



# UiO : Institutt for teknologisystemer

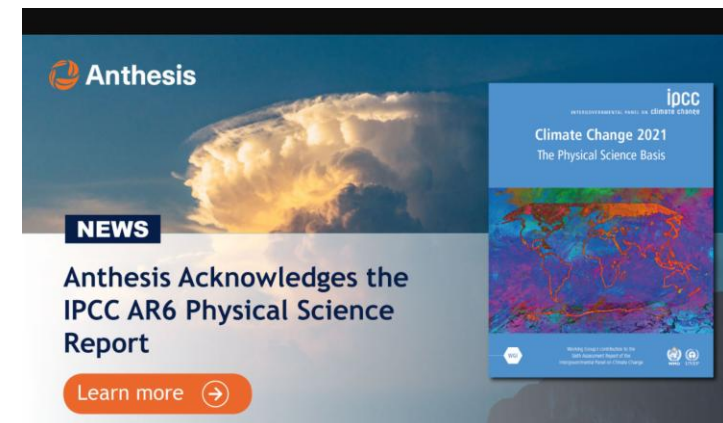
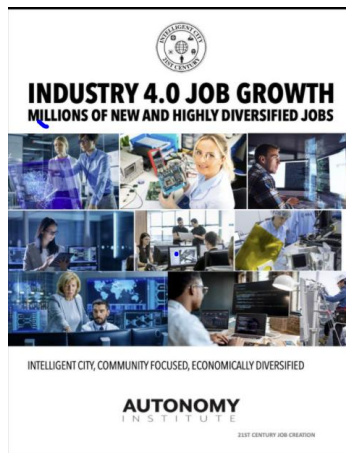
Det matematisk-naturvitenskapelige fakultet

Cecilie Rolstad Denby, Head of Department of Technology Systems, [c.r.denby@its.uio.no](mailto:c.r.denby@its.uio.no)



Congratulation with a good choice of study program  
– our topics are very relevant for the future!

- Renewable Energy Systems
- Cybernetics and Autonomous Systems (Robotics and intelligent systems, IFI)
- Space Systems
- Security in Cyber-Physical Systems (Information security, IFI)



## UiO in brief



**8**  
faculties

Our breadth is our strength.  
New possibilities and solutions arise  
when knowledge from different subject  
areas and disciplines meet.



**28,007**  
students

Of these students, around 14,500 are  
at the bachelor's level, 6,400 are at the master's  
level and 7,000 are in professional programmes  
and integrated master's programmes.



**6,609**  
full-time equivalents

Three-quarters of our staff are  
in research and teaching positions,  
the rest are support or administrative  
personnel.

**2**  
museums



Study abroad  
award  
1<sup>st</sup> place



**2,000**  
events

2,000 events – debates, seminars  
and conferences – arranged by UiO  
are open and free to all.



UiO was ranked as the world's 67<sup>th</sup> best  
university, Europe's 24th best university  
and Norway's best university in 2016.  
*Shanghai Ranking of World Universities*



**5**

**Nobel Prize  
winners**

Fridtjof Nansen  
*Peace Prize,*  
1922

Odd Hassel  
*Chemistry, 1969*

Ragnar Frisch  
*Economics, 1969*

Ivar Giaever  
*Physics, 1973*

Trygve Haavelmo  
*Economics, 1989*

## The Faculty of Mathematics and Natural Sciences

- 6000 students (bachelor, master)
  - 50/50 natural sciences and technology courses
- 800 PhD-students
- 2000 employees
- Turnover 1,9 billion NOK
- 40% of funding from external resources (EU & NFR & Industry)
- 200 active projects partners in industry and public sector
- Extensive international activity
  - The Panorama strategy
  - The Guild network



### Grant highlights

**20** ERC-grants

**4+4** Centre of excellences (SFF)

**3+10** SFIs and FMEs

**1** SFU

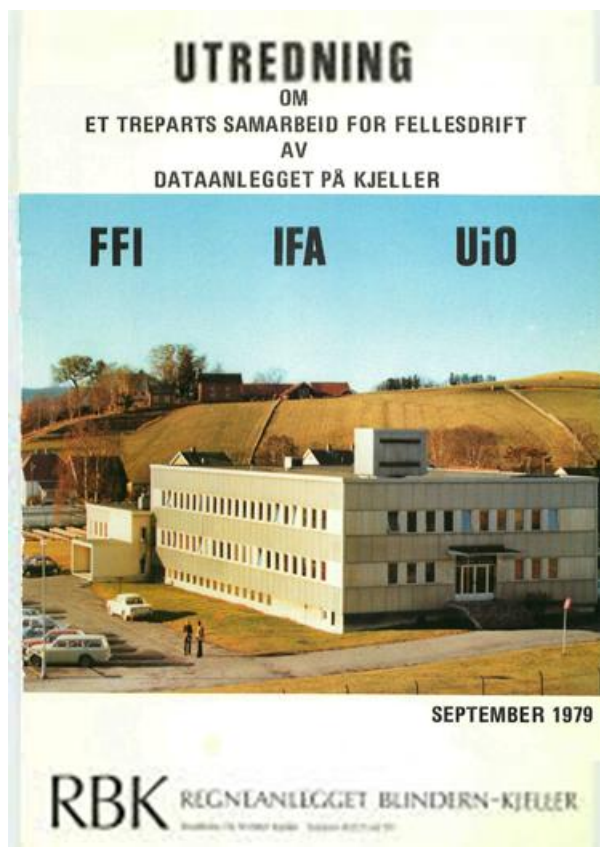
**2** Nordic Centre of Excellence

**25%** of free NFR-research grants (FRIPRO)

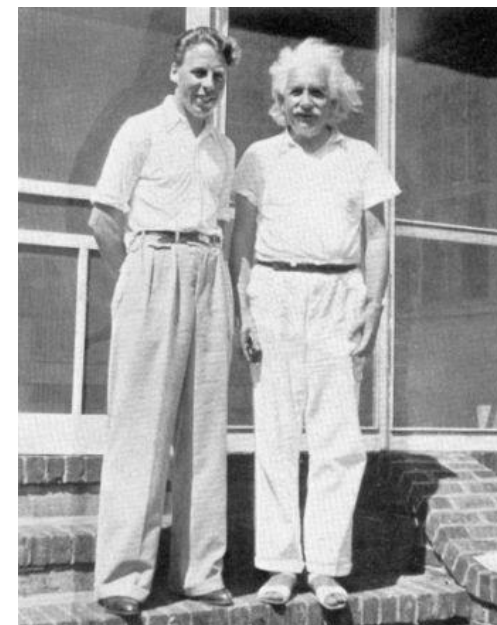
**3 of 3** NFR lighthouse projects (ICT)

