My name is Henrik Pedersen and I am Dean of the Technical Faculty of IT and Design (TECH) at Aalborg University (AAU). With four departments, a doctoral school and a wide range of programmes, we create knowledge for the world at the highest levels. Our problem based learning and research are widely recognized both inside and outside Denmark, with distinctions that include being ranked Europe’s best engineering university and the fourth best university in the world for engineering programmes.

“We are dedicated to sustainability and digitalisation. And we always keep human behaviour and needs in mind.”

Our approach to creating knowledge for the world involves focusing our efforts on sustainability. Through our degree programmes, research and close partnerships with stakeholders all over the world, we help create a sustainable future for generations to come. We often combine our efforts on sustainability with our other major focus area: digitalisation. We are making digital marks — both by increasing digital competences in all our programmes and by offering Danish companies a customized, research-based digital boost.
TECH researchers are at the forefront of the largest sustainable district heating initiative in the world.

World leader in flexible and smart energy systems for the best use of renewable energy.

Position of strength in circular economy and sustainable design.

Sustainable cities – all over the world.

Key contribution to the sustainable management of European fisheries resources.

ZERO energy buildings – sustainable architecture.

New design and manufacturing methods in architecture.

The world’s first modular laboratory for water infrastructure helping to reduce a global annual water wastage of 16,000,000,000,000 billion litres.

Big data, antenna technology, Internet of Things (IoT), cyber-physical systems and artificial intelligence: TECH research aims at directly and ambitiously meeting the objectives of the national ‘Strategy for Denmark’s Digital Growth’ and goes above and beyond.

AAU is the highest ranked university in Denmark in computer science, measured either on total number of publications or number of publications among the 10% most cited publications in the area.

Close partnerships with major digital businesses such as Vestas Wind Systems and Nokia Bell Labs.

Largest admissions to IT programmes in Denmark.

The two computer scientists in Denmark with the highest quality and relevance based on citations are both of AAU.

ERC Advanced Grant, ERC Consolidator Grant and several Sapere Aude grants at TECH.

[SUSTAINABILITY]

DIGITALISATION
WIDE RANGE OF COLLABORATION AGREEMENTS
Between 300 and 400 new research agreements annually with businesses such as Vestas Wind Systems, Danfoss and Nokia Bell Labs.

TOWARDS A MORE SUSTAINABLE WORLD
Partnerships with visionary organisations such as Access2innovation and the United Nations Development Programme (UNDP).

20% PROFESSORS
Professors with 20 percent work time at AAU and 80 percent in a company. Contributing to the strong link between the university and society. Including Grundfos, B&O, Oticon and Port of Aalborg.

CLOSE PARTNERSHIP WITH SMEs
AAU emphasises working with SMEs, e.g. through the energy cluster House of Energy and the ICT cluster BrainsBusiness, both of whom hold the gold label of the European Cluster Excellence Initiative, and the IT innovation network InfinIT, who holds the bronze label.

BY SEA, LAND, AIR AND IN SPACE
Through partnerships with businesses such as Port of Aalborg, Nokia Bell Labs, Airbus and GomSpace.
The department offers a wide range of bachelor and master programmes in electronics, including robotics, information and communication technology and wireless communication systems.

CORE RESEARCH AREAS:

- Wireless communication technology
- Optimization and Control
- Signal processing and machine learning
- Internet of Things (IoT)
- Cybersecurity

- World-class laboratories
- Long history of widespread industrial collaboration
- Invented the built-in antenna in mobile phones
- Global leaders in development and use of 5G technology
- Launched five student satellites

HEAD OF DEPARTMENT:

Thomas Bak, tba@es.aau.dk, +45 9940 8701, www.es.aau.dk
The department offers a wide range of degree programmes at the bachelor and master level such as software, computer science, interaction design, information technology and data science.

**CORE RESEARCH AREAS:**

- Embedded Software Systems
- Data-intensive Systems and big data
- Human-centered computing (HCC)
- Cyber-physical systems
- Analytics for spatio-temporal and multi-dimensional data
- Interaction design
- Artificial Intelligence and machine learning
- Internet of Things (IoT)

- Extensive collaboration with Danish and international companies
- World-leading centre for research and innovation in embedded software systems (CISS)
- World-leading model-checking tool for real-time systems developed at the department (UPPAAL)
- Recognised outstanding centre for research and innovation in data-intensive systems (Daisy)
- HCC is internationally renowned for research in design and use of interactive systems

**HEAD OF DEPARTMENT:**

Jesper Kjeldskov, jesper@cs.aau.dk, +45 9940 8921, www.cs.aau.dk
The department offers a unique combination of programmes at the bachelor and master levels in architecture, design and media technology.

