

Kjøreregler for Forelesningen

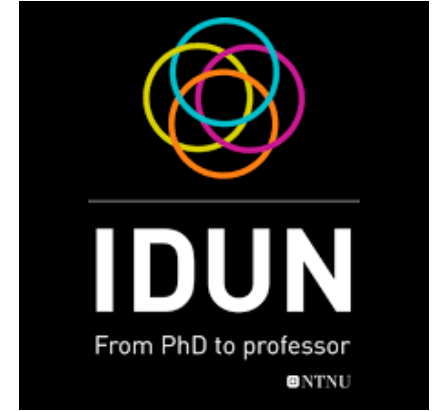
NB: Forelesningen vil bli tatt opp og lagt ut på YouTube etterpå. Hvis du ikke ønsker å komme med på opptaket, skru av mikrofon og video, og ikke del skjermen din. Du kan også velge å forlate denne forelesningen nå.

Stille spørsmål? Du kan når som helst bruke **Chat feltet på Skype** til å stille spørsmål. Du kan også **melde deg med navn** i feltet til å muntlig stille spørsmål med påsatt lyd og video. Men jeg følger ikke med på dette feltet mens jeg gir forelesning. Etter forelesningen, kan jeg besvare spørsmål (skriftlig & muntlig).





NTNU – Trondheim
Norwegian University of
Science and Technology



**Politecnico
di Torino**

Letizia Jaccheri

Gender Issues in Computer Science Research, Education, and Society

04.03.2022



INFORMATICS
EUROPE



<https://www.ntnu.edu/employees/letizia.jaccheri>

- Master in Computer Science Università' di Pisa 1988 – supervisor V. Ambriola
- PhD Software Engineering Politecnico di Torino 1995 – supervisor S. Gai
- In Norway as exchange student in 1989 – supervisor R. Conradi
- Programmer for two years in late 80'
- Professor at NTNU since 2002
- Department head from 2013 to 2017
- Adjunct Professor at UiT since 2019
- Independent Director of Reply SPA (with 6000 employees) in 2015-2018
- ACM Distinguished Speaker (one out of 200 2018 -2021)
<https://speakers.acm.org/speakers/>
- prize in 2006 for Bok Kjærlighet og Computer see letiziajaccheri.org
- Årets døråpner 2019 Trondheim
- Two gender equality prizes in 2021
 - ODA network
 - NTNU gender
- Teaching and dissemination, Conferences & network building, Stays abroad, Research & supervision
- Activist for my values: gender, art, social innovation



Supervision (facts)

Phd now	5, 2.f, 3.m
Phd total	20, 10.f, 10.m
Phd opponent	20, 10.f, 10.m
Postdoc	7, 1.f, 6.m
Total	52, 23.f, 29.m



art, gender, children

<https://sbs.idi.ntnu.no/>

Projects

- BALANSE IDUN From PhD to Professor NFR 2019 – 2022, Letizia Jaccheri - Swetlana Fast, Mara Diaconou 10 MNOK
- COST Action CA19122 Eugain 2020 – 2024 European Network for Gender Balance in Informatics, Action Chair Letizia Jaccheri, Vice-Chair Bara Buhnova, 8 MNOK 100+ participants
- MSCA ITN e-LADDA Language learning in the age of digitalisation (2019 - 2024) Professor Mila Vulcanova, 38 MNOK



letiziajaccheri.org

Try to understand the relation
between life and software



KODELØYPA 2014 - ONGOING



SENSORER



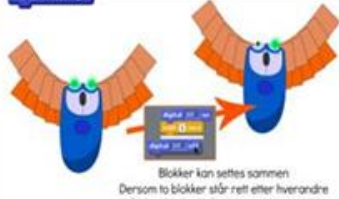
OPPGAVE
Finn lysensoren på roboten deres. Se hvordan verden i Scratch endrer seg når dere legger en hånd på sensoren.

REAKSJON



OPPGAVE
Få roboten til å lyse når dere holder hånda over lysensoren. Bruk korver-blokken rundt "If" for at Scratch skal speile verden til sensoren hele tiden.

