

# Leiden University

## Leiden Institute of Advanced Computer Science

# Master programmes

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17 February 2020



Universiteit  
Leiden  
The Netherlands



*We are*  
**SCIENCE** SINCE  
1815

# LIACS in figures

8



Research Groups

60+



Academic staff

14



Support staff

1 (3 spec.)



Bachelor's programme

3



Master's programmes

ca. 60



PhD students

ca. 500



Students

26+



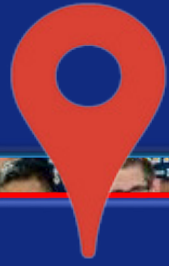
Nationalities

2



Cities





# LIACS Curricula

Bachelor  
Computer Science

Master  
Computer Science

Master  
ICT in Business  
and the  
Public Sector

Master  
Media  
Technology

PhD  
Graduate  
School

**I: 100**  
**I&E: 42**  
**BI: 28**

**67**

**37**

**35**

**Students**  
**1<sup>st</sup> year**  
**18-19**

Education in a research environment

# **MEDIA TECHNOLOGY @ LEIDEN UNIVERSITY**

# Media Technology

The background image shows an interactive art installation. It features a large, glowing blue, ethereal shape that resembles a butterfly or a winged figure, composed of many fine, parallel lines of light. A person's hands are visible on the right side, reaching out towards the glowing form. The overall scene is dark, with the blue light providing the primary illumination.

Together with **Academy for Creative and Performing Arts** (Faculty of Humanities).

‘**Science by creating**’

Creativity and academia

Playful science

Personally inspired research

*“Illuminating Shadows”* interactive installation by students



# Programme

## Academic skills courses (11 EC)

- Creative Research
- Science & Humanities
- ....

## Technical skills courses (13 EC)

- Hardware & Physical Computing
- Artificial Intelligence
- ...

## Conceptual skills courses (15 EC)

- Essentials in Art & Music
- New Media & New Technologies
- ...

## Human and technology courses (21 EC)

- Sound, Space & Interaction
- Non-Human Cognition
- ...

## Elective courses (16 EC)

## Project and exhibition (12 EC)

**Graduation research (30 EC), portfolio and graduation lab (2 EC)**

# **ICT IN BUSINESS AND THE PUBLIC SECTOR @ LEIDEN UNIVERSITY**

# ICT in Business and the Public Sector

Business/management & computer science education for future IT consultants/managers

## Focus area

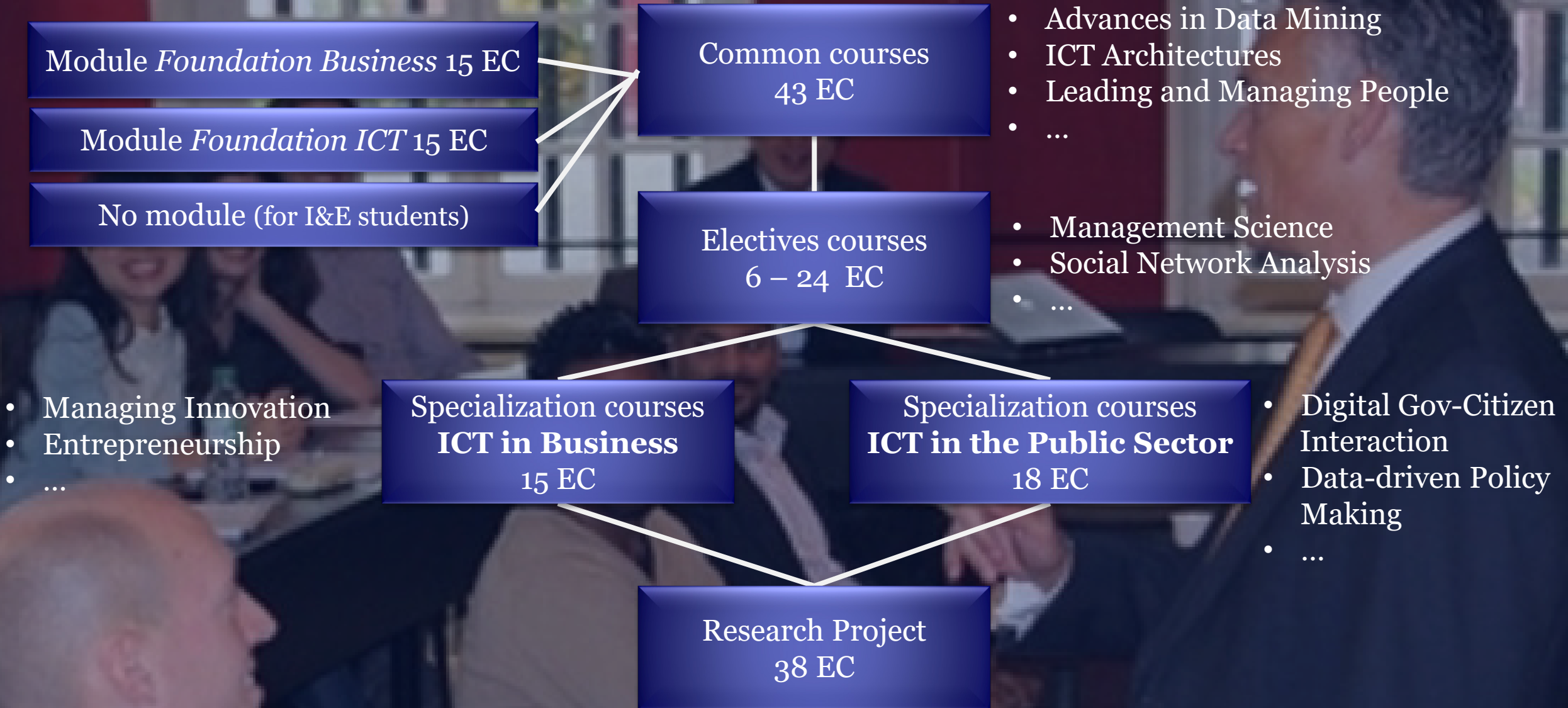
- management and application of ICT in an organizational context.
- ICT to enable innovations in marketing, operations, finance, strategy and IT itself

