

Eindhoven University of Technology

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March 2011



TU/e Technische Universiteit
Eindhoven
University of Technology

Where innovation starts

Eindhoven on the map of Europe



Eindhoven on the map of Benelux



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- Approximately 120 km to Amsterdam, Brussels and Dusseldorf
- 4 hours by train to Paris
- Eindhoven airport provides direct flights to London, Dublin, Rome, Pisa, Barcelona, Prague, Stockholm, etc.

Eindhoven, leading in technology



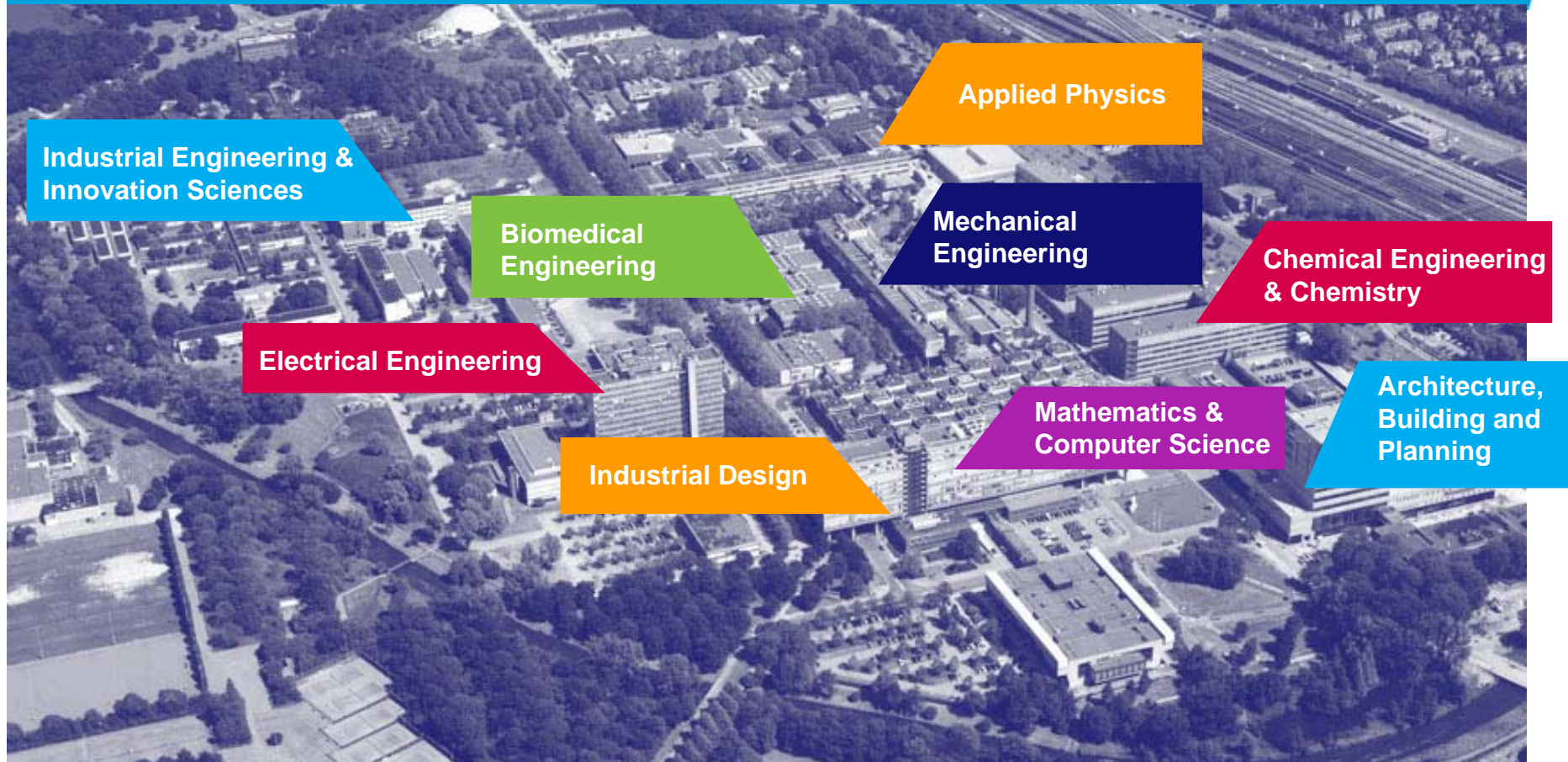
The train station building was built in 1956 by design of architect Koen van der Gaast and resembles a Philips radio at that time

