

1145-VN-518 **Bombina Polina*** (pbombina@crimson.ua.edu), 3914 Watermelon Rd Apt 320C, Northport, AL 35473, and **Brendan Ames**. *The Dense Submatrix discovery*. Preliminary report.

We consider the problem of identifying the densest mn -submatrix in the given binary matrix. We write this problem as rank- constrained cardinality minimization and then relax it using nuclear and trace norms. Then we show that the densest mn -submatrix can be recovered from the solution of our convex relaxation for matrices containing a single dense submatrix. Results of numerical simulations for randomly generated matrices demonstrate the efficiency of our algorithm. (Received September 08, 2018)