

# Several Female Support Activities Later – What have we learned?

WIRE-EUGAIN Workshop

ECSS 2022

Hamburg, 26.10.2022

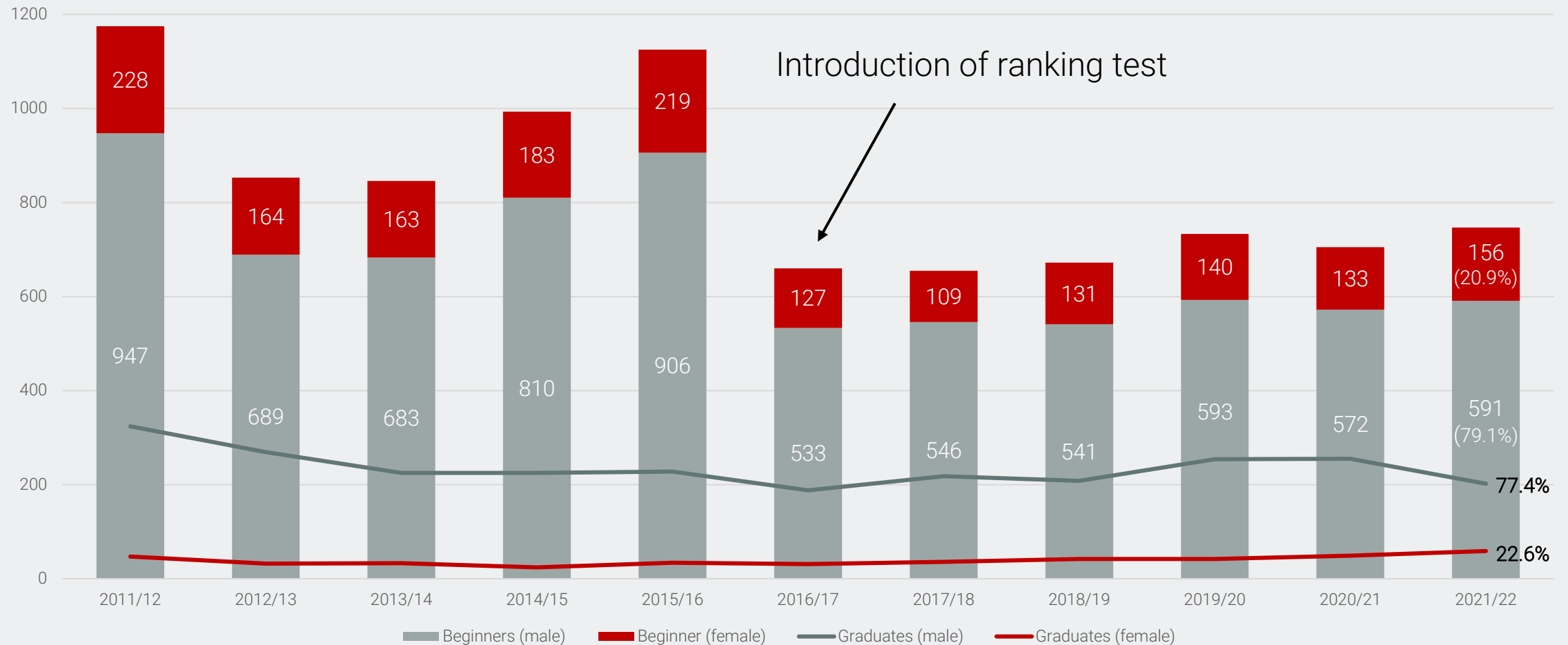
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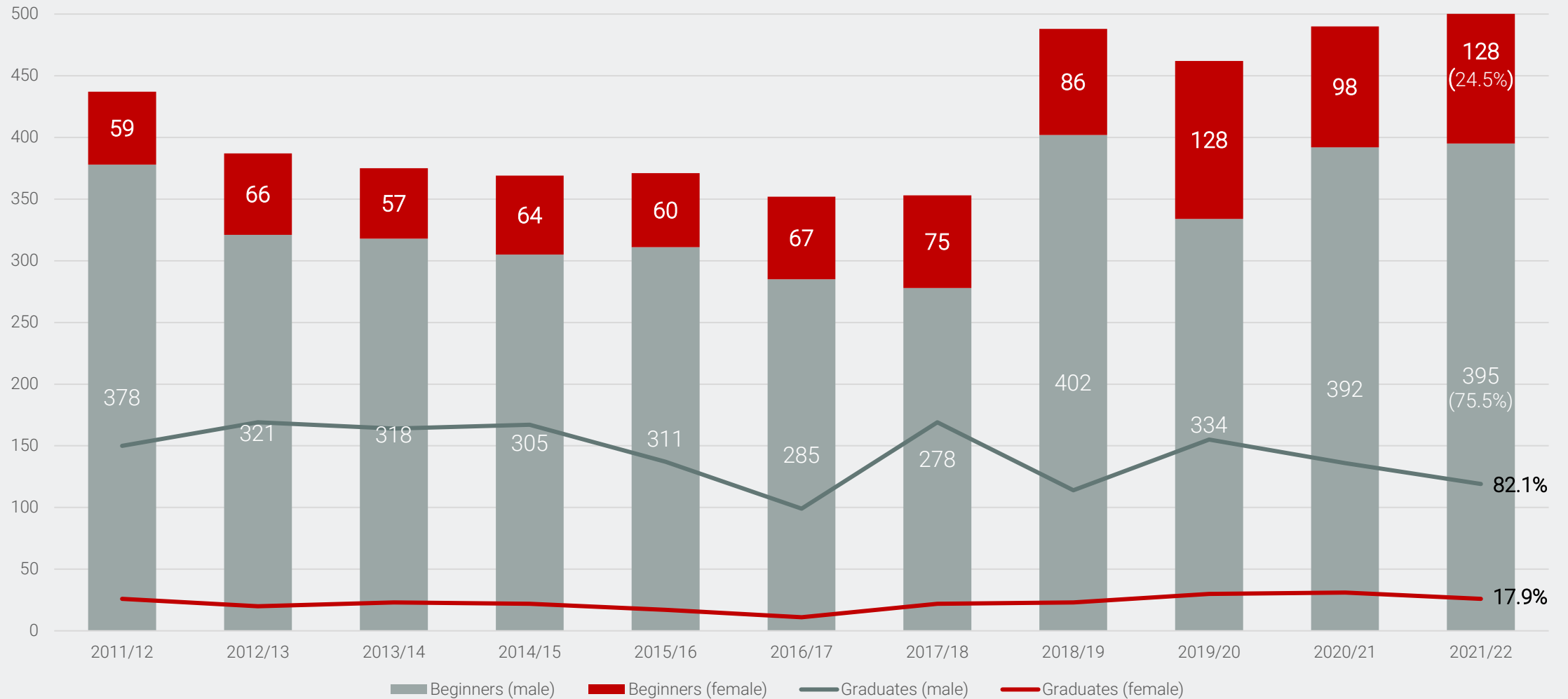


