School of Engineering

Summer Research Exchange ZHAW School of Engineering

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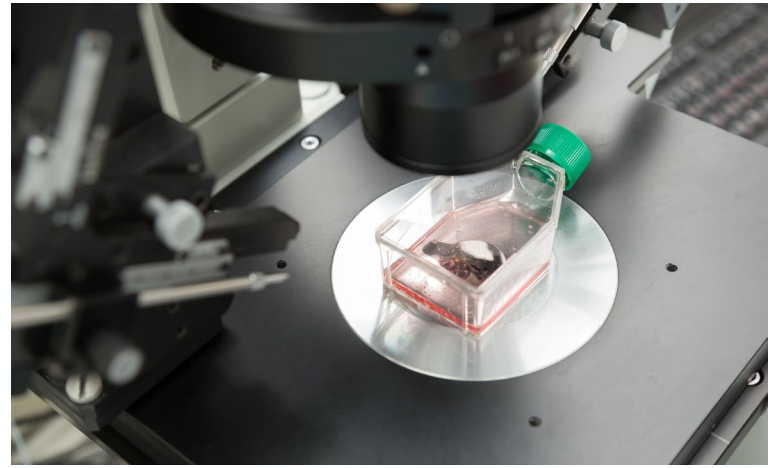
Switzerland: facts & figures

Why picking Switzerland as destination for your semester abroad?



Switzerland: facts & figures

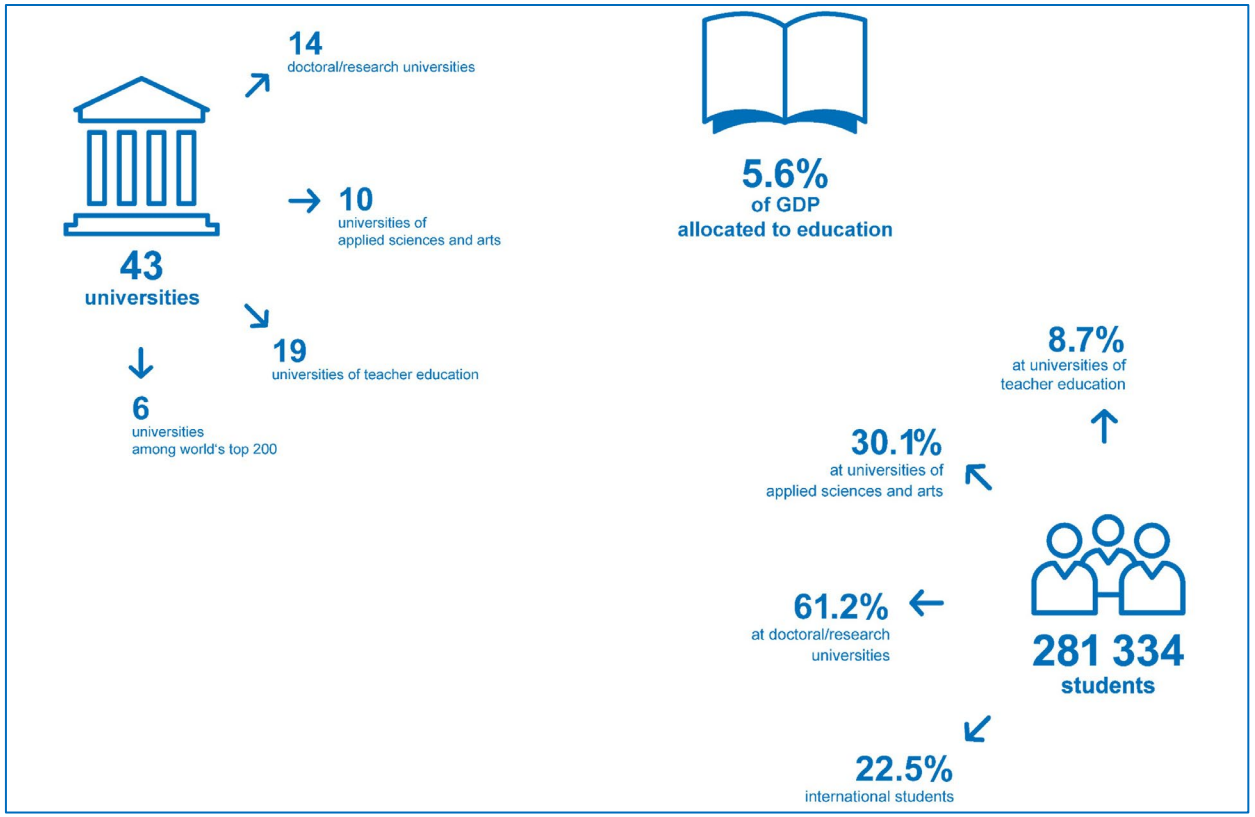
Small country in Small country in the heart of Europe

