Short Bio Frauke Liers

Frauke studied mathematics (minor in physics) at the University of Cologne. She obtained her doctoral degree in computer science in 2004. After research stays in Rome and in Paris, she headed a DFG-funded Emmy Noether Group that started in 12/2006 in Cologne. In 2010, she obtained her Habilitation in Computer Science. In 2012, she became professor in Applied Mathematics in the Department of Mathematics at the Friedrich-Alexander Universität Erlangen-Nürnberg where she was Dean of Studies from 2016-2019. In 2021, she moved as founding member in the new Department of Data Science established through the Bavarian Hightech Agenda, while remaining secondary member in Mathematics. She coordinates the consecutive study programs Data Science as well as Economics & Mathematics. Her research is in optimization under uncertainty, including combinatorial, mixed-integer and nonlinear aspects. Integrating knowledge from data analysis is of high interest. She has coordinated the European Graduate College MINOA (Marie-Curie ITN, 2018-2021) and is Principal Investigator in the Collaborative Reseach Centers CRC 1411 and CRC/TRR 154. Since 04/2023, she is spokesperson of the CTC/TRR 154.

Research

My research aims at fundamental understanding of challenging optimization problems with discrete as well as continuous aspects, including uncertainties and nonlinearities. I focus on combinatorial and mixed-integer (non-)linear problems, robust and stochastic optimization and problems at the interface such as distributional robustness. Integrating insights learnt from data is of utmost interest.

Selected Teaching
- optimization under uncertainty (robust, stochastic, distributionally robust)
- mathematics of learning (supervised, unsupervised learning)
- selected topics in mathematics of learning
- theoretical foundations of optimization
- optimization in industry and economy, project seminars in the broad field of optimization
- mathematical optimization for communication and signal processing
- basic courses in mathematics

Selected Projects
- Principal Investigator in CRC 1411 (since 01/2020) and in CRC/TRR 154, lead of integrated Graduate College in CRC/TRR 154 (since 10/2014)
- Spokesperson of CRC/TRR 154 (since 04/2023)
- Coordinator of Marie-Curie ITN MINOA (01/2018-12/2021)
- Principal Investigator in several national as well as Bavarian third-party funded projects
- Lead of DFG-Emmy Noether Group (12/2006-03/2012)

Selected Service
- Editorial Boards: Mathematical Methods of Operations Research, Optimization and Engineering, Discrete Optimization, Advances in Continuous and Discrete Models: Theory and Applications, ALENEX 2021
- member of the Scientific Advisory Board, Zuse Institute (Berlin), Management Board of CRC/TRR 154, Management Board of CRC 1411

Selected Talks: Women in Data Science 2023 (keynote, virtual), European Symposium on Algorithms 2021 (plenary, virtual), International Conference on OR 2021 (virtual, semiplenary), 6th International Conference on Continuous Optimization 2019 (semiplenary, Berlin).