## Application and experience

- in private organizations (small and large)
- in the public domain (politico-administrative relations, European procurement, and data-driven policy development)



# Programme



# Alumni

In less than **1 month** after graduation **100%** of the students find a job

- IT innovation specialist at Leiden University Medical Center
- Digital development manager at Air France-KLM
- Data consultant at T&T data consultancy
- Scrum master at Dynasource
- IT assurance and Advisory bij KPMG
- IT specialist at center of international affairs, Ministry Comm. & IT Indonesia
- Technology Analyst at Accenture
- Technical consultant Ordina
- Business Development Manager at Centric
- Full stack developer at ING Nederland
- Business Analyst Channel Sales Operations at PALo Alto Networks
- IT strategic planning at European Commission

# **COMPUTER SCIENCE @ LEIDEN UNIVERSITY**



# Master Computer Science

## 2-year programme

- 120 EC
- Mandatory courses (36 EC)
- Free choice of courses (42 EC)
- Thesis project (42 EC)
- Masterclass (mandatory)



Universiteit  
Leiden  
The Netherlands

# The specialisations

## Computer Science

- Advanced Computing and Systems
- Artificial Intelligence
- Bioinformatics
- Data Science
- Foundations of Computing
- Science Communication and Society
- Education

*Always a specialization that matches your interests!*

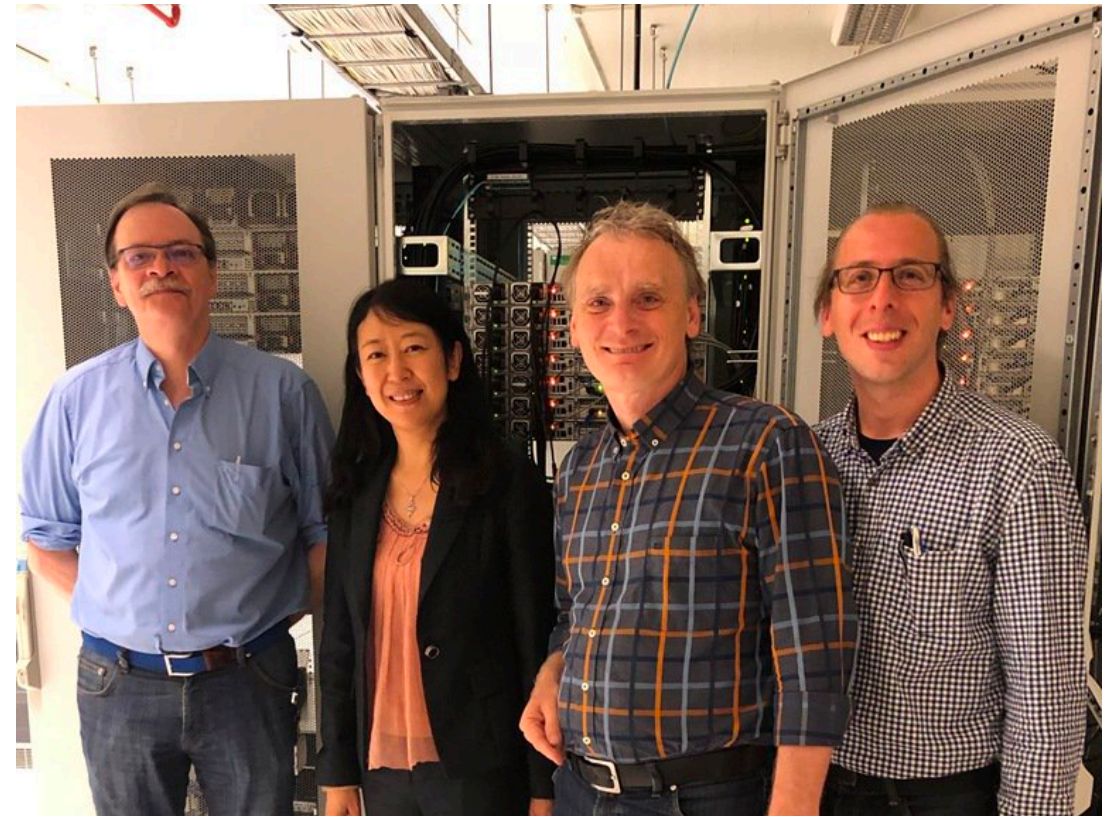


# The specialisations

## Computer Science

- **Advanced Computing and Systems**
- Artificial Intelligence
- Bioinformatics
- Data Science
- Foundations of Computing
- Science Communication and Society
- Education

Cloud computing  
Distributed data processing systems  
Embedded systems and software  
High performance computing I  
High performance computing II  
Multimedia systems





# The specialisations

## Computer Science

- Advanced Computing and Systems
- **Artificial Intelligence**
- Bioinformatics
- Data Science
- Foundations of Computing
- Science Communication
- Education

Automated machine learning  
Introduction to deep learning  
Evolutionary algorithms  
Modern game AI algorithms  
Multicriteria optimization and decision analysis  
Reinforcement learning



# The specialisations

## Computer Science

- Advanced Computing and Systems
- Artificial Intelligence
- **Bioinformatics**
- Data Science
- Foundations of Computing
- Science Communication and Society
- Education

Advances in data mining  
Bio-modeling  
Computational molecular biology  
Evolutionary algorithms  
Image analysis with applications in microscopy  
Introduction to deep learning