- 41’285 sqm land surface
- No member of the European Union
- 9 Mio. residents, 27% foreigners
- 4 national languages: German, French, Italian and Rhaeto-Romanic
- Winterthur: German-speaking
- 15 min train ride from Zurich, largest city and financial powerhouse

Map of Switzerland (www.nationsonline.org)

Higher Education in Switzerland: a cornerstone of wealth

- Large share of GDP invested in higher education
- Many universities compared to size of country
- Different types of universities
- Dual education system in Switzerland is a model for success



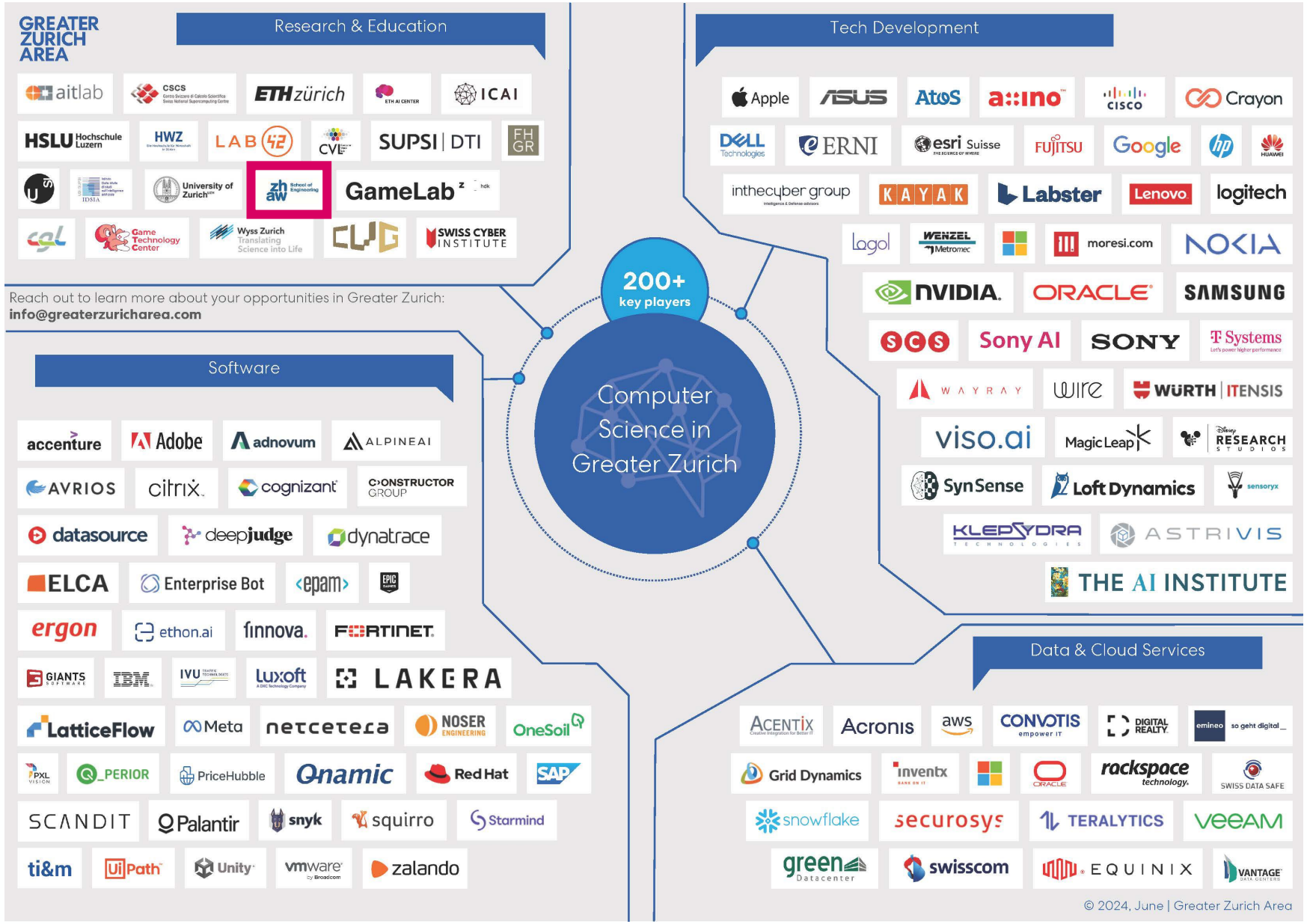
