OTTO VON GUERICKE UNIVERSITÄT MAGDEBURG

RESEARCH GROUP DATABASES AND SOFTWARE ENGINEERING

Research Group Databases and Software Engineering

The ›research (https://www.dbse.ovgu.de/dbse/en/Research.html) of our group focuses on databases, software engineering, and how to leverage the synergies of both areas. The main topics of our research, among others, include:

- **Data management on modern hardware**
- **Data management in the cloud**
- **Analysis of metaproteome data**
- **Tailored data management**
- **Refactoring, maintenance, and evolution of software product lines**
- **Variability analysis of requirements documents**
- **Adaptive information systems**

Considering the possibilities of modern hardware, we investigate data management solutions involving Hybrid transaction/analytical processing (HTAP). This includes a large number of prototypes and hardware-sensitive data/index structures, like our ›Elf index (https://www.elf.ovgu.de) . In addition, we extend concepts for database architectures to new application areas as part of the DFG priority programme, with native plug'n'play support for heterogeneous processors as the ultimate goal (›Project Adamant (http://www.adamant.ovgu.de)).

In the area of software engineering, we explore programming techniques for implementing software product lines. To support our research, we develop the Eclipse plugin ›FeatureIDE (https://featureide.github.io/) , which supports all phases of the software product line development cycle. Our research currently focuses on the ›EXPLANT (http://www.dbse.ovgu.de/Forschung/Projekte_+Workshops+und+Konferenzen/EXPLANT.html) project for migrating cloned software variants into a common software product line.

Our wide range of ›courses (https://www.dbse.ovgu.de/dbse/en/Teaching.html) cover all study programmes of the faculty for computer science. In the early curriculum, we introduce Bachelor students to the **foundations of database systems** and their

implementation.

We present more complex concepts for data management in advanced courses for Master students, such as **Advanced Database Models**, **Distributed Data Management**, **Data-Warehouse Technologies**, and **Transaction Processing**. For students interested in cutting-edge database research, we offer the Master course **Advanced Topics in Databases**.

Students can further actively participate in team projects, which we offer throughout the year, and work on topics in the context of **AI-supported databases**, the index structure **Elf**, and the **FeatureIDE** plugin.

Study Programm

- Computer Systems in Engineering
- Digital Engineering