Welcome to Eindhoven University of Technology

Eindhoven University of technology (TU/e) is a research-driven university of international standing, where excellent research and excellent education go hand in hand. In the areas of health, energy and smart mobility, we focus on a balanced approach of education, research and valorization of knowledge.

From our lively university campus, situated in the heart of the high-tech Brainport region and equipped with high-quality lab facilities, we make an impact on scientific and societal issues. Our knowledge, innovative technologies, applications and solidly educated engineers find their way into society, where they help solve pressing issues and answer unasked questions.

TU/e can only have an impact on society and industry if we deliver world-class research results, and by providing the education that turns our students into engineers for the future. This attracts talented students, scientists and lecturers, and stimulates (international) collaboration with other universities, scientific institutes, social organizations, government and industry.

We combine top-notch fundamental research with an application-oriented educational approach, characterized by frequent and intensive student-teacher interaction. This is all part of a tight-knit, small-scale community consisting of more than 80 nationalities, where everyone feels welcome and where the well-being of students and staff matters.

Our university connects students, researchers and entrepreneurs. Because we believe innovation starts with people, not with technology. It is our people who make our university into the place where innovation starts and people matter.

For more information on TU/e please visit: www.tue.nl/en/

TU/e in rankings

Elsevier ranking 2016:
• TU/e best university of technology of The Netherlands

‘Keuzegids’ Dutch ranking 2016:
• TU/e best university of technology of The Netherlands
• Applied Mathematics and Computer Science rated top educations
Over these years more than 3,000 MSc degrees, 600 PDEng degrees and 500 PhD degrees were conferred. And over 12,000 scientific publications were published. Together creating a great mark on history of mathematics and computer science.

We believe that through a deeper understanding of the fundamentals of mathematics and computer science, we can improve the development of meaningful solutions to societal problems. That is why we train high-quality students and conduct ground breaking scientific research to advance mathematics and computer science. And our in-depth knowledge enables us to find solutions to issues that exist within society.

As part of Brainport, the ‘smartest’ region of the world, we also enter into special collaborative partnerships with companies and government authorities. This enables us to provide exceptional future prospects to all those who study with us or collaborate with us.

Our research focusses on four key themes:
- Data
- Software
- Networks
- Computation

For more information on our department, please visit: www.tue.nl/en/university/departments/mathematics-and-computer-science/the-department/

‘The Department of Mathematics and Computer Science is a place that brings motivated students, lecturers and researchers together.’
Our research

Our research groups carry out world-class research. We focus on applying mathematics and designing innovative software systems. For instance, helping to find the cure for cancer using visualization, using data science to help prevent epidemics, and assisting developers and builders of offshore wind farms with mathematical simulation in order to achieve the most efficient placement of the wind turbines.

The mathematics research discipline covers the following research programs:
• Analysis, Scientific Computing and Applications
• Discrete Mathematics
• Stochastics

In the computer science discipline, we focus in particular on design and analysis methods of software systems:
• Algorithms and Visualization
• Information Systems
• Model Driven Software Engineering
• Security and Embedded Networked Systems

The emphasis in research is placed on its applications in embedded systems and in corporate information systems.

For more information on our research groups and chairs, please visit:
Our people

The Department of M&CS is blessed with a group of very talented, passionate and exceptionally skilled scientists. Scientists who make a difference in mathematics and computer science in terms of fundamental research, application-oriented research, but also in terms of training and educating the new generation of talent.

Our researchers are leaders in topic areas regarding mathematics and computer science. Their work is greatly appreciated, as evidenced by their citation rates, and the large numbers of lectures they give at (international) conferences and frequent media appearances.

Project Development Office
The high level of our teaching and the pioneering research we conduct enable us to make a significant contribution towards technological innovations. We do not do this all on our own. With our long experience in conducting research, we know what it takes to be successful. Know-how about acquiring funding is accumulated in the Project Development Office (PDO), enabling us to successfully apply for research funding, or bring your research to practice by connecting you to highly valued companies in the high-tech industry. We support our scientists as well as possible.

This is reflected in our highly motivated and qualified support staff, supporting the department in areas such as HR, finance, IT and communications.

Our people in numbers (December 2016)
- ~505 staff, of which ~440 scientific staff
- ~35 full professors
- ~20 associate professors
- ~125 assistant professors and researchers
- ~20 post-docs
- ~155 PhD students
- ~85 PDEng students
- ~65 support staff

Join us
We have created a warm and promising environment where staff members are developed and recruited who are – or will be – leaders in fundamental and applied research. That, combined with the fact that we are living in one of the most exciting times in the history of science, where the impact of mathematics and computer science is bigger than ever, makes this the right time to join us.
Our education

Our students follow high-caliber education programs in mathematics and computer science. We offer varied study programs that provide students with a wide range of options to choose from. Our passionate and highly skilled lecturers are pleased to help our students to achieve their full potential.