www.bfs.admin.ch; de.statista.com

Switzerland: most innovative economy for the 15th consecutive year

- Strong R&D investment
- Highly skilled workforce
- Robust intellectual property protection
- Public-Private Partnerships
- Stable economic and political environment
- Dual education system, where 75% of youngsters at the age of 15/16 embark on vocational education pat, learn a profession and go back to university later.

World Intellectual Property Organization (https://www.wipo.int/en/web/global-innovation-index/2025/index)

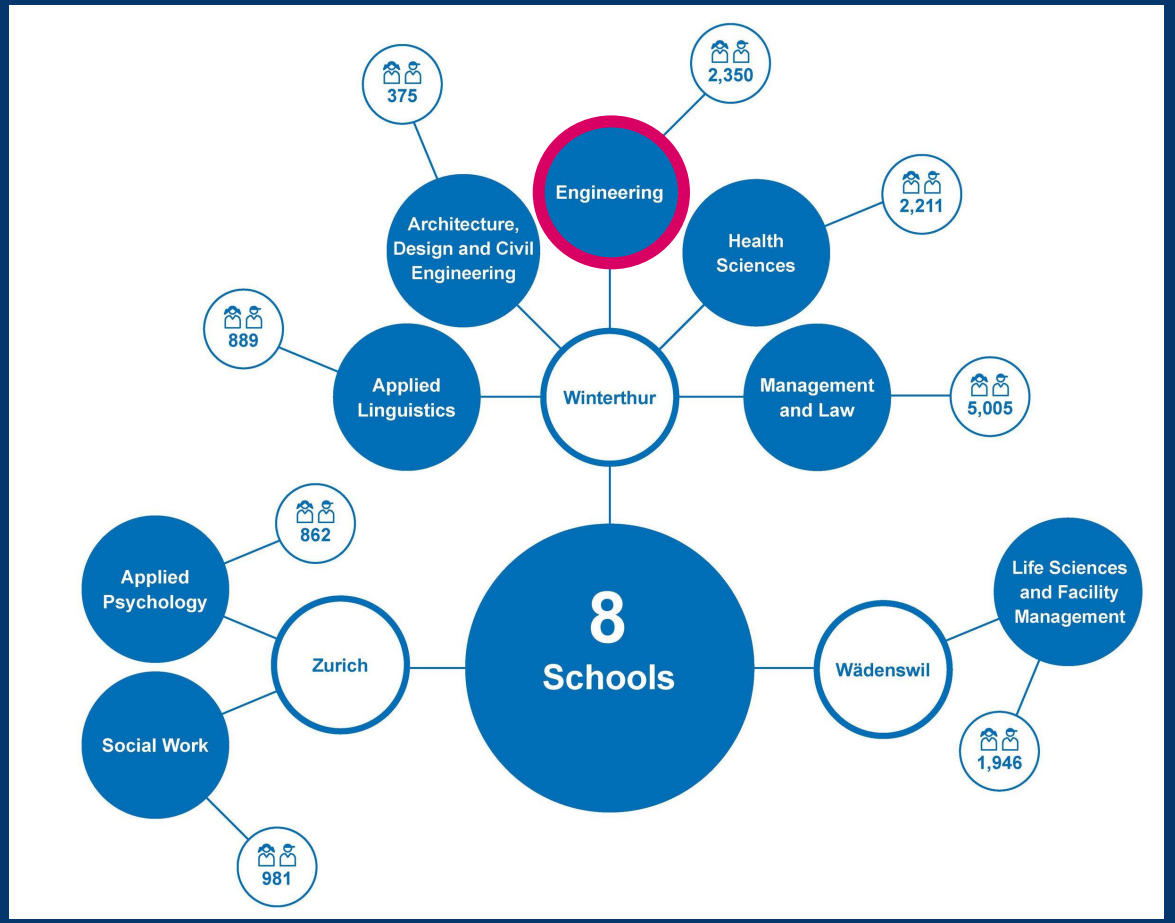
Greater Zurich Area: Europe's leading AI base



