Graduate Seminar on Discrete Optimization (S4C1)

Summer 2018
Facility Location Problems

Talks:

1. Local Search
   V. Arya, N. Garg, R. Khandekar, A. Meyerson, K. Munagala, and V. Pandit [2004]: *Local search heuristics for k-median and facility location problems*

2. Dual Fitting
   K. Jain, M. Mahdian, E. Markakis, A. Saberi, and V.V. Vazirani [2003]: *Greedy facility location algorithms analyzed using dual fitting and factor-revealing LP*

3. Combined algorithms for uncapacitated facility location
   J. Byrka and K. Aardal [2010]: *An optimal bifactor approximation algorithm for the metric uncapacitated facility location problem*
   S. Li [2013]: *A 1.488 approximation algorithm for the uncapacitated facility location problem*

4. Approximation for k-median
   S. Li and O. Svensson [2016]: *Approximating k-median via pseudo-approximation*
   J. Byrka, T. Pensyl, B. Rybicki, A. Srinivasan and K. Trinh [2017]: *An improved approximation for k-median and positive correlation in budgeted optimization*

5. Primal-dual algorithms
   S. Ahmadian, A. Norouzi-Fard, O. Svensson, J. Ward [2017]: *Better Guarantees for k-Means and Euclidean k-Median by Primal-Dual Algorithms*

6. Ordered k-median
   D. Chakrabarty, C. Swamy [2017]: *Interpolating between k-Median and k-Center: Approximation algorithms for ordered k-median*
   J. Byrka, K. Sornat, J. Spoerhase [2017]: *Constant-Factor Approximation for Ordered k-Median*

7. Capacitated k-center problem
   H.-C. An, A. Bhaskara, C. Chekuri, S. Gupta, V. Madan, O. Svensson [2015]: *Centrality of trees for capacitated k-center*

8. LP-based algorithm for capacitated facility location
   H.-C. An, M. Singh, and O. Svensson [2017]: *LP-based algorithms for capacitated facility location*

9. Capacitated k-median with $(1+\epsilon)k$ open facilities.

   S. Li [2016]: *Approximating capacitated k-median with $(1+\epsilon)k$ open facilities*

   G. Demirci, S. Li [2016]: *Constant Approximation for Capacitated k-Median with $(1+\epsilon)$-Capacity Violation*

10. Clustering with outliers

    Z. Friggstad, K. Khodamoradi, M. Rezapour, M.R. Salavatipour [2018]: *Approximation Schemes for Clustering with Outliers*

    R. Krishnaswamy, .Li, .Sandeep [2017]: *Constant Approximation for k-Median and k-Means with Outliers via Iterative Rounding*