## Kjeller history

# Norwegian Defence Research Establishment NDRE/FFI Nuclear research at IFA



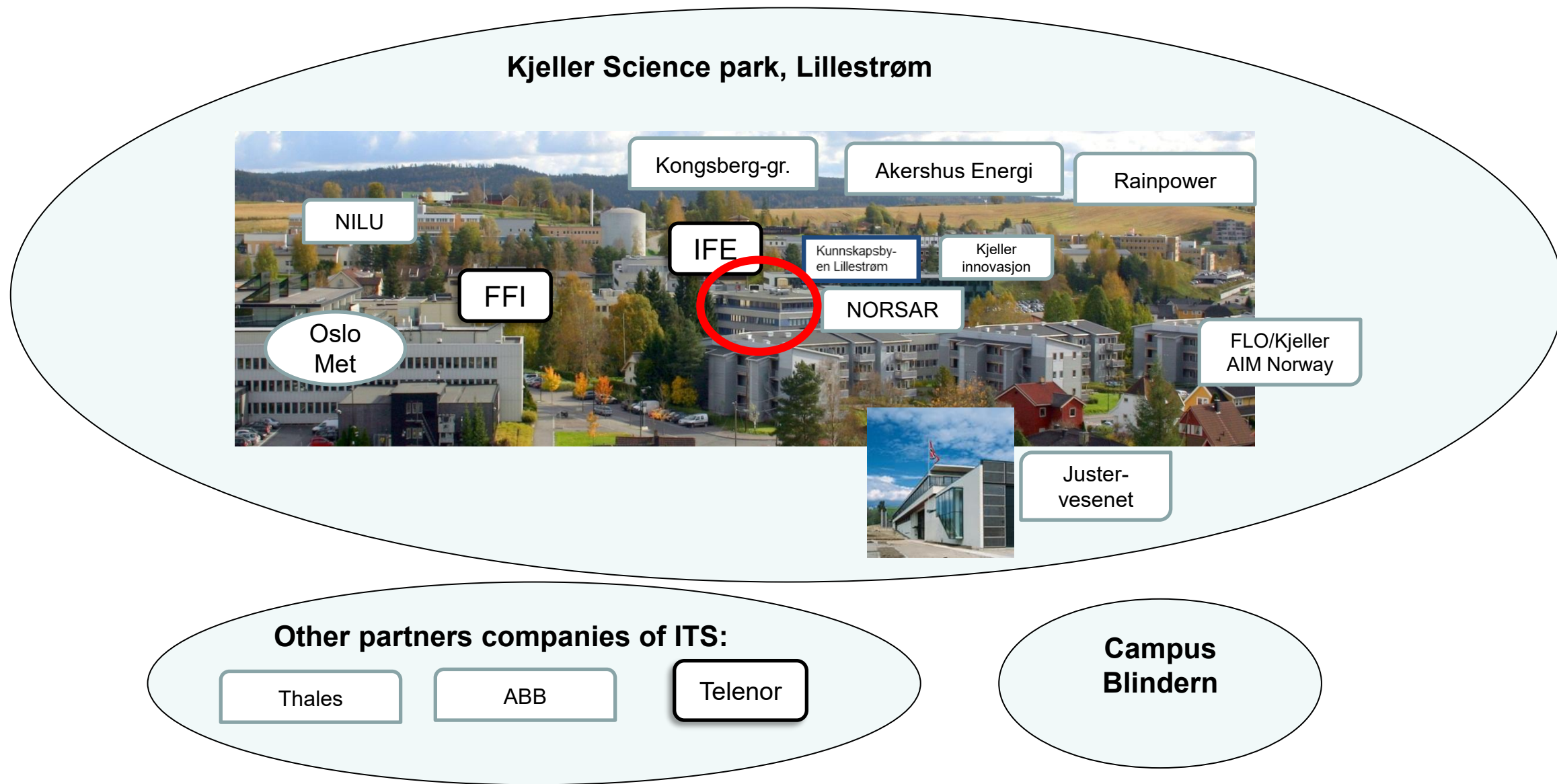
5



Gunnar Randers and Albert Einstein,  
1940

Gunnar Randers vei 19

## Associated organisations



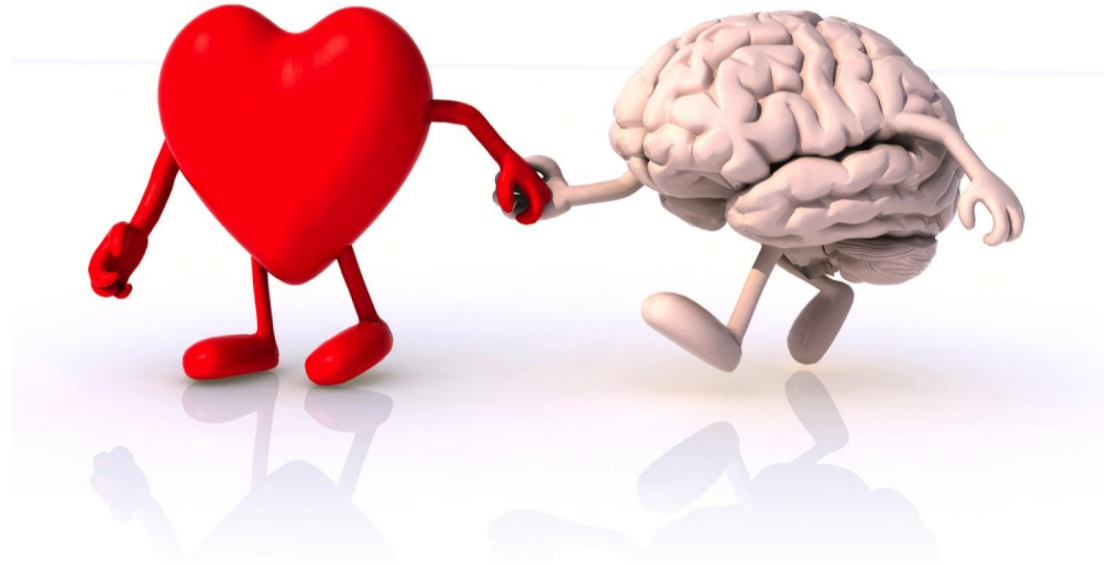
## **ITS in numbers**

Research sections:

- Energy Systems
- Autonomous Systems and Sensor Technologies
- Centre for research-based innovation : Centre for Space Sensors and Systems (CENSSS)

- ~ 150 Master's students
- ~ 40 Postdoc & PhD fellows
- ~ 30 associate researchers/lecturers
- ~ 14 full time researchers/lecturers
- ~ 8 technical/administrative employees

Good luck with your studies at ITS!  
Use your time well!



# UNIVERSITY OF OSLO

## ITS: What do we teach and how?

*Matylda N. Guzik, PhD*

*Senior Lecturer & Head of Education*

Kjeller, 12<sup>th</sup> & 13<sup>th</sup> August 2025



# ITS: Science & Education for Technology & Systems

- Complexity
- Applied technology approach
- Multidisciplinary perspective
- Understanding & communication

# ITS: The master's degree study options

## ■ Cybernetics and Autonomous Systems

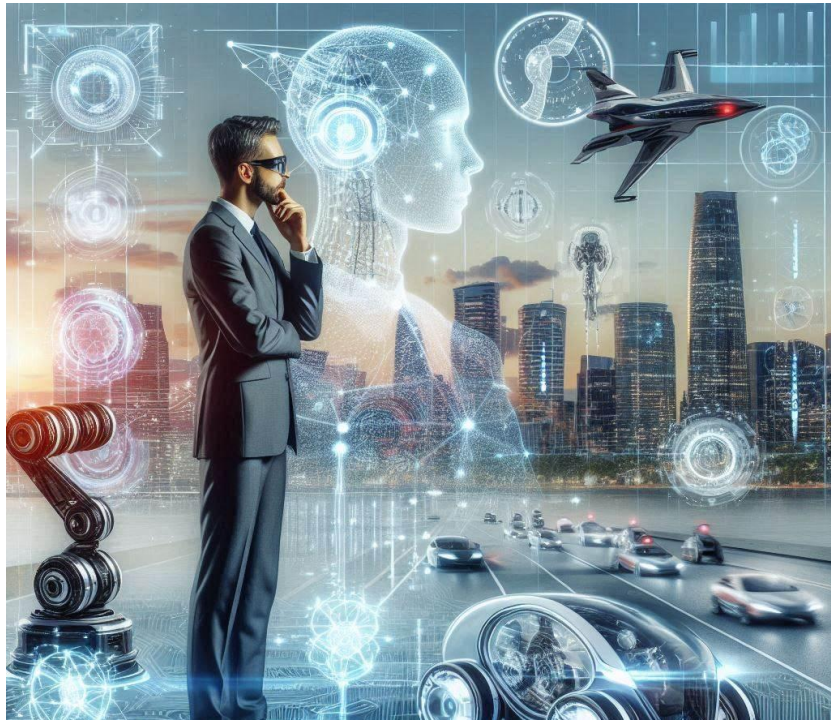


*photo: AI generated*

### Cybernetics and Autonomous Systems

Join our master's degree study option in Cybernetics and Autonomous Systems and be at the forefront of innovations in applied robotics!