Zurich University of Applied Sciences, ZHAW

ZHAW’s Departements and student numbers

- Founded in 2007 as a merger of individual schools
- 3 locations: Winterthur, Zurich, Wädenswil
- 8 departments
- 34 Bachelor's degree programmes
- 20 Master's degree programmes
- 14,619 Bachelor's and Master's students (headcount)
- 3,655 employees (full-time equivalent)
- 586 million Swiss francs cost volume

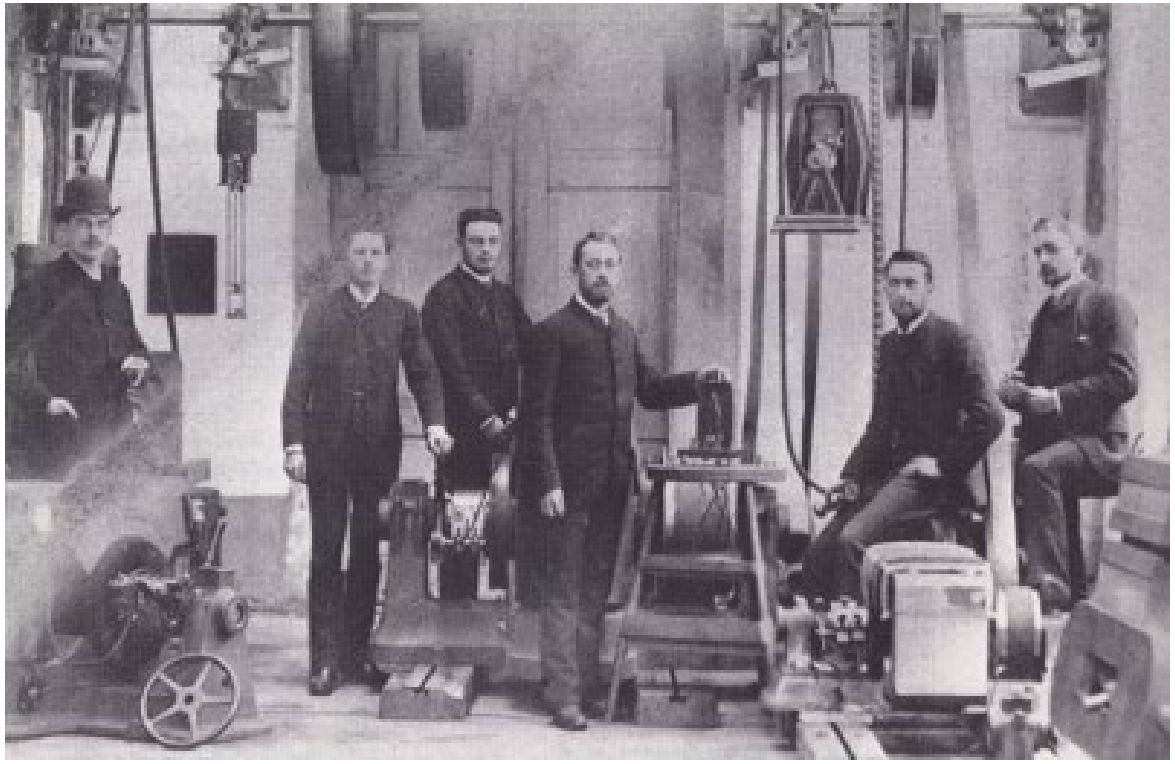


2024 Annual Report (www.zhaw.ch/en/media/the-zhaw-at-a-glance)

ZHAW School of Engineering

School of Engineering: 150 years old!

1874: Founded by Friedrich Autenheimer, oldest technical university in Switzerland
1892: First graduating class, Mechanical Engineering



1901: Albert Einstein lectures at the Technical School

1939: The Technical School is expanded to include an Electrical wing.

Traditions are lived and cherished!

Graduating Class dress up in tailcoats and skirts.
Male students grow their beards for the entire last semester and shave it after graduation in a ceremony.

During the tailcoat parade, students parade through Winterthur with their own constructed vehicles. They celebrate their graduation with the entire city. The university opens its door for the “Night of Technology”

Study Programmes

Bachelor Programmes

1. Aviation
2. Computer Science
3. Data Science
4. Electrical Engineering
5. Energy and Environmental Engineering
6. Mechanical Engineering
7. Medical Informatics
8. Mobility Science
9. Systems Engineering (Robotics and Mechatronics, Biomedical Engineering)
10. Engineering and Management

Master of Science in Engineering

1. Aviation
2. Business Engineering
3. Civil Engineering
4. Computer Science
5. Data Science
6. Electrical Engineering
7. Energy and Environment
8. Information and Cyber Security
9. Mechanical Engineering
10. Mechatronics and Automation