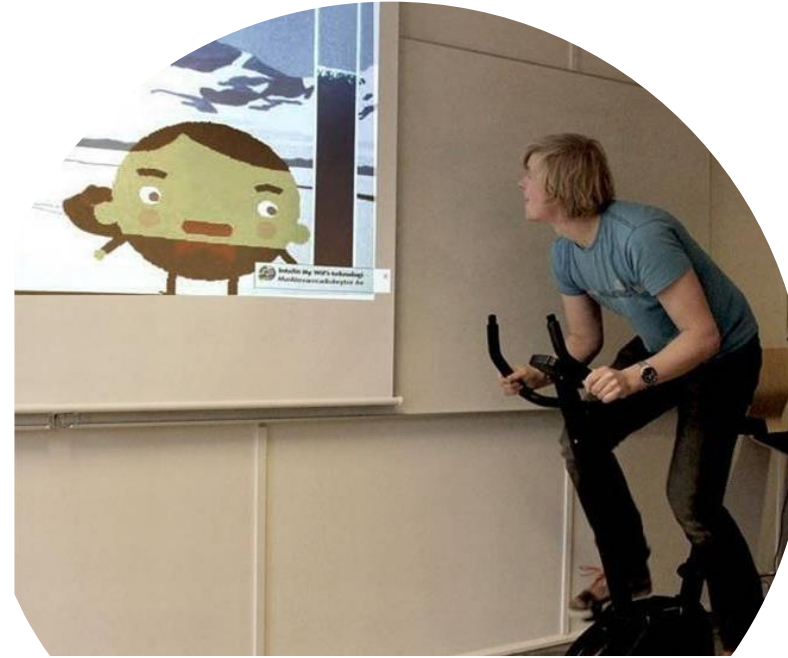
BLINKING



OPPGAVE
Få flere av lysene på roboten til å blinke.



Art & Recycling Coding & Interaction





UN Goal 5:

Achieve **gender equality** and empower all **women** and girls. Ending all discrimination against **women** and girls is not only a basic human right, it's crucial for sustainable future; it's proven that empowering **women** and girls helps economic growth and development.



Software engineering and gender

- People decide requirements
- People develop solutions for people
- People Interact with systems

Question: who decides the requirements and for which people?



Software engineering and AI

People

- Decide requirements
- Develop solutions for people
- Interact with systems

Computer system

- learns



腾讯
Tencent

Question: who decides how the system will learn?



Which subjects in research experiment?

Europe Bachelor, Master, PhD

- At the Bachelor level 80% or more of the students enrolling or graduating in Informatics Bachelor programs are male.
- At the Master level 80% of the Master graduates in Austria, Belgium, Czech Republic, Germany, Italy, Lithuania, the Netherlands, Poland, Portugal, Spain, Switzerland are male
- At the Ph.D. level, except for Bulgaria, Romania, Estonia, Turkey, all other countries have less than 25% of women graduating from Informatics Ph.D. programs



Scarcity of role models

- Engineering and Technology: on average, in the whole of Europe, women take less than 15% of the full professor positions
- Figures show that in 2016, an overwhelming majority (83.3%) of ICT specialists employed in the EU were men.
- Skills and talent gap: 53% of European employers say they face difficulties in finding the right people with the right qualifications.



Girl project ADA

2004	2019
7%	36%

Average %-share 5-year integrated Master

- Computer Sciences
- Communication Technologies
- Cybernetics and Robotics
- Electronics System design and innovation

www.ntnu.edu/girls

ABB

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SINTEF

Skatteetaten

sopra **steria**

telenor

**TEXAS
INSTRUMENTS**

VISMA[®]

Why IDUN?

Avdelingsnavn	2015		2016		2017		2018		2019		2020	
	Årsverk	Årsverk kvinner (%)	Årsverk	Årsverk kvinner (%)	Årsverk	Årsverk kvinner (%)	Årsverk	Årsverk kvinner (%)	Årsverk	Årsverk kvinner (%)	Årsverk	Årsverk kvinner (%)
Institutt for datateknologi og informatikk	20,8	9,62	21,8	9,17	25,2	12,7	28,7	11,5	30,5	12,13	33,35	11,69
Institutt for elektroniske systemer	18,5	16,22	21	14,29	22	13,64	22,75	13,19	24,75	12,93	24,75	12,93
Institutt for elkraftteknikk	9	11,11	9,6	10,42	11	9,09	10	10	11,5	18,26	10,9	13,76
Institutt for IKT og realfag					1	0	1	0	3	0	3	0
Institutt for informasjonssikkerhet og kommunikasjonsteknologi	9,8	1,02	9	0	18,2	5,49	18,7	5,35	19,7	5,08	18,6	6,45
Institutt for matematiske fag	35,3	14,16	35,3	14,16	34,3	17,49	34	20,59	32,6	19,02	36,6	19,67
Institutt for teknisk kybernetikk	11	18,18	11	18,18	10	20	10	20	15,8	21,52	15,8	21,52
Sum	104,4	12,55	107,7	12,07	121,7	13,31	125,15	13,82	137,85	14,22	143	14,27