We offer theoretical insight and practical, hands-on training in:

- Design, Navigation and Control of Autonomous Vehicles
- Practical Robotics and Rapid Prototyping
- Swarm Intelligence and Multiagent Systems
- Computer Vision and Pattern Recognition



# ITS: The master's degree study options

## ■ Security in Cyber-Physical Systems



*photo: AI generated*

## Security in Cyber-Physical Systems

Join our master's degree study option in Security in Cyber-Physical Systems and safeguard the future with smart technologies and critical infrastructure!

We provide theoretical knowledge and practical experience in:

- Design of Secure Cyber-Physical Systems
- Threat Detection and Mitigation
- Secure Smart Technologies, Industrial Systems and Critical Infrastructure



# ITS: The master's degree study programs

## ■ Renewable Energy Systems



*photo: AI generated*

## Renewable Energy Systems

Join our master's degree programme in Renewable Energy Systems and shape our sustainable future through energy innovation!

We provide theoretical knowledge and practical, hands-on training in:

- Sustainable Energy Systems
- Energy Systems and Market Mechanisms
- Smart Energy Grids and Internet of Things
- Sustainable Energy Technologies and their Interaction with Societies and Environment

# ITS: The master's degree study programs

## ■ Space Systems



*photo: AI generated*

## Space Systems

Enhance life on Earth and beyond by launching your career through our master's degree programme in Space Systems!

We offer theoretical knowledge and practical hands-on experience in:

- Space Systems Engineering
- Space Environment and its Impact on Space Technology
- Sensors for Earth and Space Exploration
- Satellite Communication
- Small Satellite Design

# ITS: Our lecturers & teaching assistants

- Permanent academic staff
- Adjunct academic staff
- PhD & Postdoctoral Research Fellows
- Fellow master students

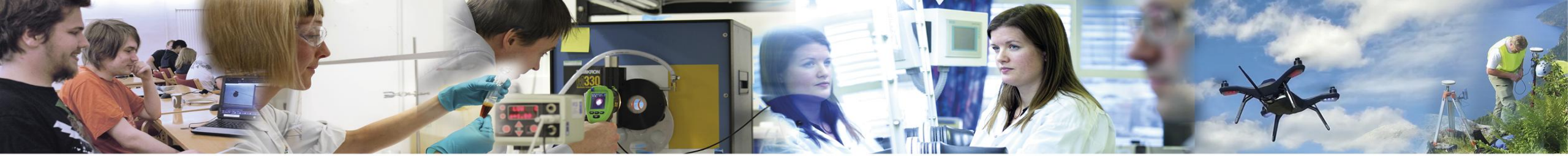
# ITS: How do we teach?

- Lectures, workshops, seminars, etc.
- Involvement of industrial partners (guest lecturers, visits, co-supervision, etc.)
- Involvement of academic partners with complementary knowledge
- Laboratory activities
- Master projects: 30 or 60 ECTS

# ITS: The master's degree study programs & options

## What will you gain?

- Theoretical specialised knowledge
- Practical/technical competencies
- Experience on how to effectively apply both in real-life scenarios
- Ability to:
  - *think broad, critical & innovative*
  - *ask proper questions in interdisciplinary context*
  - *self engage in the learning process*



**UiO** : **Department of Technology Systems**  
University of Oslo

# Essentials: All you need to know now

Kaja Mosserud-Haavardsholm  
Administrative Head of Studies



## **First semester as a new master student - what do I need to do?**

- Make sure to register on the Student Web and pay your semester fee by 1 September
- Attend courses throughout the semester, and (hopefully) ace the exam
- Find a supervisor (on your own, or on our presentations in later in the semester)
- Hand in study plan agreement (by 1 December)

## **Part-time and credit recognition**

- **Part-time studies**
  - 50-100% progression possible
  - Find a good plan with your supervisor, and fill out your study plan agreement accordingly
  - Questions or problems? Ask us. 😊
- **Credits from other study higher education institutions you would like to use in your curriculum?**
  - Apply for recognition through the Faculty of Natural Sciences (MN)
  - Add your courses to the study plan agreement

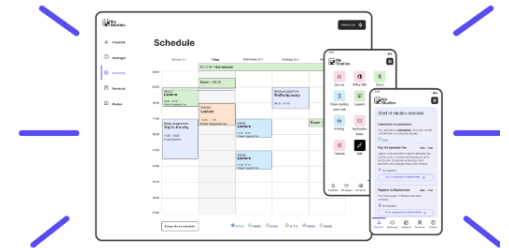
## Attending courses at ITS

- Two teaching sessions
  - 09:15-12:00
  - 13:15-16:00
- Free bus from Blindern (OJD – Informatics building) to and from each session
- Traditionally, most lectures are recorded and available for students – this is up to your lecturer (and sometimes, the equipment)



## Practicalities I

- studentweb.uio.no
  - course registration
  - semester fee information
  - grades
  - study plan and supervisor information
- Mine studier / My Studies
  - minestudier.no & app
  - schedules, messages from Canvas, notifications, ...



## Practicalities II

- Studentbevis / Student ID
  - download the app
  - register for the semester in studentweb
  - pay the semester fee
- Student ID card – why do I need more than the app?
  - access to buildings outside normal opening hours
  - access to UiO printers

## **Student benefits at ITS**

- Free coffee 
- Student reading rooms
- Social student basement
- Gym room
- Student kitchen
- UNIKUM – your own student society
- A really nice student administration!  
(conveniently located on the first floor)

## **ITS student = MN student**

- The Faculty of Mathematics and Natural Sciences has long and proud traditions, and a variety of activities for students, including (but not limited to):
  - RF – Realistforeningen from 1859, now with RF-kjeller'n and bafler
  - Biørneblæs, Blindern's only active student orchestra
  - Ursi Canentes, «the singing bears»
  - Bjørnegildet and student galla
- ...all overseen by H.M. Ursus Major, RF's high protector (only seen on special occasions at nedre Blindern)

