

Seminar on “Graphs, Algorithms & Optimization”

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TU Berlin

April 29, 2019

Important dates

Attendance of all participants is expected at all meetings !

- ▶ 8.4.2019: first meeting
 - ▶ Presentation of topics
- ▶ **29.4.2019: second meeting**
 - ▶ **Guidelines for presentations**
 - ▶ **Assignment of topics**
- ▶ 27.5.2019: 5-minute presentations
 - ▶ Short introduction into topic and main results
- ▶ 6.6.2019: Final slides due
- ▶ 13–14.6.2019: Seminar TU Berlin

Selected Papers

1. Azar, Y., & Epstein, A. (2005). **Convex programming for scheduling unrelated parallel machines.**
2. Kalaitzis, C., Svensson, O., & Tarnawski, J. (2017). **Unrelated machine scheduling of jobs with uniform smith ratios.**
3. Gupta, A., Kumar, A., Nagarajan, V., & Shen, X. (2018). **Stochastic load balancing on unrelated machines.**
4. Gupta, V., Moseley, B., Uetz, M., & Xie, Q. (2017). **Greed Works-Online Algorithms For Unrelated Machine Stochastic Scheduling.**
5. Feigenbaum, I., & Johnson, M.P. (2015). **Selfish Knapsack.**
6. Olver, N., & Végh, L. A. (2017). **A simpler and faster strongly polynomial algorithm for generalized flow maximization.**
7. Arora, S., Rao, S., & Vazirani, U. (2009). **Expander flows, geometric embeddings and graph partitioning.**
8. Charikar, M., & Chatziafratis, V. (2017). **Approximate hierarchical clustering via sparsest cut and spreading metrics.**
9. Boczkowski, L., Korman, A., & Rodeh, Y. (2018). **Searching a Tree with Permanently Noisy Advice.**
10. Singh, M., & Xie, W. (2018). **Approximate positive correlated distributions and approximation algorithms for D-optimal design.**
11. Nikolov, A., & Singh, M. (2016). **Maximizing determinants under partition constraints.**
12. Elbassioni, K., & Nguyen, T. T. (2017). **Approximation algorithms for binary packing problems with quadratic constraints of low cp-rank decompositions.**
13. Mai, T. & Vazirani, V. (2018). **Finding Stable Matchings That Are Robust to Errors in the Input.**
14. Brubach, B., Sankararaman, K. A., Srinivasan, A., & Xu, P. (2016). **New algorithms, better bounds, and a novel model for online stochastic matching.**
15. Manshadi, V. H., Gharan, S. O., & Saberi, A. (2012). **Online stochastic matching: Online actions based on offline statistics.**
16. Wang, X., Truong, V. A., & Bank, D. (2018). **Online advance admission scheduling for services with customer preferences.**
17. Grandoni, F., Leonardi, S., Sankowski, P., Schwegelshohn, C., & Solomon, S. (2019). **$(1 + \epsilon)$ -Approximate Incremental Matching in Constant Deterministic Amortized Time.**
18. Buchbinder, N., Feldman, M., & Garg, M. (2018). **Online submodular maximization: Beating 1/2 made simple.**

Your Talk

- ▶ Time: exactly 40 min (+ 5min. for questions)
 - ▶ no outline on separate slide necessary
 - ▶ about 10-15 min introduction
 - ▶ Do not forget to situate the paper within literature
 - ▶ about 25-30 min results and proof ideas
 - ▶ Focus / Amount of details may depend on paper length !
 - ▶ about 5 min conclusion
- ▶ Media:
 - ▶ LaTeX-beamer, Keynote, Prezi, Powerpoint, etc.
- ▶ Goal:
 - ▶ Understandability (everyone should be able to understand everything)

Layout

- ▶ per slide: small pieces of information that are easy to digest
 - ▶ ≤ 30 words! (better ≤ 20)
 - ▶ ≤ 10 words at once! (better ≤ 5)
- ▶ “perfect” layout
 - ▶ no distractions (transitions only where helpful)
 - ▶ no typos
 - ▶ consistency, e.g., in use of upper/lowercase symbols
- ▶ avoid massive use of math symbols (if necessary use blackboard)

Layout (continued)

- ▶ use figures wherever possible
 - ▶ rule of thumb: (almost) no slide without a figure!
- ▶ definitions / algorithms / examples by picture
- ▶ saturated colours (**no yellow**)
- ▶ highlight **important stuff**
- ▶ we do not require a handout
 - ▶ we expect flawless slides
- ▶ your explanation must be represented by the slides

Storyline

- ▶ at every stage of the talk it should be clear
 - ▶ what is our aim?
 - ▶ what do we know already?
 - ▶ what do we still have to show?
- ▶ try to reflect these questions in
 - ▶ layout of slides
 - ▶ language
 - ▶ repetition
 - ▶ running examples
- ▶ rule of thumb: first intuition, then formalisation
- ▶ examples, examples, examples, and counterexamples

Language

- ▶ use language to structure your talk
 - ▶ breaks
 - ▶ emphasis
 - ▶ repetition
 - ▶ make clear, precise and concise statements
- ▶ language should not distract
 - ▶ be calm (use language and gestures instead of a laser pointer)
 - ▶ variety is good (use intonation breaks)
 - ▶ address the audience (not the wall)
- ▶ you are the main attraction, not your slides

Practice

- ▶ you need to practice a lot
- ▶ practice loud with your slides (best: with projector)
- ▶ do not learn by heart (except the first three statements)
- ▶ rule of thumb: practice the full talk at least 3 times
 - ▶ until you feel safe
- ▶ excitement is good
- ▶ we will ask questions, when sth. is not clear
 - ▶ be prepared!

Evaluation

- ▶ your grade reflects you own work
 - ▶ story
 - ▶ storyline
 - ▶ selection of presented material
 - ▶ knowledge of the paper
 - ▶ layout
 - ▶ structure
 - ▶ figures
 - ▶ clarity
 - ▶ presentation
 - ▶ eye contact and language