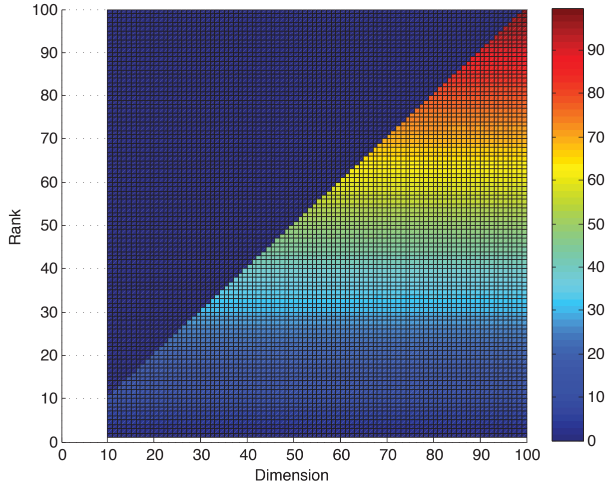

Figure 8: PCP assumption violations as a function of rank and dimension. For each dimension between 10 and 100 and each rank between 1 and the dimension, we generated a low-rank matrix L_0. We measured the violation of inequality (4) in Theorem 3.4. That is, the plot displays the value of $rank(L_0)\mu - \rho_r \frac{n}{\log^2 n}$.

and the proportion of nonzero entries in S_0 increases, the fraction of successful recoveries decreases.

5 Conclusion

The above experiments suggest that successful recoveries are possible for matrices that violate the incoherence conditions. Future work could investigate the role of each of the three incoherence inequalities separately. In particular, what is the role of the third incoherence inequality, and why is it binding for the matrices generated in the above experiments? Because the conditions of Theorem 3.4 are sufficient but not necessary, future work could search for weaker conditions that are nonetheless sufficient, as well as conditions that are easier to check.