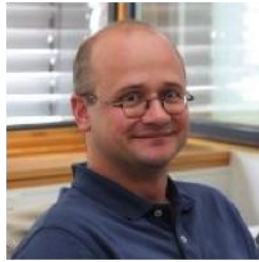


Keynote talk 1

Prof. Alexander Asteroth



Title: Small data

Abstract: In recent years Big Data has been focus of research and industry alike thereby referring to the problem of handling vast amounts of data and to extract information often uninformed of what to look for.

Considering real world application, it turns out that often too much data is not the problem but lack thereof or at least lack of useful data. Available data is often not sufficient to solve the problem at hand. Be it because of the quality of the data or simply because acquisition of useful data is simply too expensive in terms of time and/or cost.

In our research group we address different kinds of optimization problems all of which involve huge amounts of data. However even though the amount of data usually is vast - e.g. in case of fluid dynamic simulation - inherent information useful for optimization is small and computational costs are tremendous.

Surrogate modelling and in particular usage of Gaussian Process Models can help to solve this issue. In various use cases we were able to speed up the optimization/illumination process by an order of magnitude. In other cases, where available data was too noisy or some needed data was missing, which often is the case if physiological data from "real" measurements is used, surrogate models can help to fill the gap.

Biography:

- since 2016: Director of TREE
Institute of Technology, Resource and Energy-Efficient Engineering (TREE)
- 2010-2015: Vice dean (department of Computer Science)
- since 2008: Bonn RheinSieg University of applied sciences
Department of Computer Science
Full professor (since 2010, field of teaching: theoretical CS)
- 2001-2008: Different positions in software development and education
- 1997-1999: PhD studies, Bonn University
Scholarship (ReinhardFurrer PhD scholarship
Wernher von Braun-Stifung zur Frderung der
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in cooperation with German Aerospace Center (DLR)
- 1992-1995: German National Research Center of Computer Science (GMD)
- 1988-1995: Diploma studies of mathematics and computer science, Bonn University