Eindhoven is again in **The Top Seven Intelligent Communities of the Year**

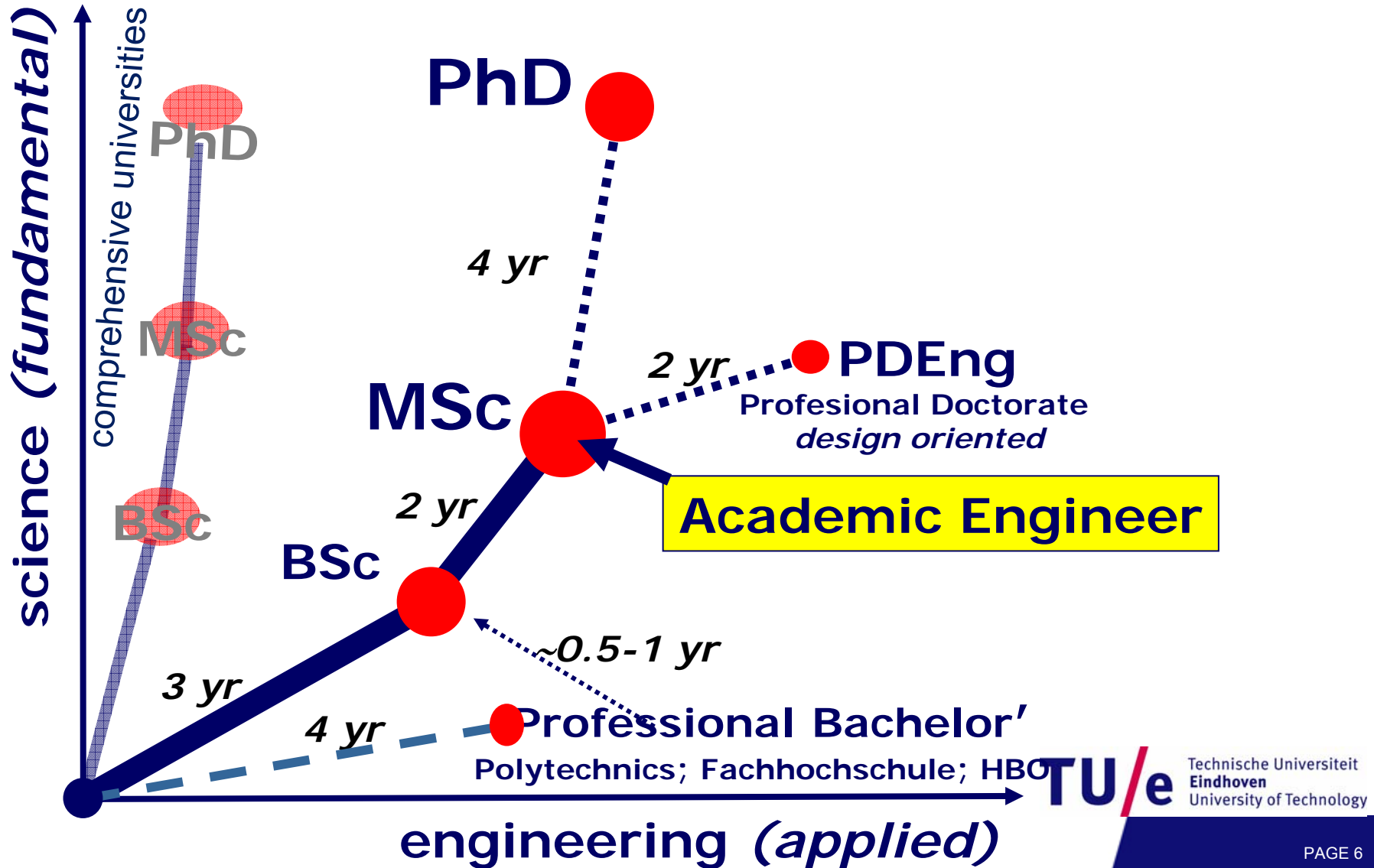
Eindhoven region is the industrial heart of the Netherlands.