# The specialisations

## Computer Science

- Advanced Computing and Systems
- Artificial Intelligence
- Bioinformatics
- **Data Science**
- Foundations of Computing
- Science Communication and Society
- Education

Advances in data mining  
Information retrieval and text analysis  
Reinforcement learning  
Social network analysis  
Statistical learning  
Text mining





# The specialisations

## Computer Science

- Advanced Computing and Systems
- Artificial Intelligence
- Bioinformatics
- Data Science
- **Foundations of Computing**
- Science Communication and Society
- **Educ**



Computational models and semantics  
Concurrency and causality  
Foundations of software testing  
Quantum algorithms  
Seminar combinatorial algorithms  
Software verification

# The specialisations

## Computer Science

- Advanced Computing and Systems
- Artificial Intelligence
- Bioinformatics
- Data Science
- Foundations of Computing
- **Science Communication and Society**
- **Education**

### Science Communication and Society

- Organised with faculty
- Two components
  - 40-60 EC SCS
  - 60-80 EC CS
- 30 EC CS thesis

### Education

- Organised with ICLON
- Leads to “eerstegraads onderwijsbevoegdheid”
- Two components
  - 60 EC CS
  - 60 EC Education
- 30 EC CS thesis

# Many courses to choose from!

- Advanced Data Management for Data Analysis
- Advanced Statistical Computing
- Advances in Data Mining
- Advances in Model Checking
- Applied Quantum Algorithms
- Audio Processing and Indexing
- Automated Machine Learning
- Better Science for Computer Scientists
- Bio-modeling
- Cloud Computing
- Competitive Programming
- Complex Networks
- Computational Molecular Biology
- Coordination and Component Composition
- Data Science in Practice
- Deep Learning and Neural Networks
- Embedded Systems and Software
- Evolutionary Algorithms
- Foundations of Software Testing
- High Performance Computing I
- High Performance Computing II
- Image Analysis with Applications in Microscopy
- Information Retrieval and Text Analysis
- Information Theoretic Data Mining
- Linear & generalized linear models and linear algebra
- Modern Game AI Algorithms
- Multicriteria Optimization and Decision Analysis
- Multimedia Information Retrieval
- Multimedia Systems
- Multivariate analysis and multidimensional data analysis
- Psychology of Programming
- Quantum Algorithms
- Quantum Computing
- Reinforcement Learning
- Robotics
- Seminar Combinatorial Algorithms
- Seminar Distributed Data Mining
- Seminar Swarm-based Computation with Applications in Bioinformatics
- Social Network Analysis for Computer Scientists
- Urban Computing