Undergraduate programs
The Department of M&SC offers the Bachelor programs Computer Science and Engineering, Data Science (a joint program with Tilburg University) and Applied Mathematics. These programs give our students a strong scientific knowledge base and a deep understanding of the wider context of technology. Hence, a solid base for their future careers.

Graduate programs
After obtaining their Bachelor degree, we encourage our students to continue their studies in one of our Master programs:
• Business Information Systems,
• Computer Science and Engineering – with the specializations Data Science in Engineering and Information Security Technology,
• Embedded Systems,
• Industrial and Applied Mathematics,
• European Institute of Innovation & Technology (EIT) Data Science,
• European Institute of Innovation & Technology (EIT) Embedded Systems,
• Erasmus Mundus Program Big Data Management & Analytics.

These Master programs deliver excellent students in the specialization field they chose, ready to make their contribution to society, industry or science.

PD Eng and PhD programs
After obtaining a Master degree it is possible to start a PhD research project to get more deeply involved in research, to start a scientific career and to increase the depth of a research topic. If students are considering a career in industry or business after their MSc graduation, they can get an excellent preparation for this by following a two-year PD Eng program as a trainee technology designer.

During their time at TU/e, students discover their strengths, develop their profiles and get ready to start the careers of their dreams: as scientists, researchers, designers, process engineers, technical managers, or entrepeneurs.

For more information on our education programs, please visit: https://www.tue.nl/en/university/departments/mathematics-and-computer-science/education/

Our education in numbers (October 2016)

<table>
<thead>
<tr>
<th>Number of BSc students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applied Mathematics ~255</td>
</tr>
<tr>
<td>Computer Science and Engineering ~720</td>
</tr>
<tr>
<td>Data Science ~30</td>
</tr>
<tr>
<td>Total number of BSc students ~1005</td>
</tr>
<tr>
<td>First year students ~410</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number of MSc students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business Information Systems ~80</td>
</tr>
<tr>
<td>Computer Science and Engineering ~230</td>
</tr>
<tr>
<td>Embedded Systems ~155</td>
</tr>
<tr>
<td>Industrial and Applied Mathematics ~105</td>
</tr>
<tr>
<td>Total number of MSc students ~570</td>
</tr>
</tbody>
</table>

Our students follow high-caliber education programs in mathematics and computer science. We offer varied study programs that provide students with a wide range of options to choose from. Our passionate and highly skilled lecturers are pleased to help our students to achieve their full potential.

Undergraduate programs
The Department of M&SC offers the Bachelor programs Computer Science and Engineering, Data Science (a joint program with Tilburg University) and Applied Mathematics. These programs give our students a strong scientific knowledge base and a deep understanding of the wider context of technology. Hence, a solid base for their future careers.

Graduate programs
After obtaining their Bachelor degree, we encourage our students to continue their studies in one of our Master programs:
• Business Information Systems,
• Computer Science and Engineering – with the specializations Data Science in Engineering and Information Security Technology,
• Embedded Systems,
• Industrial and Applied Mathematics,
• European Institute of Innovation & Technology (EIT) Data Science,
• European Institute of Innovation & Technology (EIT) Embedded Systems,
• Erasmus Mundus Program Big Data Management & Analytics.

These Master programs deliver excellent students in the specialization field they chose, ready to make their contribution to society, industry or science.

PD Eng and PhD programs
After obtaining a Master degree it is possible to start a PhD research project to get more deeply involved in research, to start a scientific career and to increase the depth of a research topic. If students are considering a career in industry or business after their MSc graduation, they can get an excellent preparation for this by following a two-year PD Eng program as a trainee technology designer.

During their time at TU/e, students discover their strengths, develop their profiles and get ready to start the careers of their dreams: as scientists, researchers, designers, process engineers, technical managers, or entrepeneurs.

For more information on our education programs, please visit: https://www.tue.nl/en/university/departments/mathematics-and-computer-science/education/

Our education in numbers (October 2016)

<table>
<thead>
<tr>
<th>Number of BSc students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applied Mathematics ~255</td>
</tr>
<tr>
<td>Computer Science and Engineering ~720</td>
</tr>
<tr>
<td>Data Science ~30</td>
</tr>
<tr>
<td>Total number of BSc students ~1005</td>
</tr>
<tr>
<td>First year students ~410</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number of MSc students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business Information Systems ~80</td>
</tr>
<tr>
<td>Computer Science and Engineering ~230</td>
</tr>
<tr>
<td>Embedded Systems ~155</td>
</tr>
<tr>
<td>Industrial and Applied Mathematics ~105</td>
</tr>
<tr>
<td>Total number of MSc students ~570</td>
</tr>
</tbody>
</table>

Our students follow high-caliber education programs in mathematics and computer science. We offer varied study programs that provide students with a wide range of options to choose from. Our passionate and highly skilled lecturers are pleased to help our students to achieve their full potential.