Philips, ASML, NXP, FEI, DAF, Océ, van der Landen

Education and research in engineering sciences



Dutch Education System



Young, dynamic, personal

- **Students**

- BSc students 5,000
- MSc students 2,500 (25% international)
- PDEng students 200
- PhD students 1,000 (50% international)

- **Scientific staff** 2,000

Excellent student/staff ratio



TU/e: International

- **70 nationalities**
- **Master programs in English**
- **Joint programs**
- **International networks**
- **High on strategic agenda**



Top education and research

- **Education and research interrelated**
- **TIMES Higher Education: high on innovation**
- **TU/e world number 1 in scientific output in cooperation with industry**
- **TU/e plays in the Champions League of Europe**
- **Best academic education in the Netherlands**
- **Strategic areas:**
 - Sustainable Energy
 - Health Care Technology
 - Smart Mobility



TU/e & industry

- **Strong relationship**
- **Joint research**
- **Internships for students**



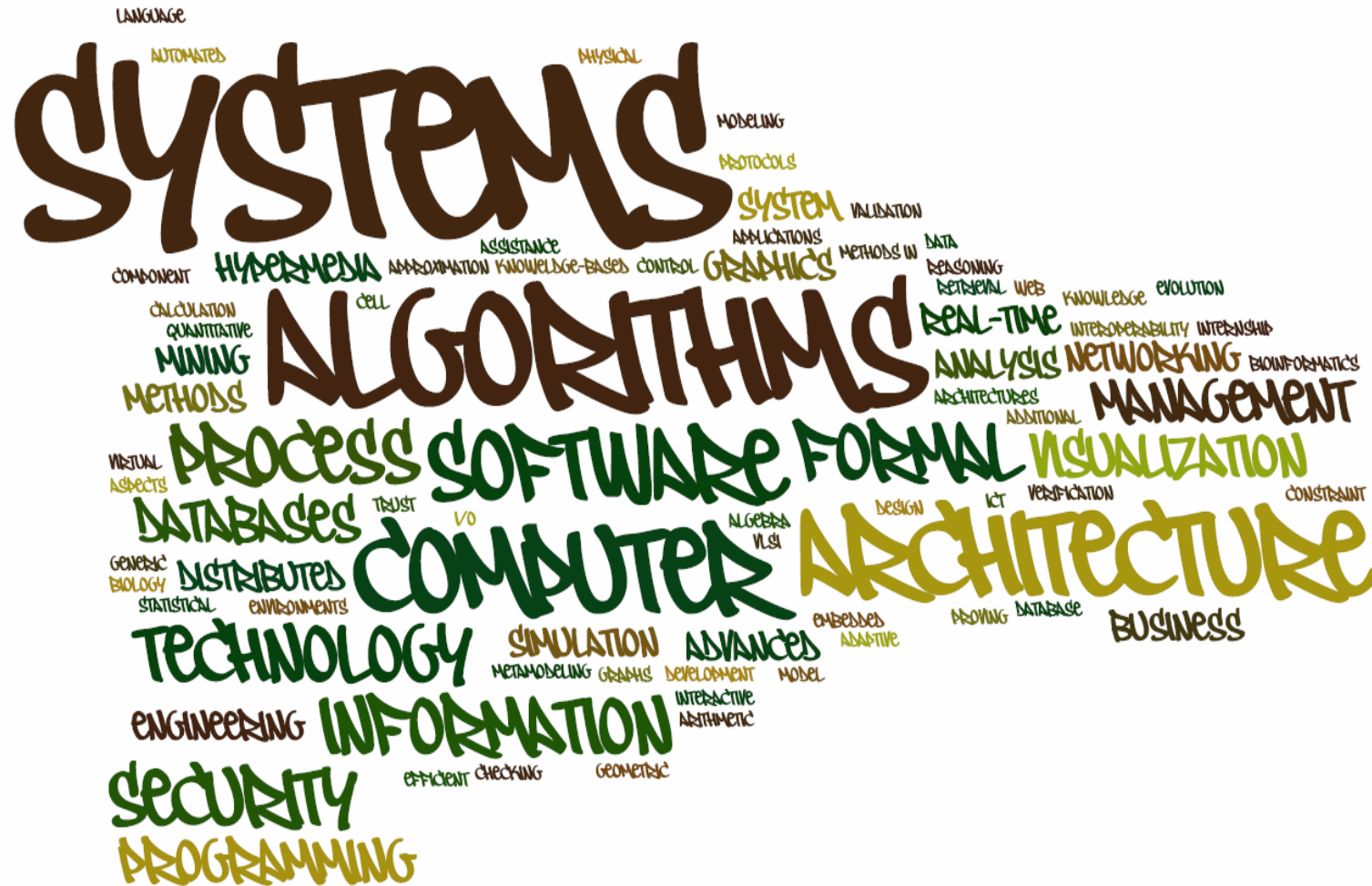
Our Turing award winner

- ***Edsger Dijkstra***: Founding father of computing science
 - Algol 60 / 68
 - Structured programming (no GoTo's anymore)
 - Correctness by construction, program derivation
 - Concurrency, semaphores
 - Fastest shortest path algorithm
 - THE operating system

A technical university is different...

- **Computer science is focussed on system development in the large (toy problems are not enough)**
- **Our goals:**