11. Medical Engineering
12. Photonics and Laser Engineering

www.zhaw.ch/en/engineering/study

Study Programmes

Bachelor Programmes

- **6 semesters**
- 180 ECTS - Credits
- 30 ECTS - Credits per Semester
- **A lot of maths and physics in the basic year**
- Exchange on 5th semester
- **Praxis focussed education** : BSc students included in research projects through project modules
- 146 EN modules in fall semester; 131 EN modules in spring semester
- Combination of modules across study programmes possible

Example of syllabus, Computer Science

Project modules as of semester one!

Heavy load of maths and physics during the first academic year (for all study programmes!).

14 Institutes and Centers and 8 interdisciplinary platforms

Institute of Applied Mathematics and Physics
Institute of Computer Science
Institute for Data Science (IDS)
Institute of Energy Systems and Fluid Engineering
Institute of Mechanical Systems
Institute of Mechatronic Systems
Institute of Sustainable Development

Institute of Computational Physics
Institute of Embedded Systems
Institute of Materials and Process Engineering
Institute of Product Development and Production Technologies
Institute of Signal Processing and Wireless Communications
Centre for Artificial Intelligence
Centre for Aviation

https://www.zhaw.ch/en/engineering/institutes-centres

Strong Partnerships with industry

- Interdisciplinary cooperations between the institutes and centers
- Strong focus on application and practice, already on BSc level
- Multifaceted, modern laboratory infrastructure
- Current results from research are integrated directly into the teaching curriculum
- We educate 20% of the engineers in Switzerland
- Funding from industry or federal agency supporting industry-university partnerships
- 500 projects on-going, about 80% with industry partners