# Some Statistics – Bachelors

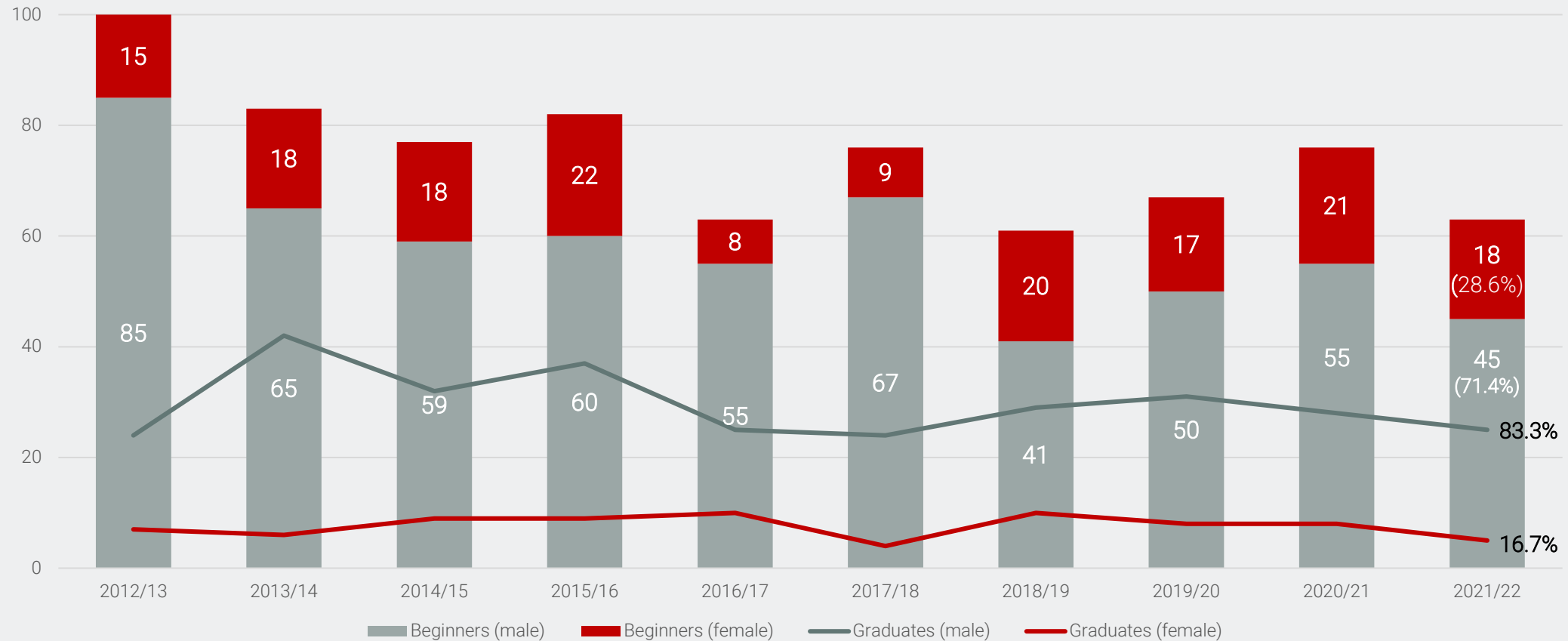


# Some Statistics – Masters

Introduction of Data Science Master



# Some Statistics – Doctoral Students



## Some more Statistics @ Professor Level (as of Sept 1 2022)

- 7 women *out of* 30 Full Professors (23.3%)
- 5 women *out of* 29 Associate Professors (17%)
- 6 women *out of* 12 Assistant Professors (50% 😊)
  - ✓ + 1 via excellence program from rectorate in 2023
  - ✓ + 4 via excellence program from rectorate in 2025
  - ✓ + 1 via decision of the dean in 2025

# What happened so far at TUW and Informatics level (selected list)

- Women's Postgraduate College for Internet Technologies (WIT, 2003-2007), Faculty of Informatics, [www.wit.at](http://www.wit.at)
- WIT 2, 4 Faculties of TU Wien (2008-2011)
- FIT Days („Frauen in die Technik“, since 1999)
- IT sommer workshops for female pupils (since 2005)
- BLUE&MINT mentoring, Kooperation IBM / TU Wien (since 2012)
- Post-doc positions for female scientists
- Online mentoring for female students (beginners)
- Mentoring for female Master/PhD/Post-doc students

# Current female support activities (selected list)

- Attract – Retain – Promote – Sensitize

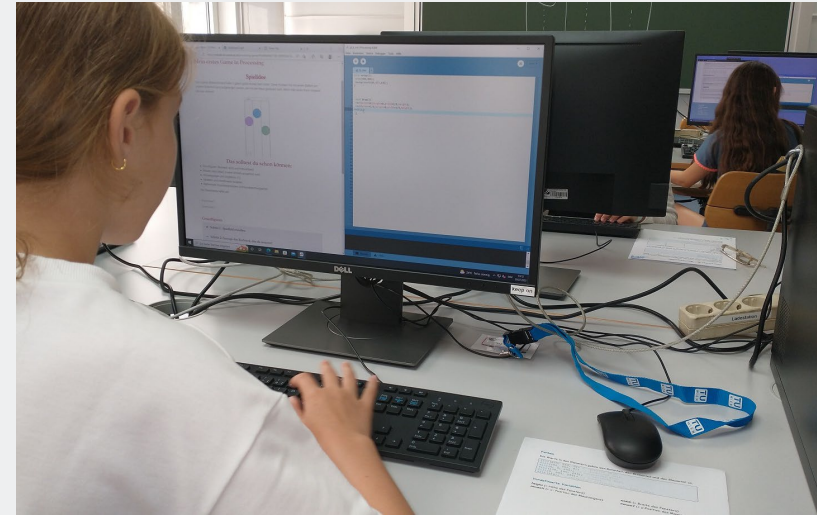
Attract

- FIT Days („Frauen in die Technik“, since 1999)
- IT/Coding Summer Camp for Girls (GirlsCodeTUgether)
- MOOC „Programing with Processing“
- Entry exam (ranking test) without m/f discrimination
- Interface with Schools – eduLAB
  - Workshops and permanent exhibition „Abenteuer Informatik“
- Bridging course „Introduction to Programming with Processing“
  - for female (and male) students
  - learn and network