## Who do I ask?

- Study administration



Kaja Mosserud-Haavardsholm



Yvonne Baade



Tuhta Ismailova

## Who do I ask?

- IT and labs



Arild Hemstad



Pål Grønstad Solheim

## Who do I ask?

- Maintenance



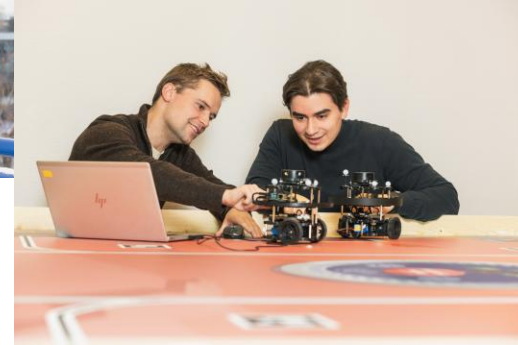
Karunakaran  
Arudpiragasam



Øyvind  
Johansen

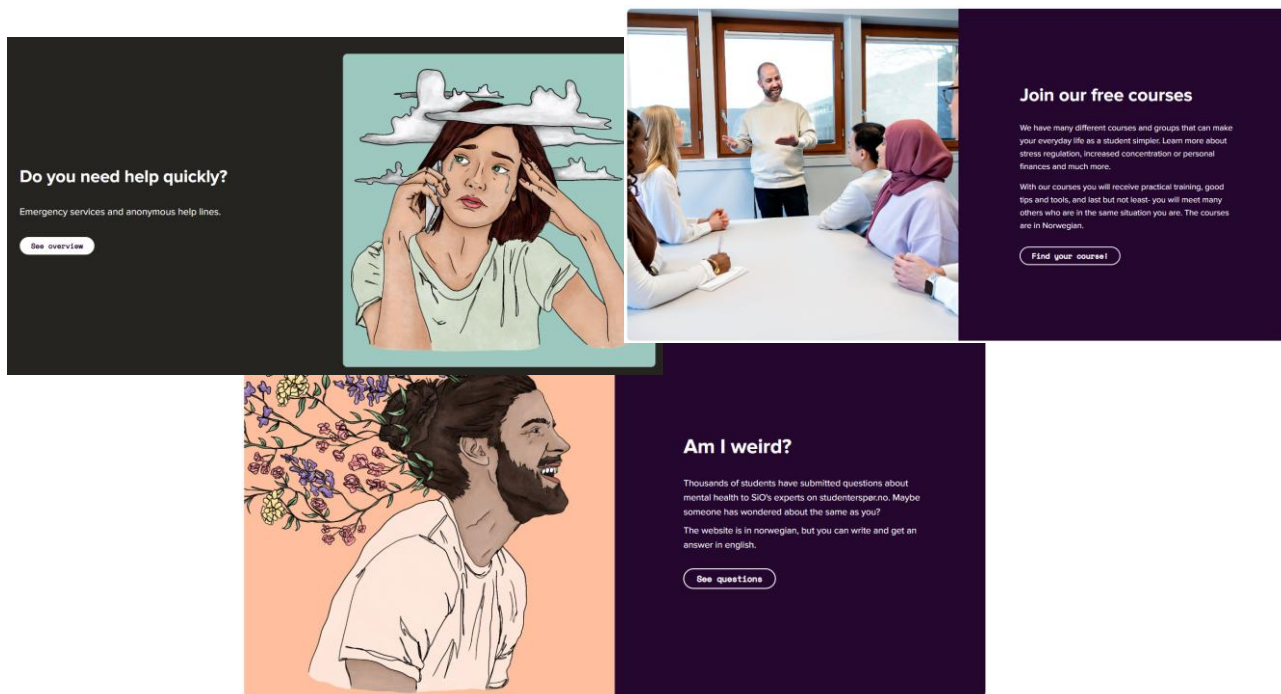
## Who do I ask?

- Each other...
- Use what you got; discord, facebook, messenger, whatsapp, pen and paper, weekly meetings, ...
- ...and join UNIKUM!



## Who do I ask if I *really* need help?

- SiO Health



- Si fra! / Speak up!

- [www.uio.no/om/hms/si-fra/](http://www.uio.no/om/hms/si-fra/)
- Learning environment, ethics, maintenance, small things, big things, good things, bad things, ...
- Handled by the MN faculty
- If anonymity is necessary, contact the Joint Ombud for Students (studentombudet)

**Remember:**



We are all here to support you, but  
**YOU** are the project manager of your  
Master's study and thesis!

## Contact



[studieinfo@its.uio.no](mailto:studieinfo@its.uio.no)



[unioslo\\_its](https://www.instagram.com/unioslo_its)



[www.mn.uio.no/its](http://www.mn.uio.no/its)



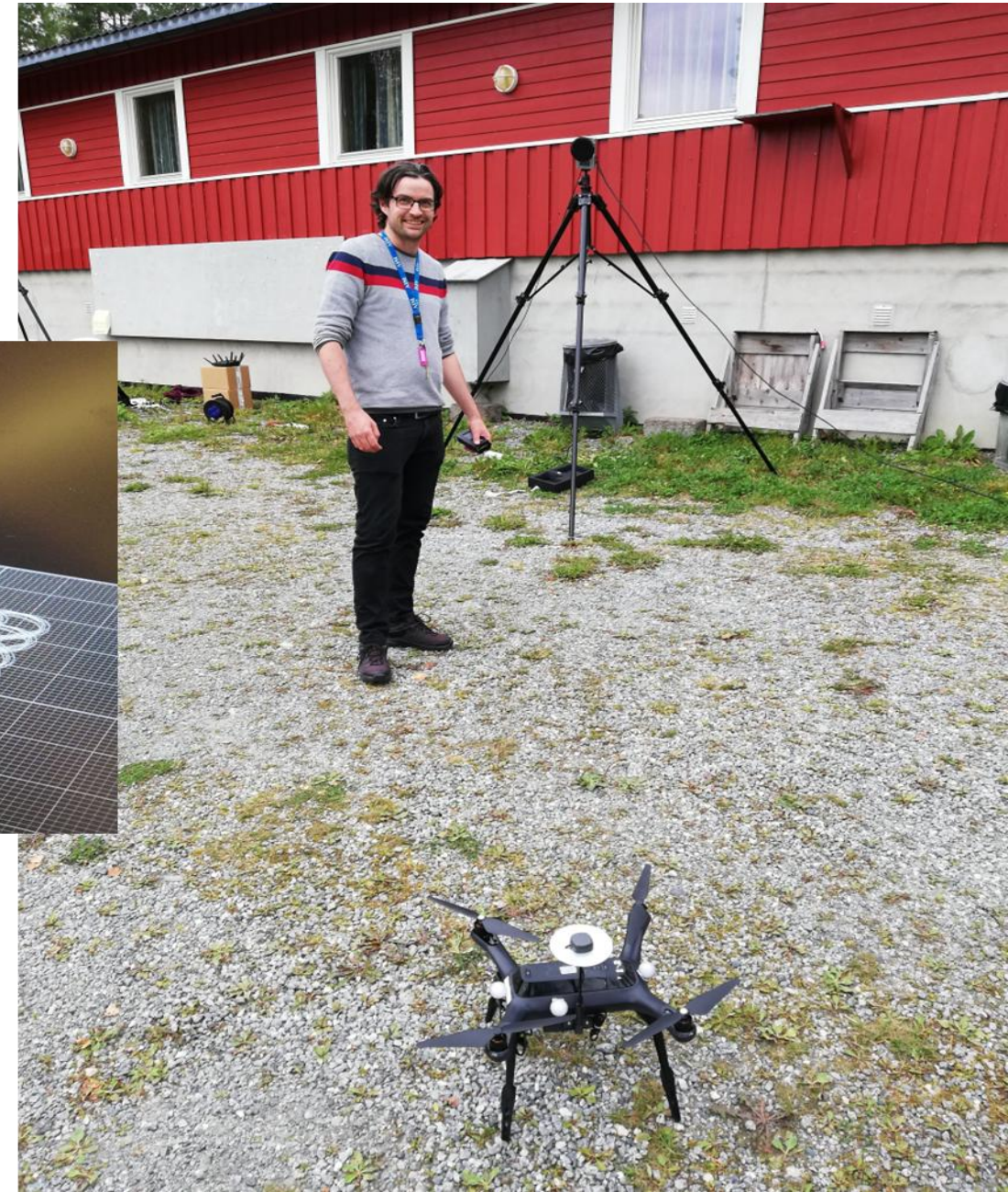
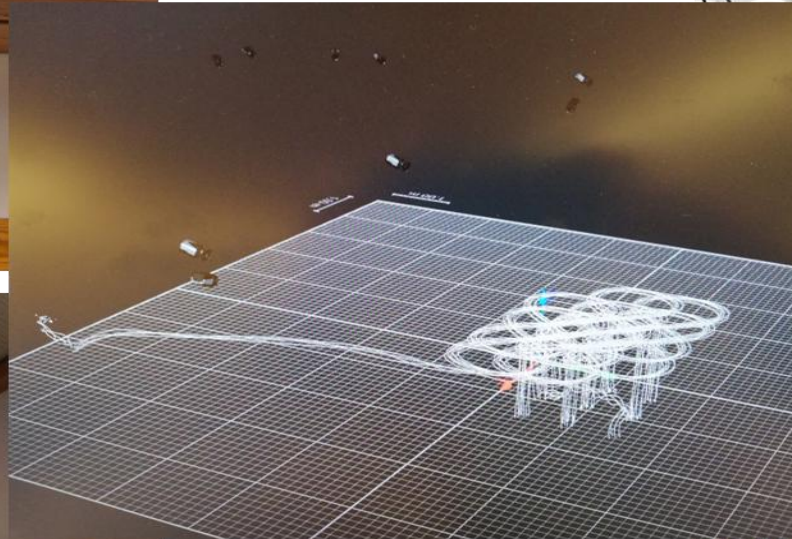
## Contact

- ...or simply come find us :o)