 - **Design of provable correct and efficient software systems at industrial scale**
 - **Analysis of extremely large data sets (visualisation, mining)**

CSE tag cloud











Laboratory of the department

- **LaQuSo (Laboratory for Quality Software):**
 - **verification of software artefacts: requirements, designs, programs, test data and logs**
 - **Specialities:**
 - **Static code analysis**
 - **Process analysis (formal verification of behavior and process mining)**

Specializations

Computer Science Department

Algorithms & Visualization		Information Systems		Model-driven software engineering		Security & Embedded Networked Systems	
ALG algorithms	VIS visualization	AIS architecture of information systems	DH databases and hypermedia	SDA system design and analysis	SET software engineering and technology	SEC security	SAN system architecture and networking
							

Algorithms & Visualization

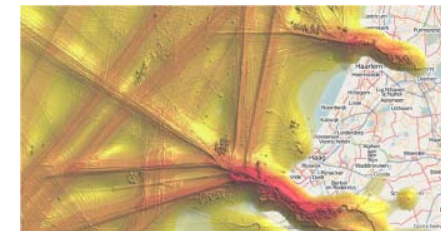
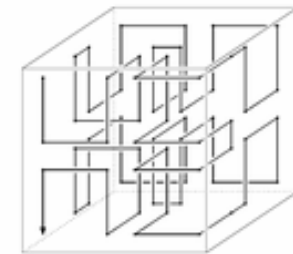
- **Algorithms**

- computational geometry, I/O-efficient algorithms, graph drawing, algorithms for GIS and cartography



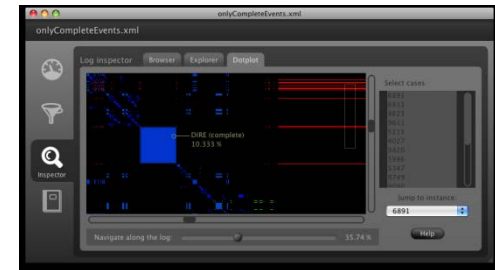
- **Visualization**

- computer graphics, Information visualization, Scientific visualization, 3D interaction and virtual reality

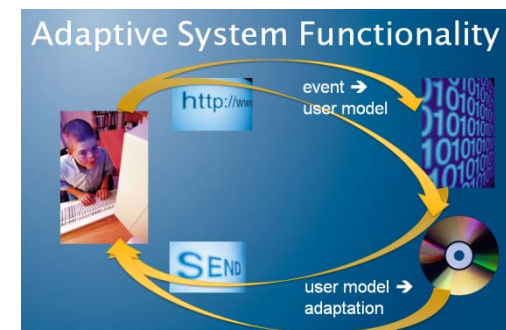


Information Systems

- **Architecture of Information Systems**
 - methods, techniques, and tools for design and analysis of process-aware information systems

