



JACOBS  
UNIVERSITY

**EXPLORE**  
THE WORLD OF  
BIG DATA

---

# **DATA ENGINEERING (MSc)**

**GRADUATE PROGRAM**

# BIG DATA AND DATA ENGINEERING

Big data has turned out to have giant potential, but poses major challenges at the same time. On the one hand, big data is driving the next stage of technological innovation and scientific discovery. Accordingly, big data has been called the “gold” of the digital revolution and the information age. On the other hand, the global volume of data is growing at a pace that seems to be hard to control. In this light, it has been noted that we are “drowning in a sea of data.”

Faced with these prospects and risks, the world requires a new generation of data specialists. Data engineering is an emerging profession concerned with big data approaches to data acquisition, data management, and data analysis. Providing you with up-to-date knowledge and cutting-edge computational tools, data engineering has everything that it takes to master the era of big data.

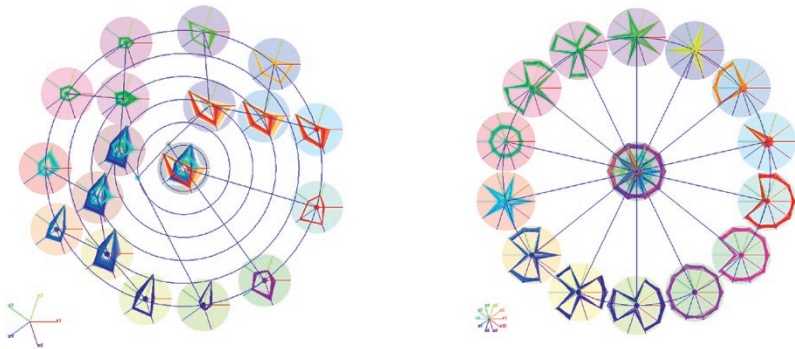
## PROGRAM FEATURES

The two-year MSc program in Data Engineering offers a fascinating and profound insight into the foundations, methods, and technologies of big data. Students take a tailor-made curriculum in line with their individual interests and needs. Embedded into the vibrant academic context of Jacobs University, the program is taught by renowned experts. In a unique setting, students also team up with industry professionals in focused training courses and projects. Core components of the program and areas of specialization include:

- The Big Data Challenge
- Data Acquisition Technologies
- Big Data Management
- Machine Learning
- Semantic Web and Internet of Things
- Statistical Modeling and Predictive Analytics
- Visual Data Analytics
- Internet Security and Privacy
- Legal Aspects of Data Engineering and Data Ethics
- Document and Image Analysis
- Mathematical Finance
- Geo Information Systems
- Modeling and Simulation in Supply Chain Management
- Localization
- Information Theory and Coding

For details on the curriculum, please visit:

■ [www.jacobs-university.de/data-engineering](http://www.jacobs-university.de/data-engineering)



Visualizations of cluster hierarchies in a multidimensional space using radial layout for the hierarchy and star glyphs for the clusters.

## CAREER OPTIONS

Demand for data engineers is massive – in industry, commerce, and the public sector. From IT to finance, from automotive to oil and gas, from health to retail: companies and institutions in almost every domain need experts for data acquisition, data management, and data analysis. With an MSc degree in Data Engineering, you will excel in this most exciting and rewarding field with very attractive salaries. Likewise, an MSc degree in Data Engineering allows you to move on to a PhD and to a career in academia and research institutions.





## HOW TO APPLY

Candidates who wish to enter the MSc program in Data Engineering must have a BSc degree or an equivalent degree (minimum three years of study). Applications need to include the following documents:

- Letter of motivation
- Curriculum vitae (CV)
- University transcript in English or German
- Bachelor's degree certificate or equivalent (may be handed in later)
- Two letters of recommendation
- English language proficiency test certificate (not required if English was the language of instruction at the undergraduate level)

For more details on the online application process, please visit:

— [www.jacobs-university.de/graduate-admission](http://www.jacobs-university.de/graduate-admission)

## TUITION

Tuition for the Data Engineering program is € 20,000 per academic year.

## SCHOLARSHIPS

Jacobs University is renowned for its extensive and generous scholarship program. Therefore, each applicant for this program is automatically considered for a merit-based scholarship. Depending on availability, additional scholarships sponsored by external partners are offered to highly gifted students.

## ACCOMMODATION

Jacobs University offers you accommodation on campus. Each of the four residential colleges has its own dining room, recreation room, study areas, and common and group meeting rooms. Your fellow students, Jacobs University's sports facilities, and a vibrant campus life help you to quickly feel at home. Room and board can be requested during your application.



## ABOUT JACOBS UNIVERSITY

Jacobs University is a state-accredited, research-oriented, private university in Bremen, Germany. It is one of the most international academic institutions in the country, characterized by a truly intercultural community. Founded in 2001, Jacobs University attracts highly talented and open-minded students from all over the world: more than 1,300 students from over 100 nations currently live and study on our residential campus. Jacobs University offers

a broad portfolio of undergraduate and graduate programs that range from natural and social sciences to engineering and economics. The language of instruction is English.

Research and education at Jacobs University are structured in three distinct focus areas:

— **MOBILITY – OF PEOPLE, GOODS, AND INFORMATION**

— **HEALTH – FOCUS ON BIOACTIVE SUBSTANCES**

— **DIVERSITY – IN MODERN SOCIETIES**

Class sizes are small, enabling professors to act as personal mentors and academic advisors to students. Our faculty members address issues from multiple perspectives through their transdisciplinary research and teaching approaches, and students are actively involved in research from their first year of study. Over the last decade, Jacobs University has consistently achieved top marks according to Germany's most comprehensive and detailed university ranking by the Center for Higher Education.



## CONTACT

**Dr. Mathias Bode**  
Program Coordinator

**Prof. Dr. Herbert Jaeger**  
Professor of Computational Science

[dataengineering@jacobs-university.de](mailto:dataengineering@jacobs-university.de)

For the latest information on the program,  
please visit:

— [www.jacobs-university.de/data-engineering](http://www.jacobs-university.de/data-engineering)