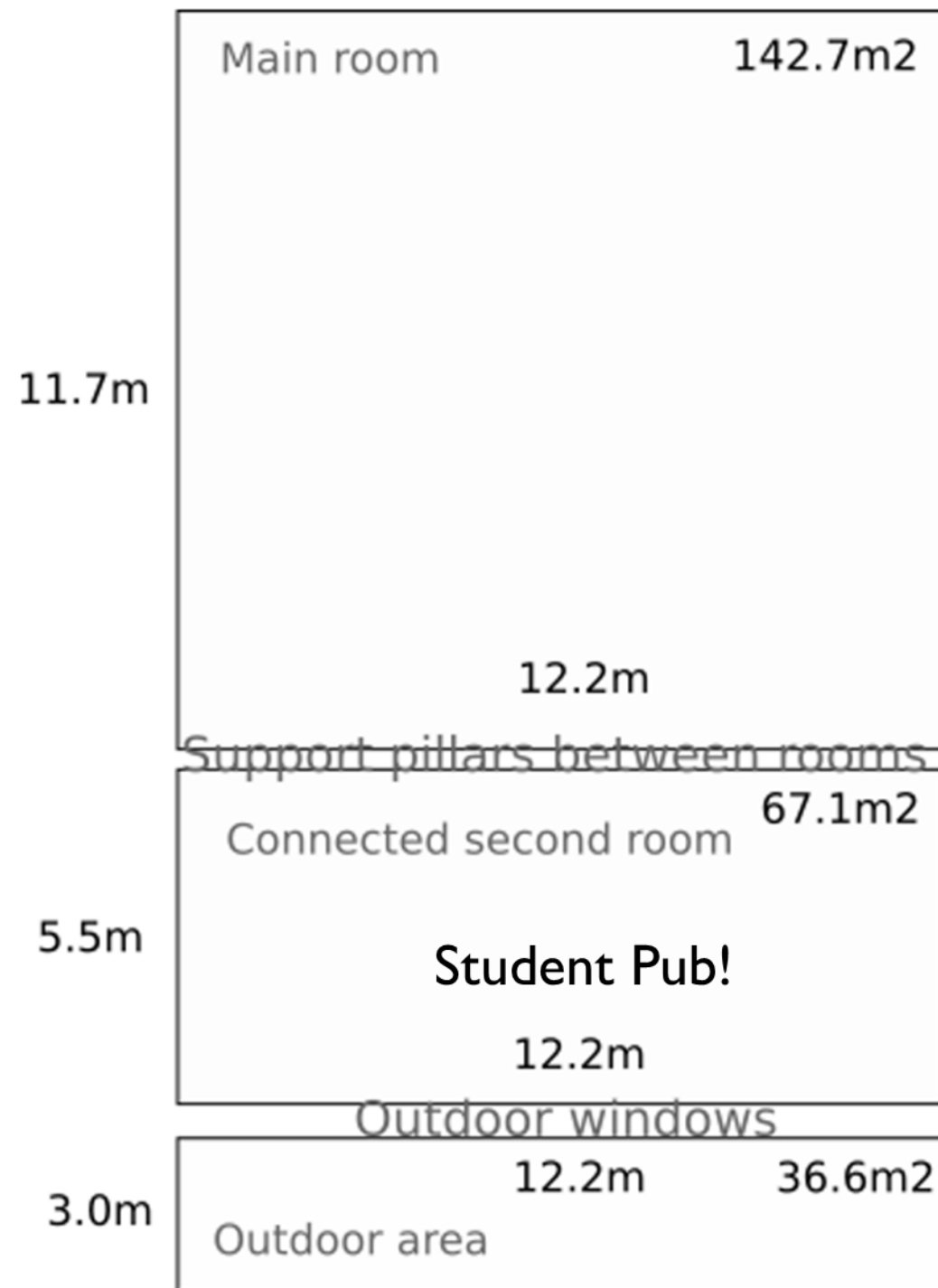
# THE MOST IMPORTANT MACHINES

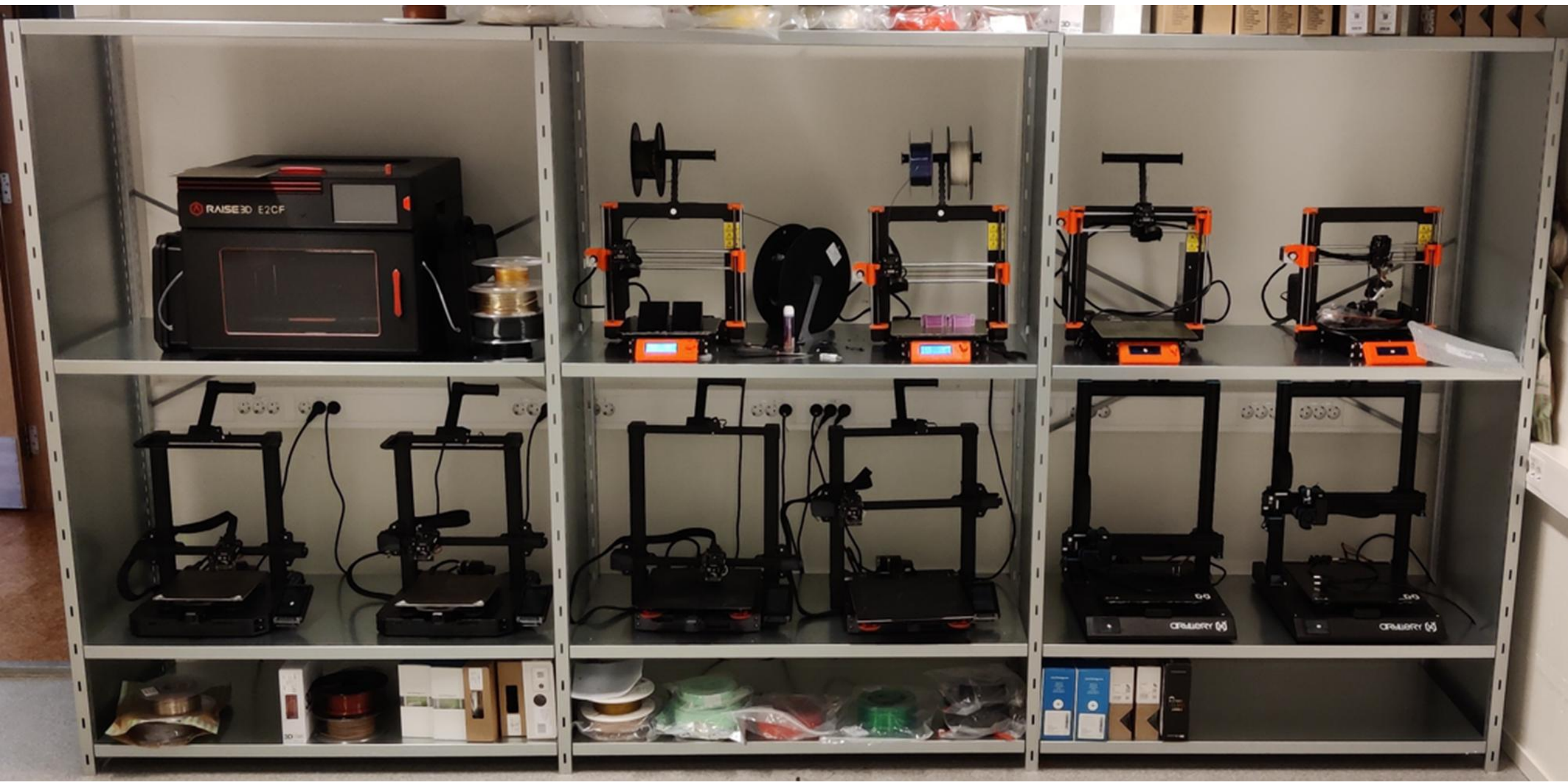




# MOTION TRACKING SYSTEM

- 6 DOF tracking
- <1 mm accuracy
- 200+ FPS
- 28 indoor cameras
- 12 outdoor/indoor cameras
- Tracking for drones, mobile robots, robotic arms, humans.