Summer camp

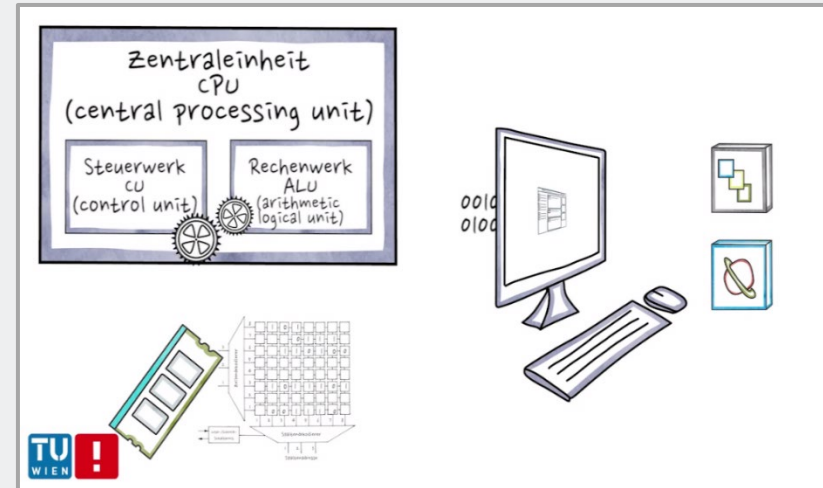
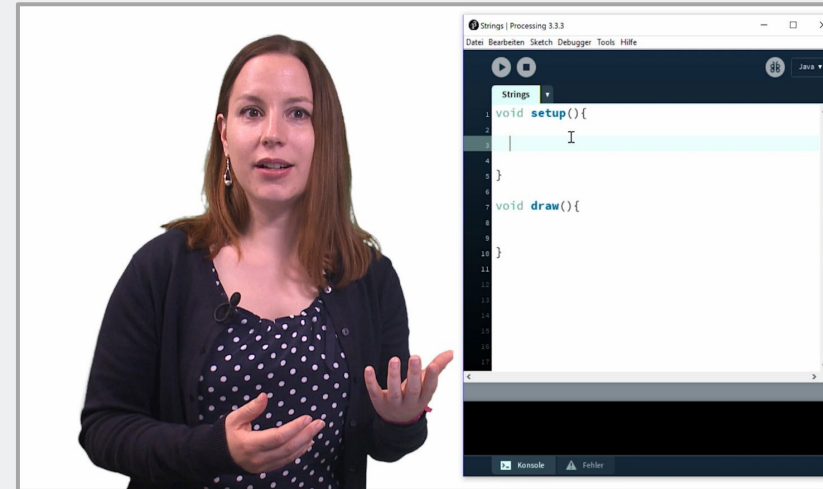
# GirlsCodeTUgether

- 5-day programming summer camp for seven girls (10-14 y)
- Focus on programming with unplugged activities inbetween
- Content
  - Programming of games with Scratch & Processing
  - Experiments with Sphero BOLT & LEGO MINDSTORMS & Boston Dynamics
  - Unplugged: Coding and AI
- First implementation July 2022
- Yearly implementation under (strong) consideration