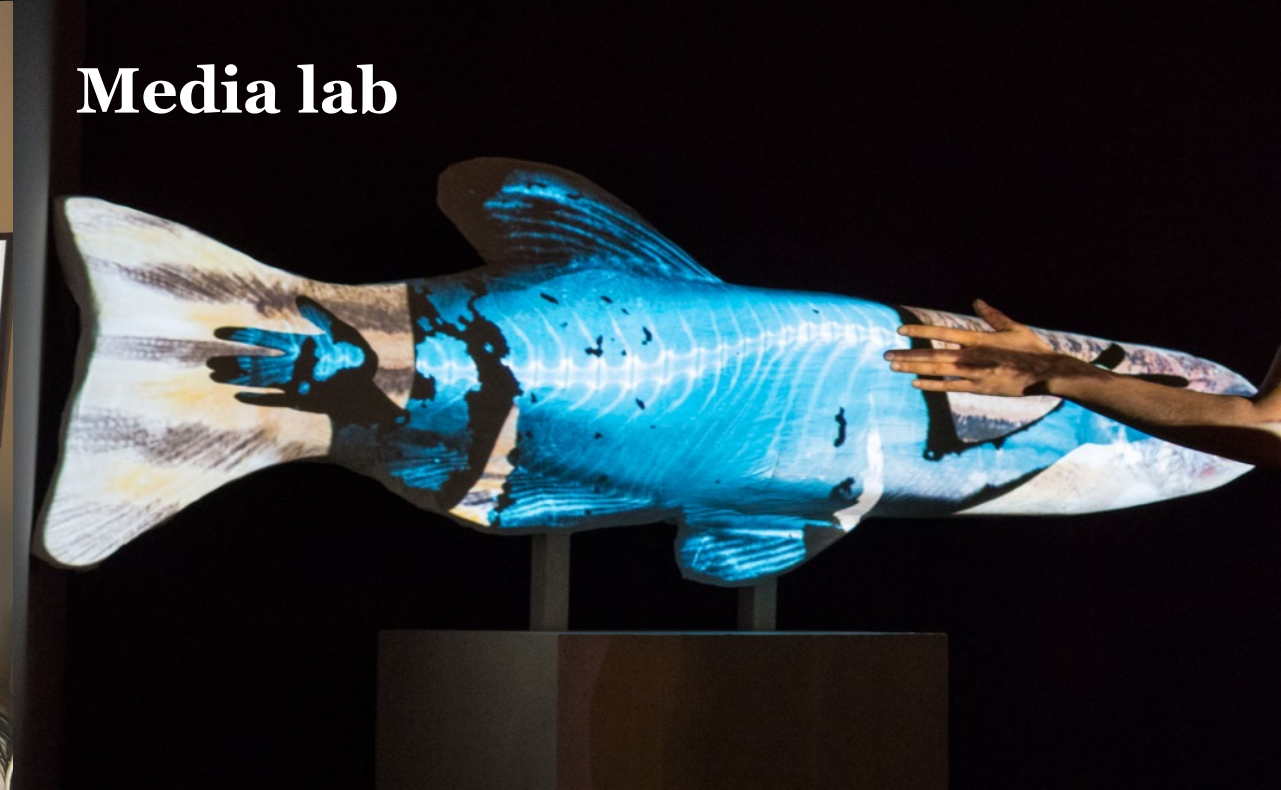
# Our facilities

High performance computing

Data science lab

Sports analytics lab

Media lab



# Applied Data Science Lab (ADSL)



Zorginstituut Nederland

BRILL



Rijkswaterstaat  
Ministerie van Infrastructuur en Milieu





# Our Teachers



# Applying & deadlines

## Check the application requirements & procedure

E.g., <https://www.universiteitleiden.nl/en/education/study-programmes/master/computer-science> -> *'Master's application and admission'*

## Application deadlines

September start? Apply before **15 June**

February start? Apply before **1 December**

(Assuming you do not need visa or residence permit)



# For all your questions

## ➤ **Programme managers**

Matthijs van Leeuwen (CS)

Joost Visser (ICTiBPS)

Max van Duijn (MT)

## ➤ **Study advisors & coordinators**

José Visser (CS)

Esme Caubo (ICTiBPS)

Barbara Visscher (MT)

## Key points

➤ Exciting topics

➤ A lot of flexibility

➤ Small scale

➤ Great student atmosphere

➤ Your teachers are researchers

➤ 100% find a job in less than 1 month

# Questions?



**Universiteit  
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The Netherlands



science.leidenuniv.nl



LeidenScience



莱顿大学科学学院



LeidenScience



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Faculty of Science  
Universiteit Leiden



User: FWNBCM



Leidenscience