# 3D PRINTER LAB

- 4 Resin printere
- 2 Prusa i3MK3S
- 2 Creality Ender-3 S1 Pro
- 4 Bambu Lab – A1
- 4 Bambu Lab – A1 Mini
- 2 Creality Ender-3 S1 Plus
- 3 Creality K1C
- 1 Creality CR-M4
- 1 Raise3D E2CF

# LASERKUTTER – LC6090

- Kutter Finerplater, Akryl o.l.
- Kutter opptil 8mm tykkelse
- 60 x 90 cm arbeidsområde
- Vannkjøling
- Vifteuttrekk av røyk
- Sikret med kodelås



# CNC-MASKIN - CNC-ONE



## MAX XL

### Machine Dimensions:

1260 × 1260 × 600 mm

49.6 × 49.6 × 23.7 in

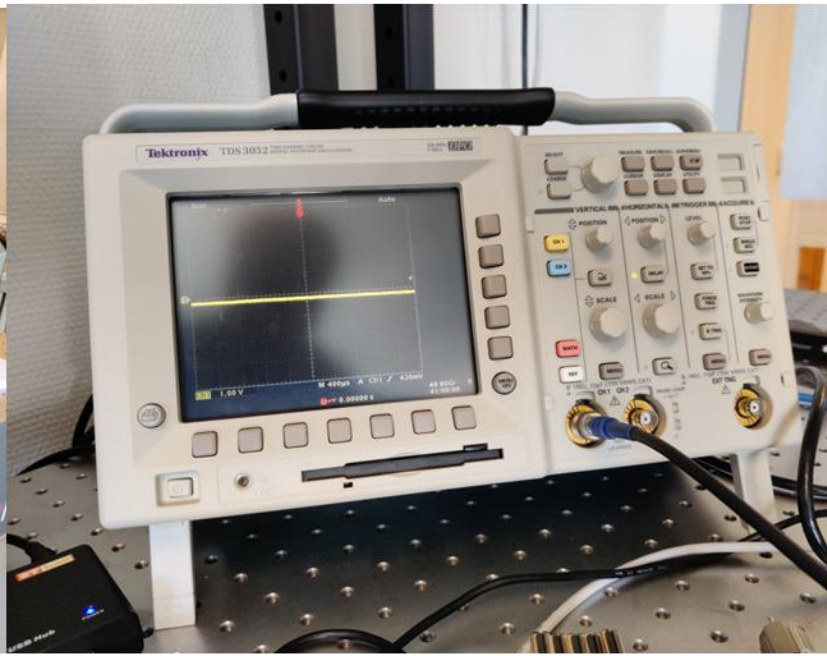
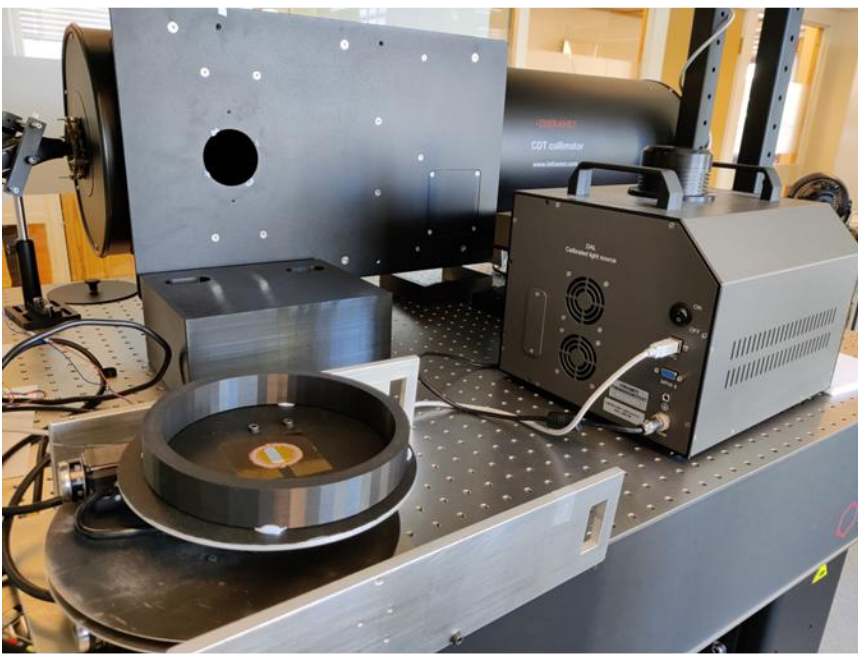
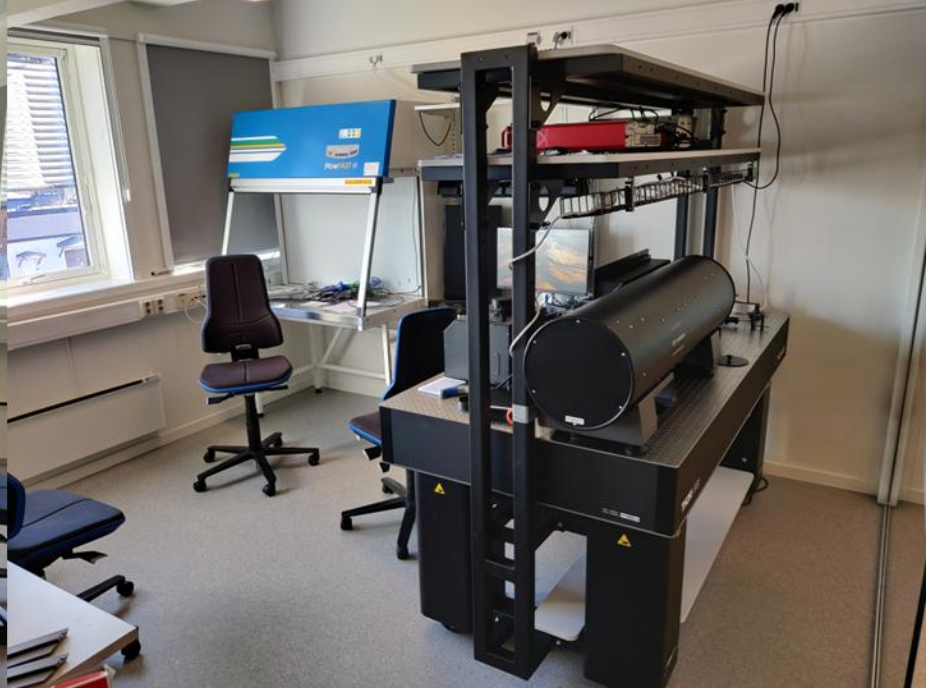
### Work Area:

1000 × 1000 × 130 mm

39.4 × 39.4 × 5.2 in

### Weight:

125 kg



# OPTIKKLAB / RF-LAB

- Optikkbord
- Mekanikk for nøyaktig rigging
- Testutstyr for kamera inkl. termal
- Spektrometer
- Renlufts benk og sluse.
- Spektrum analysator
- Nettverks analysator
- Oscilloskop

## M-RESY LAB

### Features:

Arc furnace, hydrogen/deuterium gas system, autoclaves, electrolyser & metal hydride compressor, glovebox (Ar), high-pressure gas sorption system, electrochemical workstation, laboratory scales and a muffle furnace, a fume hood (workspace for 2-3 people)

### Scientific usage:

Synthesis and characterisation of energy storage materials and electrochemical devices / components (batteries, solid-state hydrogen storage-based solutions)

### Educational usage:

Master thesis & summer projects



# MAKERSPACE





2024:



# BRUKSMØNSTER I DAG

- Vårsemester:
  - TEK5030 Maskinsyn - labøvelser
  - Masteroppgaver
- Høst semester:
  - TEK4030 – labøvelser m/MoCap
  - TEK5010 – svermøvelser m/MoCap
  - Masteroppgaver

PhD, Master studenter og Vitenskapelige bruker 3D printing i varierende grad gjennom året. MakerSpace, 3D printere og Laserkutter er tilgjengelig for alle.

Faculty of Mathematics and Natural Sciences

Department of Technology Systems

# Outgoing Exchange

Yvonne Baade

Study administration



UNIVERSITY  
OF OSLO





Why?  
Who/what/where?  
When?  
How?