# MOOC „Programming with Processing“ – Video production (2017 ☺)



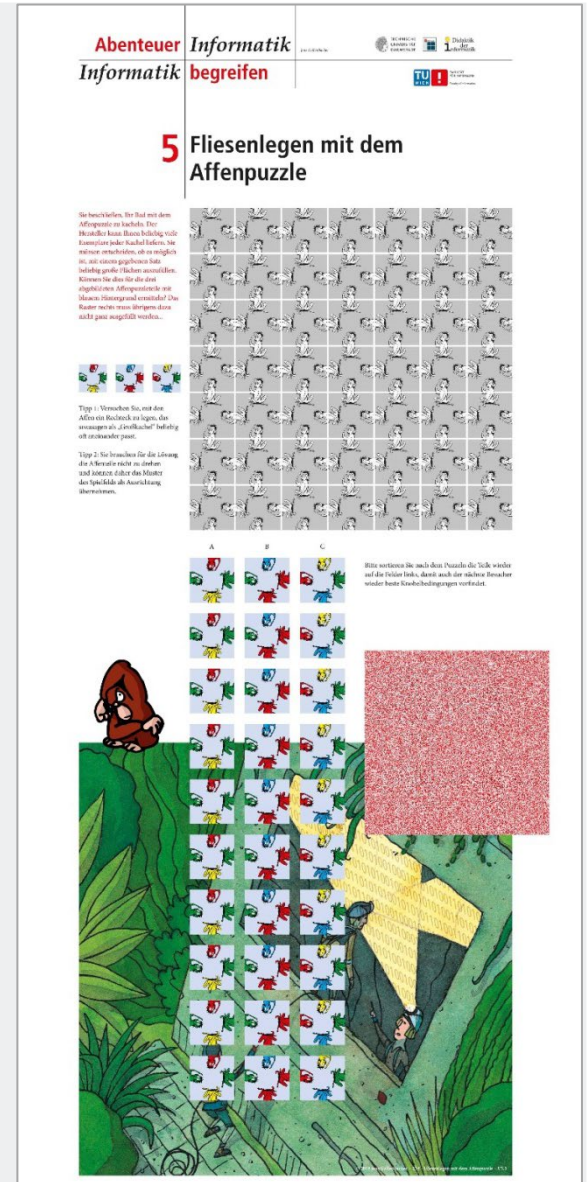
# “Abenteuer Informatik“ Exhibition

## Motivation and Aims

- Create enthusiasm among pupils for Informatics
- Provide incentives for Informatics education at schools
- Strengthen the interface between TU Wien and schools

## Facts

- Imparts ways of thinking in Informatics illustrated with typical problems
- 10 topics consisting of 4-5 panels (80cm x 200cm) each
- Various interactive experiments with tangible artifacts
- Implemented as a **permanent exhibition**
- Workshops for school classes from 5<sup>th</sup> to 13<sup>th</sup> grade (some workshops also with primary schools)



# “Abenteuer Informatik“ Workshops

- **social responsibility**

- involve socially disadvantaged people
- involve female students
- close gap between school and university
- involve a large amount of students in informatics activities

- **realistic view on informatics**

- propagate thinking informatically
- comprehend informatics as a science that shapes the world
- show the broadness of informatics
- propagate a scientific style of informatics education

- **impulses for teachers**

- develop new learning materials
- propagate discovery learning
- propagate group learning
- involve more teachers in informatics activities

- **impulses for students**

- arouse interest to study at a university
- motivate to be deeper interested in informatics
- provide fun and enjoyment with informatics

# „Abenteuer Informatik“ Workshops Summer Term 2019

## Participants by school type

School type	Classes	Female students	Male students	Students
Volksschule	1	10	8	18
Neue & Wiener Mittelschule	9	81	106	187
Gymnasium Unterstufe	4	41	46	117
Polytechnische Schule	3	16	31	47
Berufsschule	2	9	31	40
Handelsschule	3	36	32	68
Gymnasium Oberstufe	5	27	41	38
HTL	4	12	87	99
HAK	3	31	38	69
Total	34	263	420	
<b>Students</b>				<b>683</b>

# „Abenteuer Informatik“ Workshops Winter Term 2019

## Participants by school type

School type	Classes	Female students	Male students	Students
Volksschule	1	9	13	22
Neue & Wiener Mittelschule	5	35	41	76
Gymnasium Unterstufe	13	165	161	326
Polytechnische Schule	1	0	19	19
Berufsschule	0	0	0	0
Handelsschule	1	0	15	15
Gymnasium Oberstufe	8	58	59	117
HTL	1	2	14	16
HAK	1	5	15	20
HLA	1	14	7	21
Total	32	288	344	
<b>Students</b>				<b>632</b>

