



THE UNIVERSITY OF CHICAGO

COMPUTATIONAL AND APPLIED MATHEMATICS STUDENT SEMINAR

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Random Sampling, Matrix AM-GM Inequality, and Noncommutative Positivstellensatz

TUESDAY, January 21, 2020, at 3:30 PM
SHFE 203, 5757 S. University Avenue

ABSTRACT

The comparison between with-replacement sampling and without-replacement sampling has been an intriguing problem in machine learning and optimization. One of the approach to answer this question is the matrix arithmetic-geometric mean inequality. In this work, we generalize previous result for matrix arithmetic-geometric mean inequality of order 2 and 3. Furthermore, by using noncommutative Positivstellensatz, we analyze the noncommutative arithmetic-geometric mean inequality of order up to 5 and proves that the inequality fails numerically.

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