Undergraduate programs
The Department of M&SC offers the Bachelor programs Computer Science and Engineering, Data Science (a joint program with Tilburg University) and Applied Mathematics. These programs give our students a strong scientific knowledge base and a deep understanding of the wider context of technology. Hence, a solid base for their future careers.

Graduate programs
After obtaining their Bachelor degree, we encourage our students to continue their studies in one of our Master programs:
• Business Information Systems,
• Computer Science and Engineering – with the specializations Data Science in Engineering and Information Security Technology,
• Embedded Systems,
• Industrial and Applied Mathematics,
• European Institute of Innovation & Technology (EIT) Data Science,
• European Institute of Innovation & Technology (EIT) Embedded Systems,
• Erasmus Mundus Program Big Data Management & Analytics.

These Master programs deliver excellent students in the specialization field they chose, ready to make their contribution to society, industry or science.

PD Eng and PhD programs
After obtaining a Master degree it is possible to start a PhD research project to get more deeply involved in research, to start a scientific career and to increase the depth of a research topic. If students are considering a career in industry or business after their MSc graduation, they can get an excellent preparation for this by following a two-year PD Eng program as a trainee technology designer.

During their time at TU/e, students discover their strengths, develop their profiles and get ready to start the careers of their dreams: as scientists, researchers, designers, process engineers, technical managers, or entrepeneurs.

For more information on our education programs, please visit: https://www.tue.nl/en/university/departments/mathematics-and-computer-science/education/

Our education in numbers (October 2016)

<table>
<thead>
<tr>
<th>Number of BSc students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applied Mathematics ~255</td>
</tr>
<tr>
<td>Computer Science and Engineering ~720</td>
</tr>
<tr>
<td>Data Science ~30</td>
</tr>
<tr>
<td>Total number of BSc students ~1005</td>
</tr>
<tr>
<td>First year students ~410</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number of MSc students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business Information Systems ~80</td>
</tr>
<tr>
<td>Computer Science and Engineering ~230</td>
</tr>
<tr>
<td>Embedded Systems ~155</td>
</tr>
<tr>
<td>Industrial and Applied Mathematics ~105</td>
</tr>
<tr>
<td>Total number of MSc students ~570</td>
</tr>
</tbody>
</table>
Position description:
Full professor Database Technology

Profile for a full professor Database Technology, also the leader of this chair within the Information Systems (IS) section, located within the department of Mathematics & Computers Science of the Eindhoven University of Technology (TU/e).

Background
The Data Science Center Eindhoven (DSC/e) is an initiative of the Eindhoven University of Technology (TU/e) to set up a world leading research and education program in data science. Obviously, Database Technology plays a key role in data science (research, education, and valorization) and is now embedded within the Web Engineering (WE) group. Given the growth of data science at TU/e, it is essential to have a chair on Database Technology.

In many of the DSC/e disciplines TU/e is already world class as shown by the number of publications and citations, and the impact in industry. New educational programs have been set up related to data science, with international visibility (see the recent Mariënburg, ’s-Hertogenbosch initiative shared with Tilburg University). Database Technology as a discipline is represented by internationally well-recognized and influential researchers but it is currently still a too small niche within the TU/e (and DSC/e) and therefore requires further strengthening given its importance. What is lacking is a dedicated Database Technology research group led by a full-professor focusing completely on Database Technology. Clearly, conducting data science is impossible without studying Database Technology: how to structure, store, select and retrieve data is at the very core of data science and therefore essential for DSC/e.

Hence, the need for a Chair in Database Technology.

In the “established” education Database Technology and data management play a role in almost all variations offered by the bachelor and master programs in computer science. Data Modeling and Databases are core topics in both the Software Science and Web Science majors within the bachelor program. Database Technology or Data Engineering are core topics in most options within the master programs in Computer Science and Engineering, Data Science in Engineering and Business Information Systems. Further diversification of the Database Technology & data management teaching portfolio is expected considering the new Data Science bachelor initiative and the Data Science master and PDEng programs jointly offered by Tilburg University and the TU/e since Sept. 2016.

Currently there are three expertise areas in the Section Information Systems: Architecture of Information Systems (AIS) led by prof. Wil van der Aalst, Data Mining (DM) led by prof. Mykola Pechenizkiy and Web Engineering (WE) led by prof. Paul De Bra. The AIS research group investigates methods, techniques and tools for the design and analysis of process-aware information systems, i.e., systems that support business processes (workflows) in organizations. The DM research group studies foundations and applications of data mining, machine learning including deep learning, recommender systems and web analytics. The WE research group studies basic database technologies such as storage, indexing and querying of semi-structured data (often graph-structured and represented as xml or rdf), user modeling and adaptive hypermedia, to create automatically personalized web experiences.