14%

IDUN – from PhD to Professor 1 Mio. Euro 2019 – 2022

Background:

581 employees in scientific
positions – 22% female

125 professors – 13,8% female

Challenge:

- Too few women at master level
- Dropout from phd to professor

<https://www.ntnu.edu/idun>



IDUN

From PhD to professor

NTNU



*Idun Reiten, the first female professor at the Faculty of
Information Technology and Electrical Engineering,
Norwegian University of Science and Technology (NTNU)*

IDUN Scientific Mentor program

9 International professors as IDUN mentors



Nirmalie Wiratunga
(IDI team)
<http://www.rgu.ac.uk/dms/taff/wiratunga-nirmalie/>



Anne Håkansson (ITK team)
https://en.uit.no/ansatte/person?p_document_id=584195



Jana Jagerska (IES team)
https://en.uit.no/ansatte/person?p_document_id=407454

Co-mentor

Professor Astrid Aksnes
UiT - The Arctic University of Norway



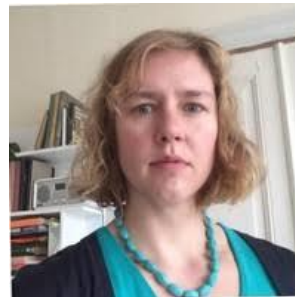
Norwegian University of
Science and Technology



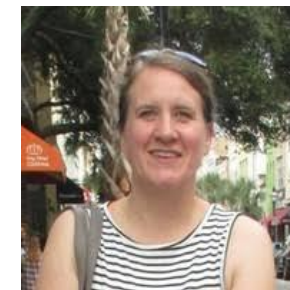
Radboud University



Martha Larson
(IDI team)
<https://www.ru.nl/english/people/larson-m/>



Gro Klaboe (IEL team)
<https://no.linkedin.com/in/gro-kl%C3%A6boe-7b87741a>



Sibylle Scherff (IEL team)
University of Cologne
<https://sites.google.com/site/sibyllescherff/>



Darja Smite
(IDI team)
<https://darjasmite.net/>



Laura Giarre
(IIR Ålesund - IDI Gjøvik team)
<https://giarre.wordpress.com/>



Toktam Mahmoodi
(IHK team)
<https://www.kcl.ac.uk/people/toktam-mahmoodi>

November 2021 - professor

Avdelingsnavn	2017		2018		2019		2020		2021	
	Årsverk	Årsverk kvinner (%)	Årsverk	Årsverk kvinner (%)	Årsverk	Årsverk kvinner (%)	Årsverk	Årsverk kvinner (%)	Årsverk	Årsverk kvinner (%)
Institutt for datateknologi og informatikk	25,2	12,7	28,7	11,5	30,5	12,13	33,35	11,69	35,6	17,56
Institutt for elektroniske systemer	22	13,64	22,75	13,19	24,75	12,93	24,75	12,93	25,7	12,45
Institutt for elkraftteknikk	11	9,09	10	10	11,5	18,26	10,9	13,76	11,7	12,82
Institutt for IKT og realfag	1	0	1	0	3	0	3	0	4,6	8,7
Institutt for informasjonssikkerhet og kommunikasjonsteknologi	18,2	5,49	18,7	5,35	19,7	5,08	18,6	6,45	20	11
Institutt for matematiske fag	34,3	17,49	34	20,59	32,6	19,02	36,6	19,67	36	21,11
Institutt for teknisk kybernetikk	10	20	10	20	15,8	21,52	15,8	21,52	15,3	22,22
Sum	121,7	13,31	125,15	13,82	137,85	14,22	143	14,27	148,9	16,49

16,5%

ACM Women Chapter



- Why Should You Start an ACM-W Chapter at Your School?
- “101 Ideas for ACM-W Chapters”
- Activities to educate women about the opportunities in the computing field
- Engage women students in exciting computing activities;
- Connect students with women leaders in the field;
- Encourage students to promote the field of computing to young girls;
- Promote the activities of ACM
- Network with other ACM-W Chapter leaders and members
- Mentor chapter members and pre-college girls
- Broaden the computing community
- Extend the “conversation” about why it’s important to increase the number of women in computing