Selection of industry partners from ZHAW School of engineering

Summer Research Exchange Programme for UoT Bsc students

ER RESEARCH EXCHANGE: ZHAW SCHOOL OF ENGINEERING

Engineering is one of the leading Engineering Faculties in Switzerland, with an reas of energy, mobility, information and health. The range of study programmes is eds of businesses and the economy, and combines scientifically well-founded training h a strong practical relevance and an interdisciplinary approach.

udents have to say about studying in ZHAW School of Engineering **here**.

his destination is only available to students registered in the Faculty of Applied neering, and through the not-for-credit pathway.

ZHAW School of Engineering

esearch Projects: browse the **14 Institutes and Centres** at the host institution to

LOCATION

Country(ies): Switzerland
City: Winterthur
Institution: University

STATUS

Accepting Applications: Yes
Timeline: May-August
Run By: CIE
For Credit: No

DETAILS

Language of Study: English
Level of Study: Undergrad
Subjects Available at Host: Applied Science and Engineering
Program Type: Research
Tuition & Incidentals: Not for credit
Program Fees: No fee
Funding: SREP Award $3000, host scholarship and possibility of IE Award

Summer Research Exchange Programme for UoT

- **Dates:** between May and August
- **Duration:** max. 3 months (90 days). If longer, a student visa is necessary
- **Spots available:** 5
- **Placement:** in a professorship at one of the institutes or centers
- **Projects**: Topics listed in the following slides
- **Funding:** scholarship 1 kCHF/month guaranteed (3 kCHF for 3 months), several on Candian side
- **Housing:** student's responsibility, support through Inter. Office
- **Application Deadline:** 10 February 2026
- **Call Webpage:** https://shorturl.at/dbVBt

Summer Research Exchange Programme for UoT

- **Application documentation:**
  - Academic record
  - Academic CV or Resume
  - A brief motivation letter
- **Submission:** One single pdf to Patricia Heuberger: heug@zhaw.ch
- **Application Review:** By the hosting professor
- **Interview:** might be arranged to decide on the final topic, prerequisites, scope and duration of the project
- **CIE nomination:** Successful applicants will receive
- **Registration and information:** Through ZHAW mobility tool

Available Projects for UoT students

Institutes	Professor and Group	Topics
Institute of Mechatronic Systems (IMS)	Prof. Dr. Marcel Honegger Robotics & Automation	- Development of omnidirectional mobile robot
Institute of Mechatronic Systems (IMS)	Michael Wüthrich Biomedical Engineering	- Different projects in applied biomedical engineering

Available Projects for UoT students

Institutes	Professor and Group	Topics
Centre for Artificial Intelligence (CAI)	Prof. Dr. Alisa Rupenyan Industrial AI	- Development of meta-learning models for robotic applications (for example, robotic winding) - Setting up some of our robots for autonomous navigation - Increasing the autonomy of the robots by developing learning-based models for different applications.

Available Projects

Institutes	Professor and Group	Topics
Centre for Artificial Intelligence (CAI)	Dr. Ricardo Chavarriaga Responsible AI Innovation	- Research on privacy-preserving brain–machine interfaces - Responsible AI development - Regulatory-compliant AI risk assessment, - Multi-objective reinforcement learning for safety-critical applications
Centre for Aviation (ZAV)	Prof. Dr. Michel Guillaume Structural Integrity and Aircraft Repairs	- Corrosion of Aviation Alloys - Metal surface analysis - Acuity corrosion measurements - Corrosion data analysis Detailed project descriptions available! Prof. Guillaume urgentyl searches for a student!

