Welcome to DIMA and DFKI/IAM

Dear Students,

The Database Systems and Information Management (DIMA) Group at the Technische Universität Berlin and the affiliated Intelligent Analysis For Massive Data Research Department at the German Research Center for Artificial Intelligence (DFKI/IAM) offer numerous opportunities to learn, grow, and develop. This poster was created to inform you about educational programs, course offerings, thesis opportunities, and prospective career possibilities. It is particularly informative for students interested in pursuing a Master’s or PhD with a concentration in Information Management, Data Science, and Big Data.

Our courses enable students to develop fundamental skills relevant for today’s job market, entrepreneurs seeking to start their own business, & prospective doctoral students. Our curriculum is especially designed to ensure sound theoretical knowledge, supplemented with hands-on lab sessions, development projects, and seminars to deepen understanding. Furthermore, guest lectures from academia and industry often visit us to share their insights into current technologies and market trends. We wish you great success!

Prof. Dr. Volker Markl
Head of DIMA and DFKI/IAM

IT Research - numerous challenges and opportunities

The Path to a Career in Database Systems, Information Management, and Data Science

Bachelor

Basic Bachelor Courses

- Information Systems and Data Analysis
- Learning the concepts of information management using (integrated) database systems from the perspective of an application developer.

Advanced Bachelor Courses

- Introduction to High Performance Computing and Data Analysis
- Advanced Information Modeling
- Achieve detailed competency in modeling, classical databases and information systems, as well as highly heterogeneous distributed information.

Lab Courses and Seminars

- Database Lab Course
- Intensively practical skills in designing, implementing, and maintaining database applications using concrete application examples.
- Database Seminar
- Learn to critically read academic publications, prepare them in understandable and enjoyable format, and write a scientific report.

DBPRA: Database Project

- Develop an information system jointly with a team along a classical development process, including the functional specification, modeling, implementation and demonstration of the system.

Career Paths

1) Be a DIMA Doctoral Student

- Experience the research process from idea-generation, prototyping and implementation to experimental and analytical evaluation
- Gain deep knowledge in your specialization
- Identify and solve meaningful research problems
- Make an impact with your own scientific contributions

2) Be an Entrepreneur

- Launch successful technology companies
- Apply for startup capital
- Secure a position in venture capital
- Build a high-growth startup

3) Be a Data Scientist / Data Engineer

- Our former team members have gone on to have successful careers in companies, universities, or research institutions, such as:
- Amazon
- SpaceBrand
- Spacecraft

Visit our website www.dima.tu-berlin.de for more information.

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TU Berlin Study Programs

Computer Science

- Computer Engineering
- Business Informatics

- Introduction to Data Engineering

DIMA offers courses for various technical study programs. Our graduate courses provide a solid foundation for software engineering and enable students to design & implement complex information management solutions. The DIMA team is comprised of highly qualified individuals with extensive experience in real world applications and research with various companies, such as IBM, Oracle, and SAP. Our program offers the optimal academic preparation to enable our students to develop innovative solutions for real world problems, to start their own company, or to pursue a PhD. Moreover, the data analytics master track and the information management master track enable students to specialize in the rapidly growing fields of big data and data science.

Lab Courses and Seminars

- Database Technology
- Learn both the fundamentals of data processing in traditional single-node databases and how to scale on the cluster level to huge amounts of data in large-scale distributed environments.

Master

Basic Master Courses

- Database Technology
- Learn both the fundamentals of data processing in traditional single-node databases and how to scale on the cluster level to huge amounts of data in large-scale distributed environments.

- Implementation of a Database Engine
- Learn how to implement components of a database engine, including a working SQL query processor that can query a set of logical tables.

- Information Management Seminars
- Database Seminar: Learn to critically read academic publications, prepare them in understandable and enjoyable format, and write a scientific report.

- Information Management Projects
- Information Management Project: Analyze current issues in the information management area and solve an open problem jointly.

Advanced Information Management Courses

AIM 1: Heterogeneous and Distributed Information Systems
- Offer an overview of modern distributed, heterogeneous systems based on concepts of model integration, data integration, federation of information management systems, and data management.

- Information Management Project
- AIM 2: Management of Data Streams
- AIM 3: Scalable Data Science
- AIM 4: Management of Data Streams
- Develop advanced skills in interconnected, methodological and practical processing of continuous data streams using various application examples.

- Information Management Project
- AIM 3: Big Data Analytics Project (BDAPRO)
- Analyze current issues in big data analytics and data science applications. Students will use state of the art open source tools and enhance them jointly as a team.

- Data Science Seminar
- Learn about scalable analytic tools (e.g., based on machine learning), big data systems, and application areas, such as machine mining, graph mining, and other applications.

Master Theses at DIMA

- Representative Theses Completed at DIMA:
- Content-Related Based Semantic Sentence Retrieval
- Large Scale Control Analysis on Apache Hadoop and Apache Spark
- Rich Window Discrimination Techniques in Distributed Stream Processing
- Methodological Challenges in Database Environments
- Resilient Machine Learning on Streaming E
- Real-Time Processing of Big Data on Distributed Data Streams

- DIMA regularly offers opportunities for master theses in various database and information management related fields. Our thesis topics emphasize the design, development and evaluation of modern information management systems.
- You will deepen your knowledge in classical information management concepts and in modern techniques such as real-time processing and machine learning.
- The thesis topics will be selected in close collaboration with the thesis supervisors.
- DIMA is a member of two European Union sponsored Master’s Programmes.

European Union Study Programs

- The Erasmus Mundus Joint Master Degree’s Intelligent Systems Engineering (ISE 2014-2020) provides students with challenging research problems and enables them to collaborate with researchers from different universities. Our students often publish their results in leading international journals.
- The ITI-Tech Master’s Degree Programme, jointly offered by/binational by Hungary, Poland, Italy, and the Czech Republic, enables students to develop knowledge and skills needed for companies in the IT and business intelligence sectors.

- DIMA is a member of two European Union sponsored Master’s Programmes.

Contact: Prof. Dr. Volker Markl, Dr. Ralf-Detlef Kutsche
Email: lehre@dima.tu-berlin.de
Room: E-728