**CORE RESEARCH AREAS:**
- Architecture
- Urban design
- Industrial design
- Media Technology
- Architecture’s effect on stress
- Airport City Futures
- Architecture as a catalyst for urban development
- Computer vision and artificial intelligence for monitoring sewers
- Design DNA — basis for creating innovation
- Diagnosis of Parkinson’s disease through voice analysis
- Virtual Reality motivates seniors to exercise
- Service design creates an IT portal for senior citizens
- Human-robot interaction — for future welfare technology
- DecoChrom — interactive graphic solutions for embedded artificial intelligence
- Lighting Metropolis — Triple Helix living labs and lighting experiments

**HEAD OF DEPARTMENT:**
**Hans Jørgen Andersen**, hja@create.aau.dk, +45 9940 8834
www.create.aau.dk
DEPARTMENT OF PLANNING
FOR A SUSTAINABLE FUTURE

The department offers technical bachelor and master degree programmes in sustainable transition, design, circular economy, consumption and production, environmental assessment, sustainable energy planning, maritime management, land surveying and land use.

CORE RESEARCH AREAS:

- Environmental assessment, land use and maritime management
- Sustainable transition
- User-involved processes
- Sustainable energy systems and planning
- Sustainable production and consumption
- Management of natural resources
- Position of strength circular economy and sustainable design
- An internationally strong research environment for life cycle assessments
- World’s largest research effort in district heating (4DH)
- One of the driving forces behind the regionalization of EU fisheries policy
- The place where all Danish surveyors are trained
- World-renowned PBL research environment (UNESCO Centre for Problem Based Learning and Sustainability)

HEAD OF DEPARTMENT:

Tine Herreborg Jørgensen, tine@plan.aau.dk, +45 9356 2141
www.en.plan.aau.dk
DENMARK’S LARGEST IT UNIVERSITY:
AAU accounts for 28% of the IT programme admissions in Danish universities, while Nos. 2 and 3 represent 17% and 16% (2018 admissions).

NEW DIGITAL LEARNING MODEL:
AAU launches a new digital version of its project and problem-based learning model even more focused on putting the project at the heart of learning.

AMBITIOUS DIGITAL LEARNING OBJECTIVES:
As a specific strategic initiative, students will acquire targeted and strong digital competences in all AAU programmes.

PROBLEM BASED LEARNING (PBL)
The Aalborg PBL Model is recognised by universities, researchers and students both at home and abroad.

This learning model provides AAU students with the opportunity to:

- acquire knowledge and skills independently at a high academic level
- work with the business community on the solution of current industry problems
- develop their teamwork skills and be well equipped for the labour market

Targeted efforts in MEGAPROJECTS

- Interdisciplinary projects across the university with hundreds of students participating.
- All based on the global challenges defined in the UN’s 17 SDGs.
- Students working in disciplinary teams in collaboration with other teams in external partnerships.

Individual career and talent development programmes.

Offers of formal competence development courses in research, education and knowledge dissemination.

International exchange of PhDs, postdocs and other researchers.
MAKE IT REAL

WE TRAIN THE GRADUATES OF THE FUTURE IN IT, ELECTRONICS, ARCHITECTURE, DESIGN, SUSTAINABILITY AND PLANNING

AAU IS THE FOURTH BEST UNIVERSITY IN THE WORLD FOR ENGINEERING PROGRAMMES

2018 MIT REPORT

UNESCO CENTRE for problem based learning and sustainability

The AAU is home to a UNESCO CENTRE for problem based learning and sustainability

ORGANISATION

OFFICE OF THE DEAN

- Henrik Pedersen
  DEAN
- Torben Larsen
  PRO-DEAN FOR RESEARCH
- Jakob Stoustrup
  PRO-DEAN FOR EDUCATION

DEPARTMENTS

- ELECTRONIC SYSTEMS
  Thomas Bak
  HEAD OF DEPARTMENT
- COMPUTER SCIENCE
  Jesper Kjeldskov
  HEAD OF DEPARTMENT
- ARCHITECTURE, DESIGN MEDIA TECHNOLOGY
  Hans Jørgen Andersen
  HEAD OF DEPARTMENT
- PLANNING
  Tine Herreborg Jørgensen
  HEAD OF DEPARTMENT

DOCTORAL SCHOOL

- Mads Græsbøll Christensen
  HEAD OF DOCTORAL SCHOOL

- 4 departments
- 1 doctoral school (185 enrolled)
- Around 60 degree programmes
- 4,800 students, including 1,000 international students
RESEARCH, EDUCATION AND COLLABORATION

Digital solutions that consider human behaviour and needs
Technology and knowledge for sustainability
Architecture and design that integrate aesthetics and engineering

TECHNICAL FACULTY OF IT AND DESIGN

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