via log-det heuristic." International Journal for Numerical Methods in Engineering 121.4 (2020): 690-711.