<https://women.acm.org/chapter/>

<https://trondheimwomen.acm.org/home/>

EUGAIN Cost Action 19122

- How to have more girls choosing Informatics as their higher education studies and profession.
- How to retain female students and assure they finish their studies and start successful careers in the field.
- How to encourage more female Ph.D. and postdoctoral researchers to remain in the academic career and apply for professorships in Informatics departments.
- How to support and inspire young women in their careers and help them to overcome the main hurdles that prevent women to reach senior positions in the field.
- How to leverage from the experience of the partners in the network to tackle the previous challenges and achieve progress across more institutions and countries, and positive results that are sustained on the longer term.

The 38 COST Members are: Albania, Austria, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Republic of Moldova, Montenegro, The Netherlands, The Republic of North Macedonia, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, United Kingdom.



**WG1: FROM SCHOOL
TO UNIVERSITY**



**WG2: FROM
BACHELOR/MASTER
STUDIES TO PH.D.**



**WG3: FROM PH.D.
TO PROFESSOR**



**WG4: COOPERATION
WITH INDUSTRY
AND SOCIETY**



**WG5: STRATEGY &
DISSEMINATION**

Future

- Women are underrepresented in computer science and it is important to do something for social, economic, and environment reasons
- EUGAIN Eugain.eu
 - Apply to enter a Working group
 - March 2021 MC, WG
 - 1st Winter School about Research in Gender equality and software – apply!
 - STSM and Virtual Grants – apply!
 - ITC Grants – apply!
- ICSE 2022 GE@ICSE: Third Workshop on Gender Equality, Diversity, and Inclusion in Software Engineering <https://geworkshop.github.io/>
- ACM Celebration of Women in Computing: womENCourage <https://womencourage.acm.org> September 2023
 - Get sponsors, get involvement
- <https://sbs.idi.ntnu.no/>
- ICSE 2027 4000 participants
 - Why should it be in Trondheim Norway?



advice

- Know your numbers and Set your goals
- Keep and empower the female you have
- LGBT+ (LGBT stands for lesbian, gay, bisexual and transgender/transsexual people)
- Look for funds, connections, projects
- Celebrate
- Document
- Everything is research



- Conferences
 - Grace Hopper Celebration. <https://ghc.anitab.org>
 - ACM ACM Celebration of Women in Computing womENcourage (Cyprus 2022, Trondheim 2023)
 - <http://ieee-wie-ilc.org/>
- Projects at Universities
 - NFR BBI UiT
 - CS4All initiative, School of Computing, TU Dublin, www.dit.ie/computing/studentresources
 - Irène Curie Fellowship at TU Eindhoven. <https://www.tue.nl/en/working-at-tue/scientific-staff/irene-curie-fellowship>
 - Gender Initiative Chalmers <https://www.chalmers.se/en/about-chalmers/Chalmers-for-a-sustainable-future/initiatives-for-gender-equality/gender-initiative-for-excellence/Pages/default.aspx>
 - EQUAL-IST Project. <https://equal-ist.eu>

- Policy Documents and white papers
 - Women in Digital. Digital Single Market Policy. <https://ec.europa.eu/digital-single-market/en/women-ict>
 - <https://unesdoc.unesco.org/ark:/48223/pf0000367416>
 - EU Report of the Expert Group “Innovation through Gender” <https://op.europa.eu/en/publication-detail/-/publication/d15a85d6-cd2d-4fbc-b998-42e53a73a449>
 - SHE Figures <https://op.europa.eu/en/web/eu-law-and-publications/publication-detail/-/publication/67d5a207-4da1-11ec-91ac-01aa75ed71a1> 2021
 - ELSEVIER The researcher journey ... <https://www.elsevier.com/research-intelligence/resource-library/gender-report-2020>
 - Informatics Europe Report on Informatics Education in Europe <https://www.informatics-europe.org/publications.html>
- International Networks
 - Informatics Europe WIRE <https://www.informatics-europe.org/working-groups/women-in-ict-research-and-education.html>
 - ACM Women in Computing Europe. <https://europe.acm.org/acm-we>
 - European Centre for Women and Technology. <http://www.ecwt.eu>
 - CEPIS Women in ICT Task Force. <https://www.cepis.org/index.jsp?p=1142&n=2909>



Thanks to

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