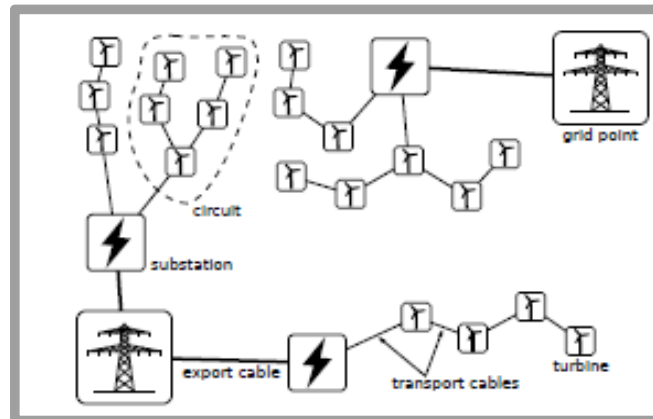


Seminar Algorithmentchnik

Algorithms for Energy Networks

Institut für Theoretische Informatik
Lehrstuhl für Algorithmenik
Prof. Dorothea Wagner



1. Organizational Remarks

2. Topics

Introduction of Participants

That's us...



Tamara Mchedlidze



Martin Nöllenburg



Ignaz Rutter



Dorothea Wagner

Who are you?

- Name, Semester, course of studies
- previous knowledge
- interest in the seminar

Goals

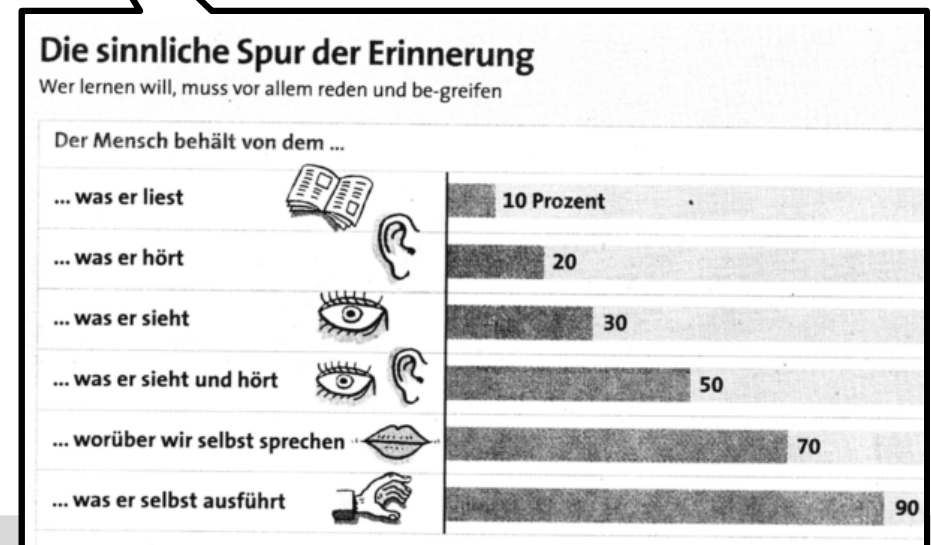
- Credit points for successful participation in the seminar

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- Obtain knowledge about current research topics in Algorithmics for energy networks
- Autonomous acquisition of a major topic
 - identify relevant aspects for the talk
 - relation to context
 - literature research

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 - literature research
- Communicate findings in a talk
- Discussion of all topics
- Essay on the topic

Grading

- Grades:
 - 60% – main talk
 - 40% – essay

- Criteria:
 - familiarity with the topic
 - quality of the talk
 - handling of questions
 - essay
 - **complying with deadlines**

Requirements

- active participation in **all** talks
- 5min teaser – short presentation
- main talk: detailed presentation of topic and results (40–45 minutes)
 - slides
 - discuss your concept with your advisor:
 ≥ 2 weeks before the talk
 - discuss your slides with your advisor:
 ≥ 1 week before the talk

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- essay
 - 10–15 pages in \LaTeX
 - carve out and describe the main results and ideas in your own words

Tentative Schedule

date	agenda
today	preparatory meeting & distribution of topics
21.5.2013	short presentations
28.5.2013	talks 1 & 2
4.6.2013	talks 3 & 4
25.6.2013	talks 5 & 6
31.7.2013	essay (first version)
30.9.2013	essay (final version, firm deadline!)

Tuesday
15:45 - 17:15 Uhr
Room 301

Webseite: <http://i11www.iti.kit.edu/> → *Lehre* →
SS 2013 → *Seminar Algorithmentchnik*

1. Organizational Remarks

2. Topics

Wind Energy

- **Topic 1:** Design of Wind Farms. Graph-theoretic Approach.
- **Topic 2:** Design of Wind Farms. Two mixed integer formulations.
- **Topic 3:** Power Generation, Intermittency and Volatility.

Robustness and Vulnerability Analysis

- **Topics 4 & 5:** different models and optimization techniques

Optimal Power Flow

- **Topic 6:** Survey of different optimization approaches

Demand Allocation in Smart Grids

- **Topic 7:** Scheduling by Strip Packing with Slicing

Outlook

Next steps:

- read and understand topic
- contact your advisor

Next regular meeting:
Tuesday, 21.5., 15:45 Uhr
short presentations
Room 301, Building 50.34