FranziskaWegner

Research Assistant and PhD Candidate

contact

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languages

german mother tongue
english fluency

programming

Python, MATLAB, C/C++

Education

2010–2014 **Master** of Science — Karlsruhe Institute of Technology

Network Flow Models for Power Grids. This thesis presents flow models for power grids and experimental results based on theoretical results with regard to the placement of Flexible AC Transmission Systems.
Study specialization in algorithmics and in cryptography and security.

2007–2010 **Bachelor** of Engineering — University of Cooperative Education in Karlsruhe

Green IT – Designing a Virtual and Cloud-based Infrastructure. This thesis designs a virtual test and working environment infrastructure for the scenarios of the IMS ISA (SAP AG).
Specialization in networking and software systems in collaboration with SAP AG.

Experience

2014–Now **Karlsruhe Institute of Technology (KIT)** — Karlsruhe, Germany

Research Assistant and PhD Candidate
Research on graph algorithms for power grids at the Institute of Theoretical Informatics chair of Prof. Dr. Dorothea Wagner.

2013–2014 **Karlsruhe Institute of Technology (KIT)** — Karlsruhe, Germany

Student Research Assistant
Preparation and conversion of learning material to tactile graphics and accessable documents for visually impaired people, and contribution to the organization and realization of a summer university for visually impaired people.

2010–2012 **SAP AG** — Rot-Malsch, Germany

Student Employee
Virtualization of test and working environment at IMS ISA Germany.

2007–2010 **SAP AG** — Walldorf, Germany (partly in Belfast, Northern Ireland)

Cooperative Education
In the course of six internships – of these one overseas internship at SAP research in Belfast, Northern Ireland – with an overall duration of about 18 months, cooperation and development on projects with regard to software testing, tool development and virtualization including utilization of C/C++, Python, ABAP and Java.

Teaching

2017 — Karlsruhe Institute of Technology (KIT)

- Student supervisor for the practical course in software engineering with the topic “Visualization of Power Flows in Power Grids”
- Supervisor for the seminar “Classic in the Theoretical Computer Science”
- Teaching one lecture and exercise unit in the lecture “Energy Informatics”

2016 Karlsruhe Institute of Technology (KIT)

- Organizer and supervisor for the seminar “Energy Informatics”
- Student supervisor for the seminar “Techniques in Algorithmic – Selected Topics in the Algorithmic Graph Theory”

2015 Karlsruhe Institute of Technology (KIT)

- Student supervisor for the practical course in software engineering with the topic “Development of a Campus Route Planner”
- Supervisor for the seminar “Methods and Algorithm for Evaluating and Optimizing Power Grids”
- Student supervisor for the introductory seminar course “The P unequal NP Hypothesis”

2014 Karlsruhe Institute of Technology (KIT)

- Student supervisor for the seminar “Techniques in Algorithmic”
- Teaching assistant in the lecture “Fundamentals of Theoretical Computer Science”
- Student supervisor for the practical course in software engineering with the topic “Development of a Campus Route Planner”

Publications

Paper

A Simulated-Annealing-Based Approach for Wind Farm Cabling
Sebastian Lehmann, Ignaz Rutter, Dorothea Wagner, and Franziska Wegner
Proceedings of the Eighth International Conference on Future Energy Systems, pp. 203–215. ACM, 2017.

Analysis of Redispatch and Transmission Capacity Pricing on a Local Electricity Market Setup
Philipp Staudt, Franziska Wegner, Johannes Gärttner, and Christof Weinhard
14th International Conference on the European Energy Market (EEM), pp. 1–6. IEEE, 2017.

Scalable Exact Visualization of Isocontours in Road Networks via Minimum-Link Paths
Moritz Baum, Thomas Bläsius, Andreas Gemsa, Ignaz Rutter, and Franziska Wegner
Proceedings of the 24th Annual European Symposium on Algorithms (ESA), 7:1–7:18. Schloss Dagstuhl - Leibniz-Zentrum für Informatik, 2016.

Computing Minimum-Link Separating Polygons in Practice
Moritz Baum, Thomas Bläsius, Andreas Gemsa, Ignaz Rutter, and Franziska Wegner
Proceedings of the 32nd European Workshop on Computational Geometry (EuroCG). 2016.

Towards Realistic Flow Control in Power Grid Operation
Tamara Mchedlidze, Martin Nöllenburg, Ignaz Rutter, Dorothea Wagner, and Franziska Wegner
Energy Informatics (EI), pp. 192–199. Springer, 2015.

Operating Power Grids with few Flow Control Buses
Thomas Leibfried, Tamara Mchedlidze, Nico Meyer-Hübner, Martin Nöllenburg, Ignaz Rutter, Peter Sanders, Dorothea Wagner, and Franziska Wegner
Proceedings of the Sixth ACM e-Energy International Conference on Future Energy Systems, pp. 289–294. ACM, 2015.

Technical Report

Scalable Isocontour Visualization in Road Networks via Minimum-Link Paths
Moritz Baum, Thomas Bläsius, Andreas Gemsa, Ignaz Rutter, and Franziska Wegner
ArXiv e-prints 1602.01777, 2016.

Operating Power Grids with Few Flow Control Buses
Thomas Leibfried, Tamara Mchedlidze, Nico Meyer-Hübner, Martin Nöllenburg, Ignaz Rutter, Peter Sanders, Dorothea Wagner, and Franziska Wegner
ArXiv e-prints 1505.05747, 2015.

Poster

Poster Abstract: Graph-theoretic Model for Observability in Multi-carrier Energy Distribution Networks
Sören Hohmann, Heiko Maaß, Carina Mieth, Martin Pfeifer, Dorothea Wagner, and Franziska Wegner
Poster presented at the Energy Informatics, Lugano, Switzerland. Springer, 2017.

Operating Power Grids with Few Flow Control Buses
Thomas Leibfried, Tamara Mchedlidze, Nico Meyer-Hübner, Martin Nöllenburg, Ignaz Rutter, Peter Sanders, Dorothea Wagner, and Franziska Wegner
Poster presented at the Sixth ACM International Conference on Future Energy Systems, Bangalore, India. ACM, 2015.

Trainings

Hardskills **SAP AG** Walldorf, Germany

- ABAP (BC400 - fundamentals in ABAP, BC401 - detailed introduction to ABAP Objects, BC430 - role and functionality of the ABAP Dictionary).
- Java (JA100 - fundamentals in Java as well as fundamentals of the SAP Java environment, JA300 - Fundamentals in SAP J2EE).
- SAP (SAP01 & SAPTec - technical fundamentals of the SAP solution, SAP NetWeaver).
- INSPFAGAN; Fagan Style Inspection Training.

Softskills **SAP AG** Walldorf, Germany

- SOL (“Self-Oriented Learning”), E-Learning, Train the Trainer and Efficient Teamworking.

Software Development

Programming

Python, MATLAB, C/C++. Experience in Java, ABAP, Adobe Flex and flex (Fast Lexical Analyzer).

Operation Systems

Mac OS X. Experience in GNU/Linux and MS Windows.

Interests

Professional

Algorithm engineering, power grids, modelling, refactoring, testing, clean code.

Personal

Mountainbiking, volleyball, diving and skiing.