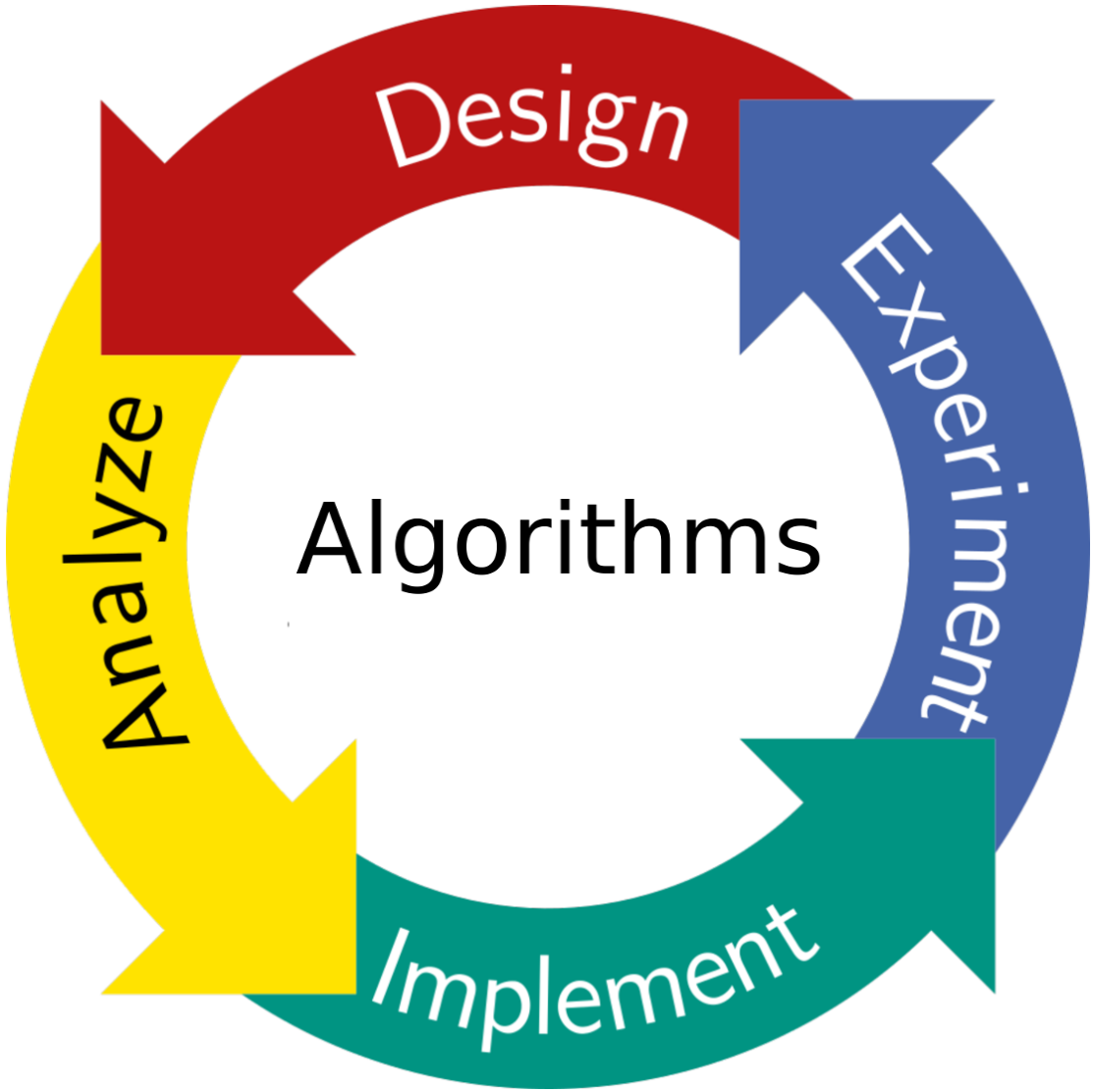

If you want to participate, turn on your camera.

Organization

Lecturer

Christian Schulz

- University of Heidelberg
- Mail: `christian.schulz@informatik.uni-heidelberg.de`
- Room 1/328
- Consultation: Sa. 00:00-01:00 Uhr
- This seminar $\rightarrow$ 4 LP

Organization

The course will be completely online.

Workload: 120h
Passing the Course: Regular participation in the seminar and discussion. Giving a talk of roughly 35 minutes in English and a written report (also in English) of 7 pages (not more, not less).