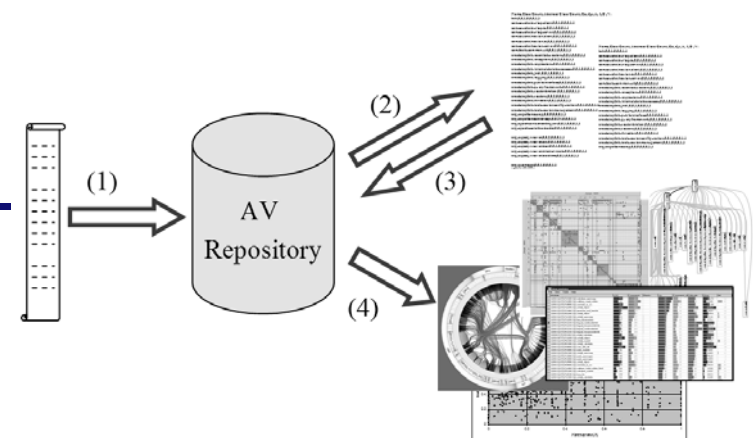


- **Databases and Hypermedia**
 - management of semi-structured/semantically linked data, data mining, personalization and adaptive information delivery



Model-driven Software Engineering

- **System Design and Analysis**
 - techniques to model and analyze discrete system behavior, design reliable software-based systems
- **Software Engineering and Technology**
 - theory, methods, and tools for model-driven software engineering, verified software engineering

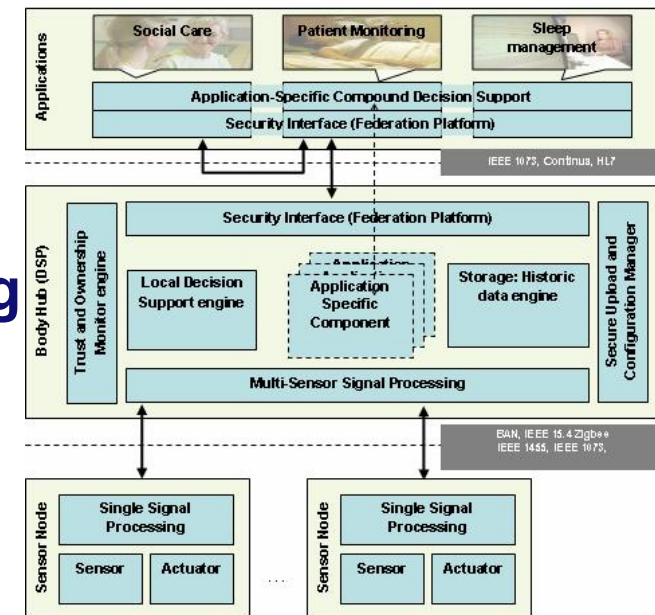


Security and Embedded Networked Systems

- **Security**
 - security-policy specification and enforcement, security of embedded systems



- **System Architecture and Networking**
 - cooperative distributed systems, predictable platforms, embedded computations



Program structure double Master (120 credits)

CSE master program

Year 1	Semester 1	Moscow, HSE 2 courses of TU/e with video-lectures
	Semester 2	
Year 2	Semester 1	1 seminar + 2 core courses + 3 electives
	Semester 2	Master thesis project (in a company)

Courses TU/e

- Video-lectures in year 1
 - Advanced databases
 - Business process management systems
- 2 core courses in year 2: select from
 - Advanced algorithms
 - Real-time embedded systems
 - Generic language technology
 - Visualization
 - System validation
- Each research area is covered in a seminar. Choose one!

Electives

- Metamodeling and interoperability
- Information retrieval
- Adaptive systems
- Formal modeling in cell biology
- Web information systems
- Architecture of distributed systems
- Constraint programming
- Advanced algorithms
- Real-time systems
- Generic language technology
- Distributed trust management
- Additional component computer graphics
- Visualization
- System validation
- Algorithms for model checking

Scholarships

- **17000 Euro for a year**
- **Covers the tuition fee and basic living costs**
- **TU/e arranges a visa, helps with housing and other organisational issues**

- **Scholarships are funded by companies**
- **Your Master project will be at a funding company**
- **You are to stay 3 years after your graduation to work at a company (for a market-conform salary)**

- **You build an international network and working experience!**

Requirements

- **Proof of having a cumulative grade point average (CGPA) of 80% or higher**
- **An original Academic IELTS score of at least 6.5 on average**

OR

TOEFL scores of at least 90 (Internet-based), 232 (computer-based). The TU/e does not accept paper-based TOEFL test scores. Students can arrange for their TOEFL results to be sent to the TU/e directly by using the TU/e university code number 8615.

OR

University of Cambridge Certificate of Proficiency in English (CPE) grade A/B/C.

Conclusion

- **Young, dynamic, personal**
- **Top education and research**
- **Close cooperation with industry**
- **International**