# WHY?



International experience

Language

Network

Professional expertise

Personal development and  
memories for a lifetime



# WHO

- Master's students who have been admitted
  - Grade requirements
  - Once during your master programme
  - A minimum of credits is required  
(each agreement have their own terms)
  - Required to be a fulltime student
- 
- A globe is positioned on the right side of the slide, showing a map of the world. The colors of the continents are visible, though slightly blurred. The globe is mounted on a stand, and the background is dark with some bokeh light effects.

# WHERE?

Anywhere UiO has agreements

Primerly MN Faculty agreements

<https://www.uio.no/studier/utveksling/avtaler/avtaleeiere/mn/>

# WHEN?

After the 1<sup>st</sup> semester or in connection  
with your master thesis



# WHAT?

Mandatory or free courses?

You need preapproval of courses from  
the department/ supervisor

A pair of dark-rimmed glasses is positioned over an open book. The book's pages are filled with text in Russian Cyrillic script. The glasses' lenses are slightly out of focus, showing a blurred view of the text underneath. The overall lighting is soft, creating a scholarly or academic atmosphere.

# HOW?

Apply in Studentweb

No need to have preapproval to apply

Unsure, talk to an exchange ambassador



## Velg opptak

Vis alle opptak

› Enkeltemner

› Masterstudier

› Videreutdanning

› Praktisk-pedagogisk utdanning

▼ Utdveksling

### UIO INSTITUSJONSAVTALER

#### Utdveksling institusjonsavtaler vår 2024

 Søknadsfrist: 15.09.2023

Søknad til institusjonsavtalene

Søk

### DET TEOLOGISKE FAKULTET

#### Utdveksling TF vår 2024

 Søknadsfrist: 15.09.2023

Søknad til utvekslingsavtaler ved Det teologiske fakultet

Søk

# UNIS

<sup>d</sup> **University center  
in Svalbard**



A photograph of a snowy mountain landscape at night. In the foreground, a small town with several buildings is illuminated by warm lights. The background features steep, snow-covered mountains under a dark sky. A vibrant green aurora borealis is visible in the sky, appearing as a series of horizontal, wavy bands of light. The text is overlaid on the right side of the image.

Arctic Biology  
Arctic Geology  
Arctic Geophysics  
Arctic Technology

Courses are already approved

# Apply directly to UNIS

Deadline:

- October 1st for Spring
- March 1st for Summer
- March 1st for Fall

**NEXT INFO MEETING: SEPT 18<sup>TH</sup>, 15.15**

## UiOs 2 summer schools in entrepreneurship

- 10 uker i Boston, San Francisco eller Cape Town
- Studier i entreprenørskap
- Internship i start-up eller sosial entreprenør
- 30 studiepoeng på masternivå
  - Må ha minst 120 sp av en bachelor ved søknadstidspunkt
- Introduksjonskurs på deltid om våren
- Åpent for studenter fra alle fagfelt
- Støttet av Lånekassen
- **Application deadline: October 15th**

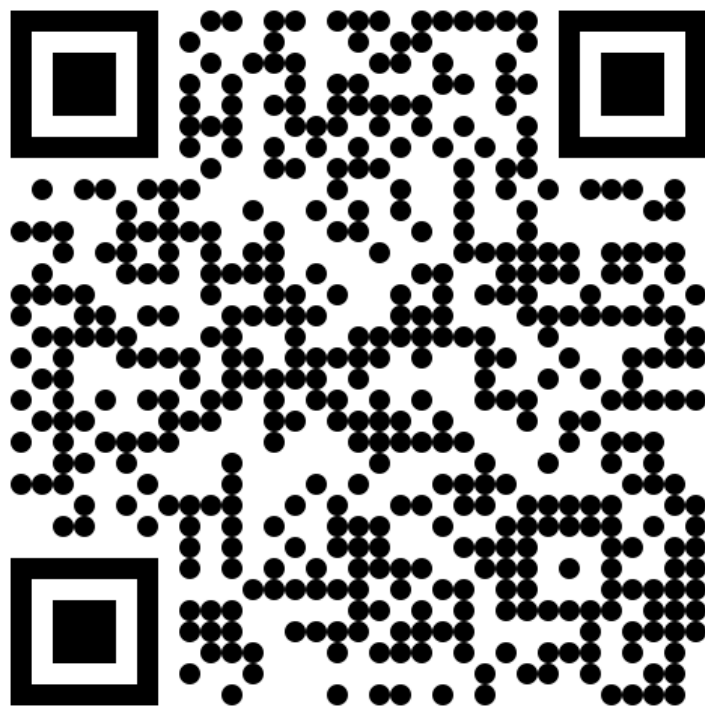


More info

Internship in one of the world's best  
innovation hubs

Boston og San Francisco (Toronto fra 2025)

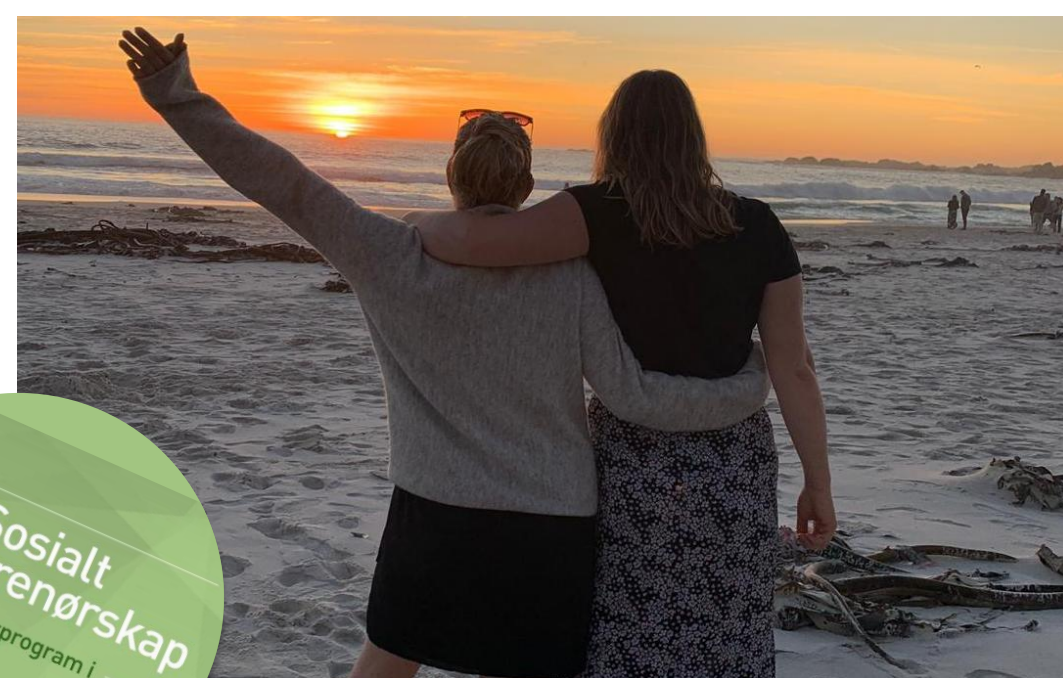
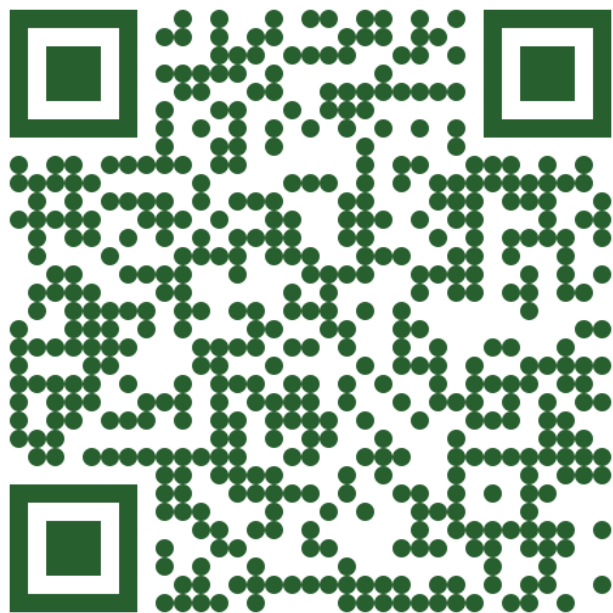
Se innlegg fra i sommer:



You will get firsthand knowledge of social entrepreneurship through a combination of theory and practical work.