Mode:

- Interim meeting in 24th November, 4pm to 6pm
  $\rightsquigarrow$ short 5 minute talks
- Block meeting 18th-19th January (11am to 4pm), 35 min talks
- Handing in report (three weeks before the block meeting)
  $\rightsquigarrow$ report feedback from costudents via Easychair
- Handing in slides (a week before the block meeting)
  $\rightsquigarrow$ slide feedback
- Handing in revised report (two weeks after the block meeting)
  $\rightsquigarrow$ report feedback from us
- Handing in final report (three weeks after the block meeting)

There are 14 spots in this seminar.
In order to subscribe to the seminar, you need to send us (both, me and Ernestine Grossmann) your material/transcripts and an ordered list of four preferences of the topics on the following slide. That means you should look at a title, abstract and the content of the paper and see if you like it! NOTE: Last semester we accepted everyone. Half of the spots will be given on a first come, first serve basis.

Deadline: 22nd October

Topics

Feedback Vertex Set:

- A Naive Algorithm for Feedback Vertex Set [Cao]
- Weighted min. feedback vertex sets and implementation in human cancer genes detection [Li et al.]
- Experimental study of FPT algorithms for the directed feedback vertex set problem [Fleischer et al.]
- Improved Analysis of Highest-Degree Branching for Feedback Vertex Set [Iwata et al.]
- 2-Approximating Feedback Vertex Set in Tournaments [Lokshtanov et al.]
- Experimental Evaluation of Parameterized Algorithms for Feedback Vertex Set [Kiljan et al.]
- Linear-Time Kernelization for Feedback Vertex Set [Iwata]
- Linear programming based approximation algorithms for feedback set problems in bipartite tournaments [Zuylen]

Routing in Transportion Networks:

- Multi-criteria shortest paths in time-dependent train networks [Disser et al.]
- Contraction of timetable networks with realistic transfers [Geisberger]
- Intriguingly simple and fast transit routing [Dibbelt et al.]
- Connection scan accelerated [Strasser et al.]
- Connection Scan Algorithm [Dibbelt et al.]
- Trip-based public transit routing [Witt]
- Fast, Exact and Scalable Dynamic Ridesharing [Buchhold et al.]
- Recoverable robust timetable information [Goerigk et al.]

Organization

- Go through this list
- Get the papers through www.dblp.org
- Send us an ordered list of four topics + transcripts and tell me why you want to join the seminar

Deadline: 22nd October

Tips for Report

- Make clear that you are reviewing and summarizing a paper
- Use your own words, do not copy from the papers
- Use the template available here
  `https://github.com/AlgoEngHeidelberg/template_AEseminars`
- Stick to 7 pages overall (not more, not less), this includes references
- Make sure that you make motivation, highlevel view the algorithm and technical contribution very clear
- NOTE: you have to have understood the algorithm very well to do that (understand everything first, then write your report)
- ALSO: have a paragraph in which you reflect on the paper, what could have been done better, what are weak spots, how do you think one can improve the algorithm / results

Rules for Report

- NO pseudocodes
- Use figures to explain your algorithm as much as possible
- Explain the highlevel view / intution first
- Then go into technical details
- ALSO: reflect on the paper, what could have been done better, what are weak spots, how do you think one can improve the algorithm / results

Rules for Report

- Common pitfalls:
  - use consistent upper and lower case (especially in captions)
  - referencing a figure/section is this with upper case, i.e. Figure 3 and Section 2 etc..
  - avoid one or two line paragraphs
  - use spell checking, e.g. under linux “aspell -len check document.tex”
  - center figures
  - use high quality images, e.g. if you copy an experimental picture or some figure from the original paper, make sure that the image you are screenshotting is very large on your screen when you do that
  - use bibtex entries from dblp.org (most of them should be correct and contain everything you need)
  - paragraphs should not end on a single word (use ~ in latex code as a space, then it will not make a line break there)
  - same for references: references should not start at the beginning of a line, i.e. use xyz \cite{,,,} to avoid that

Rules for Presentation

- use latex beamer for your presentation
- rule: one picture per slide (or at least one per every other slide)
- avoid long sentences on your slides
- avoid line breaks ending on one or two words (often one can shorten the preceding sentence).
- try to distill the important things of the paper (i.e. it does not make sense to go through details and notation that nobody understands) – rather have a high level view first, give the basic ideas, give examples and then go into details
- the rule typically is: the better YOU understood the topic, the more easy it will be for your costudents to understand your algorithm during the talk
- at most 1 slide per minute (even better 1 slide per 1.5 min)