# Workshops Summer Term 2022

## March 1 – September 30 2022

Schulstufe & Schultyp	Teilnehmerinnen	Teilnehmer	Gesamt
<b>OS</b>	214	263	477
Gymnasium	198	200	398
HTL	3	40	43
Polytechnische Schule/Fachmittelschule	3	7	10
Sonstige	10	16	26
<b>US</b>	226	192	418
Gymnasium	144	133	277
Mittelschule	48	49	97
Polytechnische Schule/Fachmittelschule	10	1	11
Sonstige	24	9	33
<b>VS</b>	12	12	24
Volksschule	12	12	24
<b>Erwachsen</b>	2	6	8
Sonstige	2	6	8
<b>Gesamt</b>	454	473	927

## Workshops Summer Term 2022 – school type / grade

### March 1 – September 30 2022

Schultyp	Schulstufe								Gesamt
	3	5	6	7	8	9	10	Erw.	
Gymnasium		52	56	169		306	92		675
HTL							43		43
Mittelschule			22	31	44				97
Polytechnische Schule/Fachmittelschule					11	10			21
Sonstige		26	7			8	18	8	67
Volksschule	24								24
Gesamt	24	78	85	200	55	324	153	8	927

# Workshops October 1-25 2022

Schulstufe & Schultyp	Teilnehmerinnen	Teilnehmer	Gesamt
OS	28	42	70
Gymnasium	20	16	36
HAK	8	26	34
US	27	24	51
Gymnasium	27	24	51
Gesamt	55	66	121



# Bridging course „Intro to Programming with Processing“

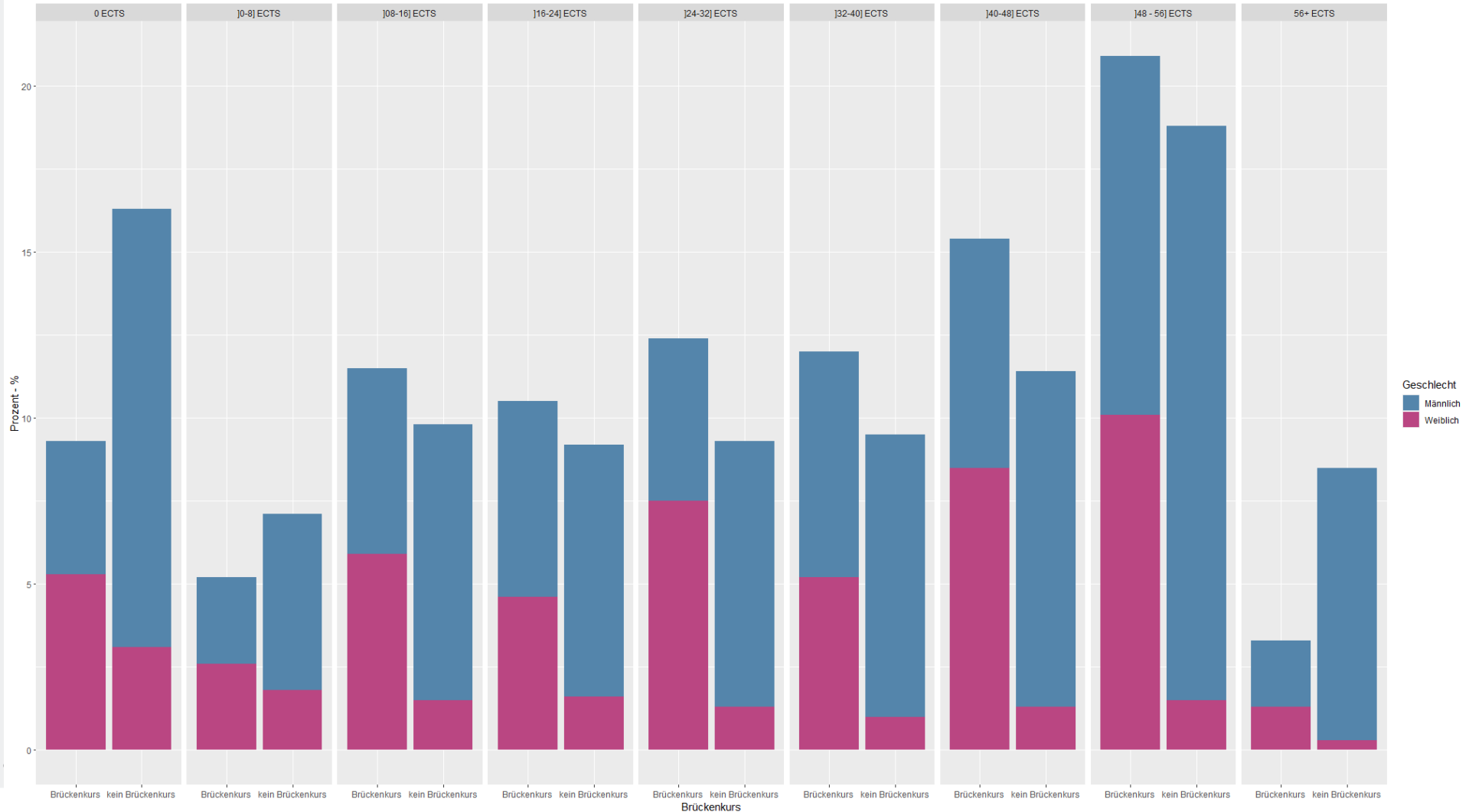
- Two courses 185A86 and 185A82 (male/female)
- WS 2016 – WS 2019
  