Available Projects

Institutes	Professor and Group	Topics
Centre for Aviation (ZAV)	Dr.-Ing. Peter M. Lenhart Human Factors Engineering at the Centre for Aviation	- Gamification of 4D Flight Path following - Development of a tangible 4D Flight Path - Extension of a Flight Path Generator - visionOS Software Development Augmented Reality applications to improve flight training and manual flight path control. Detailed project descriptions available!
Institute of Signal Processing and Wireless Communications (ISC)	Dr. Marc Kuhn Communications Engineering - Wireless Communications	- Sensor-Electronics and RF - Digital Signal- and Image-Processing - Wireless Communications

Available Projects

Institutes	Professor and Group	Topics
Institute of Sustainable Development (INE)	Prof. Maike Scherrer Sustainable Supply Chain Management and Mobility	- Autonomous driving vehicles (People mobility, technology acceptance, use patterns of autonomous driving vehicles) - Circulus (Circular Supply Chain Design, Circular Logistics Networks; Sustainability/Circularity impact measurement) - Resilient supply chains: development, sending out questionnairs, analysing questionnaires to analyse resilience drivers and enables for resilient supply chains

Available Projects

Institutes	Professor and Group	Topics
Institute of Sustainable Development (INE)	Prof. Maike Scherrer (continued) Sustainable Supply Chain Management and Mobility	- Smart Urban Multihubs (system transformation in urban logistics; benefit of different hub types in urban settings; autonomous driving delivery vehicles; cargo bike implementation in last mile logistics; comparative study in which city setups cargo bikes are more beneficial than delivery vans, etc)
Institute of Sustainable Development (INE)	Corinna Baumgartner Risk Management and Technology Assessment	- Enabling manufacturing companies to implement the circular economy through the use of data (BePro-CEND) - Evaluation System for Additive Manufacturing (ESAM) - IoT Sustainability Lab

Available Projects

Institutes	Professor and Group	Topics
Institute of Sustainable Development (INE)	Prof. Vincente Carabias and Martina Rechsteiner Sustainable Energy Systems and Smart Cities	- International Comparative Analysis of Smart Cities
Institute of Sustainable Development (INE)	Dr. Anton Sentic Sustainable Energy Systems and Smart Cities	- Living Labs/Real-World Labs for local Entrepreneurship

Available Projects

Institutes	Professor and Group	Topics
Institute of Sustainable Development (INE)	Pascal Vögeli and Lucas Truniger Sustainable Energy Systems and Smart Cities	- Support for the application testing of PED Readiness Assessment to promote Positive Energy Districts
Institute of Sustainable Development (INE)	Prof. Vincente Carabias Sustainable Energy Systems and Smart Cities	- Co-Design for 5 Minutes Districts and enhanced Multi-modal Public Transport hubs

Available Projects

Institutes	Professor and Group	Topics
Institute for Data Science (IDS)	Prof. Dr. Helmut Graber Head of Visual Intelligence and Applications Group	- Computer Vision - Visual Computing - Extended Reality (Augmented/ Virtual/ Mixed Reality) - Visual Communication - Computer Assisted Learning and Training - Sport Analytics
Institute for Data Science (IDS)	Dr. sc. ETH Jürg Meierhofer Smart Services and Operations	- Operations Research - AI-driven Services

Available Projects

Institutes	Head/Faculty	Topics
Institute of Embedded Systems (InES)	Prof. Andreas Rüst Internet of Things Low-power Wireless Embedded Systems High Integrity Systems	- Internet of Things, Low-power Wireless Embedded Systems, Embedded Security - Embedded AI and Edge Processing - High Integrity Systems and Time-sensitive Networking (several projects available)
Institute of Mechanical Systems (IMES)	Prof. Dr. Robert Eberlein Head of Institute Sven Sven Düzel	Lifetime modelling of Polyoxymethylen (POM) under cyclic uniaxial loading Detailed project descriptions available with tasks and requirements Detailed project descriptions available!

Thank you and Q & A

Looking forward receiveing many applications!

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