The WE group currently focuses on database technology, data engineering and personalization and adaptation. The appointment of a new professor in Database Technology will complete the transition process towards a group focused entirely on database technology and engineering, and a renaming to Database Technology (DT).
Position description:
Full professor Database Technology

Research area
The field of Database Technology should be interpreted in a broad way and as the full professor you will focus on a subarea of choice, but should be a world-leading expert in this area. Current research in Database Technology already being covered includes the management of massive graph structured data sets, such as social networks and linked web data. The area of specialization of the new chair should complement the work done within the Section Information Systems. The focus of the new professor can be more systems, theory or algorithms oriented.

The candidate should be an authority in a core area of Database Technology, and be able to teach courses on all basic topics within the broader Database Technology field (including Big Data Analytics, Data Warehousing/OLAP, Web Data Management, Data-driven Web applications, and Database systems). Next to this, we expect the candidate to have a clear and compelling world-class research agenda. Again, the precise research focus is left open, but it should be complementary to the existing groups.

Collaboration
The new professor will assist in further developing the data science and web science community at TU/e. Collaborations with the following groups are envisioned: Architecture of Information Systems (AIS), Data Mining (DM), Probability and Statistics (P&S), Information Systems (IEIS-IS), Visualization (VIS), Algorithms (ALG/AGA), and Operations, Planning, Accounting and Control (OPAC). The new chair is expected to contribute to the various Computer Science degree programs and to the DSC/e Research Programs.

Tasks
• Initiate and conduct scientific research at the forefront in Database Technology (demonstrated by publications in the top conferences and journals in the field such as SIGMOD, ICDE, EDBT, ICDT, PODS, ISWC, ESWC, WWW, and VLDB).
• Develop and give courses on topics related to Database Technology and Data Intensive Systems.
• Play a leading role in the further development of the Data Science Center Eindhoven (DSC/e), e.g., leading a DSC/e research track and contribute to curriculum development.
• Collaborate with research groups in IS, DSC/e, NIRICT and the research school SIKS and use these networks to develop new initiatives.
• Acquire external research grants (national and European).
• Supervise PhD, PDEng and MSc students.
• Maintain and expand contacts with industrial and research partners in the Brainport region, the Netherlands and abroad.
Requirements
The candidate should have a deep and broad insight in the research domain of Database Technology and should be actively involved in the research area at an international level. This should be demonstrated by the number of citations and strong publications in the top conferences and journals in the Database Technology field. We also value candidates that can bridge the traditional gap between theoretical research and real-life applications. The candidate should fulfill the usual demands for a professor, more specifically towards:

Research
- A PhD in Computer Science.
- Experience in scientific research, as reflected in international refereed scientific publications.
- International recognition by experts in the field, for instance demonstrated by participation in program committees.
- Experience in coaching (content-wise) research work of others.
- Experience in the initiation of research projects and acquisition of the necessary funding.

Education
- Teaching experience inside or outside of a university on an academic level, preferably in a core position teaching the particular field of study.
- Proven didactic qualifications or inspiring personality as a teacher.
- Experience in developing teaching components.

Personal competences
- Proven cooperation skills;
- Experienced supervisor with excellent managerial skills;
- Goal- and results-oriented and implements initiatives;
- A motivating and inspiring personality both within and outside TU/e;
- Vision, persuasiveness, environmental orientation and manages by objectives.

As a member of the teaching staff of the department the chair either has or is willing to follow the training to obtain the basic teaching qualification for academic staff (BKO).

Conditions of employment
Appointment
The appointment involves a full-time professor ‘Database Technology’ (1.0 fte) in conformance with the Collective Labour Agreement Dutch Universities.

We offer
- A challenging job in a dynamic and ambitious university and a stimulating research environment;
- Support with your professional and personal development;
- A gross salary between € 5.219 and € 9.174 per month depending on experience and knowledge, plus 8% holiday allowance and 8.3% end-of-year allowance;
- An extensive package of fringe benefits (e.g. support in moving expenses and commuting expenses, excellent technical infrastructure, on-campus child care, and excellent sports facilities).

Information and application
For more information about the chair/research and teaching aspects of this position, please contact prof.dr. Paul De Bra, email: debra@win.tue.nl.

For more information about the employment conditions of this position, please contact P. Hertogs LLM, MSc., HR advisor, email: pzwin@tue.nl.

Please send us your application via our website: https://www.tue.nl/en/university/working-at-tue/jobs/