University of Cape Town

Se innlegg fra i sommer:



# EXCHANGE REPORTS

Ola

Studieprogram ved UiO

Informatikk: robotikk og intelligente systemer (bachelor)

Semestre på utveksling

Høst 2022



*Å dra på utveksling til Seoul er sannsynligvis ditt livs største mulighet!*

5 / 5

## Vurdering av utvekslingsstedet

Å reise på utveksling til Seoul og Korea University er nok et av de beste valgene jeg noen gang har tatt. Var heldig og fikk utrolig gode venner, som bare gjorde alle opplevelsene desto bedre. Fikk sett og gjort utrolig mye på bare et halvt år, eneste jeg angret på er at jeg ikke ble lenger!

## Hvorfor jeg valgte dette stedet

Cecilie

5 / 5  
VURDERING

*«Mitt semester ved ANU i Canberra har gitt meg lærdom, opplevelser og minner for livet!»*

Studieprogram ved UiO

Master: Museologi og kulturarvstudier

→ Les Cecilie sin utvekslingsrapport

Ida

5 / 5  
VURDERING

*«"Å dra til ANU og Canberra er den beste beslutningen jeg har tatt."»*

Studieprogram ved UiO

Bachelor: Statsvitenskap

→ Les Ida sin utvekslingsrapport

Marika

5 / 5  
VURDERING

*«Hvis du er i tvil, bare gjør det. Du kommer ikke til å angre på å utveksle i Buenos Aires (:»*

Studieprogram ved UiO

Profesjonsstudium: medisin

→ Les Marika sin utvekslingsrapport

# Application deadline September 15th

Info meetings at Blindern:

August 20th

August 28th

August 29th

Drop-in guidance:

August 13th

August 20th

September 3rd

# QUESTIONS?

## MN International

[studieinfo@mn.uio.no](mailto:studieinfo@mn.uio.no)

# OUTGOING EXCHANGE

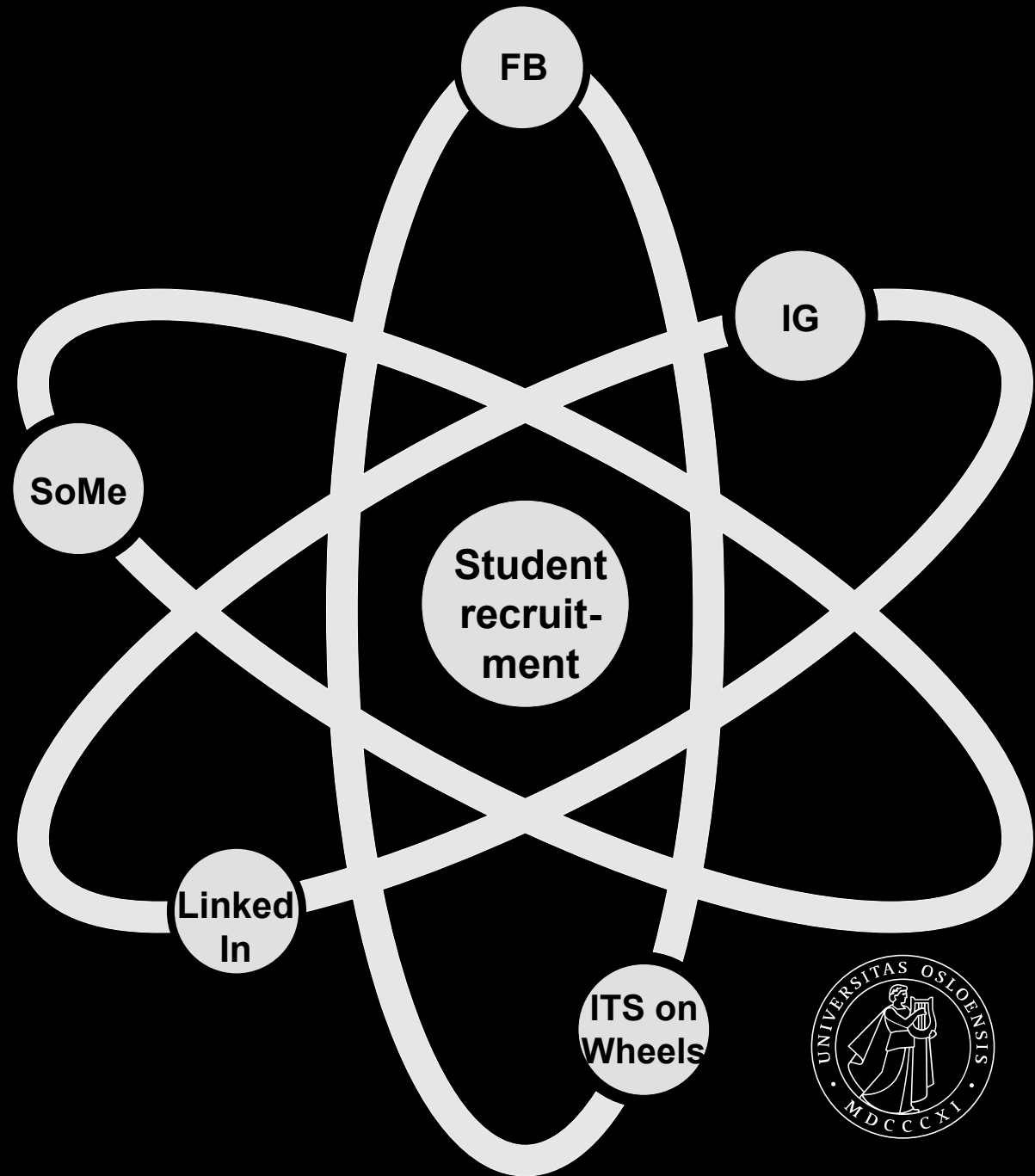


# UNIVERSITY OF OSLO

## Student recruitment

Yvonne Baade  
Study administration  
The Faculty of Mathematics and Natural Sciences

09.05.2025



# Student ambassadors at ITS

Security in Cyber-  
Physical Systems



Stian  
Østgaard

Space Systems



Julia  
Ciesielska

Cybernetics and  
Autonomous Systems



Anita Yeung

Renewable  
Energy Systems



Allison  
Chinwendu



Faculty of Mathematics and  
Natural Sciences



# Buddy in charge

Renewable  
Energy Systems



Anette  
Archer Lohne

**Onsdag 13. august, room 402, Institutt for teknologisystemer**

|                   |                                                                                                                                                                                                                                                                                                                                  |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 10:00 –<br>10:10: | Welcome & brief introduction to ITS<br><i>Cecilie R. Denby, Head of Department</i>                                                                                                                                                                                                                                               |
| 10:10 –<br>10:25  | ITS: What do we teach and how?<br><i>Matylda N. Guzik, Head of Education</i>                                                                                                                                                                                                                                                     |
| 10:25 –<br>10:45  | Essentials: All you need to know now<br><i>Study administration team: Kaja, Tuhta, Yvonne</i>                                                                                                                                                                                                                                    |
| 10:45 –<br>10:50  | QR-code: Trying to know you better                                                                                                                                                                                                                                                                                               |
| 11:00 –<br>12:00  | <ul style="list-style-type: none"> <li>▪ Meet-and-greet sessions with the programme coordinators &amp; lecturers<br/>Master Students in Security in Cyber-Physical Systems<br/><i>Paal Engelstad – room 401</i></li> <li>▪ Master Students in Cybernetics and Autonomous Systems<br/><i>Tønnes Nygaard – room 402</i></li> </ul> |
| 12:00 –<br>13:00  | Lunch                                                                                                                                                                                                                                                                                                                            |
| 13:00 –<br>16:00  | <ul style="list-style-type: none"> <li>▪ Get to know each other and get to know ITS</li> <li>▪ ITS staff and master students</li> <li>▪ Meet your buddies</li> </ul>                                                                                                                                                             |