- Effects on first study year
- Effects on whole study life cycle

with / without	WS2016	WS2017	WS2018	WS2019
female	38 / 74	40 / 53	34 / 80	44 / 83
male	17 / 466	37 / 456	45 / 438	52 / 480

# Bridging course „Intro to Programming with Processing“

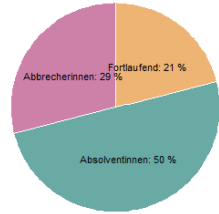
## ECTS performance of first study year

ECTS-Leistung im jeweils 1. StudienJahr von - 2016/2017, 2017/2018, 2018/2019, 2019/2020  
für Beginner des Bachelorstudiums Informatik und Wirtschaftsinformatik  
nach Geschlecht und Brückenkursen 185A86 und 185A82

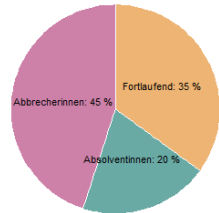


# Bridging course – study progress based on cohorts

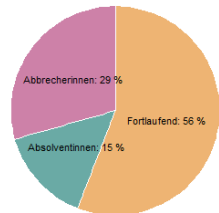
Verlauf der Bachelorbeginner nach Beginnjahren und Brückenkurs - Weiblich  
Mit Brückenkurs 2016/2017 - 38



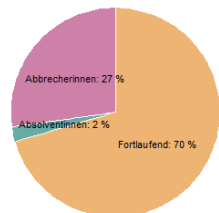
Mit Brückenkurs 2017/2018 - 40



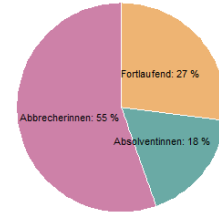
Mit Brückenkurs 2018/2019 - 34



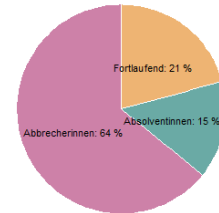
Mit Brückenkurs 2019/2020 - 44



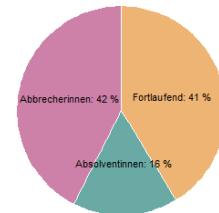
Ohne Brückenkurs 2016/2017 - 74



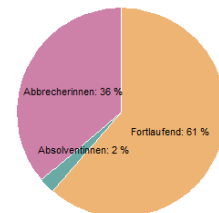
Ohne Brückenkurs 2017/2018 - 53



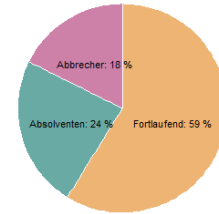
Ohne Brückenkurs 2018/2019 - 80



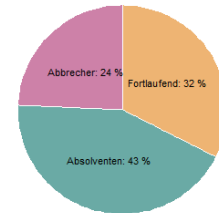
Ohne Brückenkurs 2019/2020 - 83



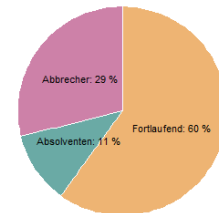
Verlauf der Bachelorbeginner nach Beginnjahren und Brückenkurs - Männlich  
Mit Brückenkurs 2016/2017 - 17



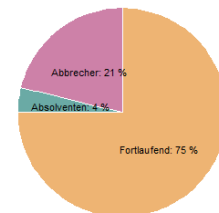
Mit Brückenkurs 2017/2018 - 37



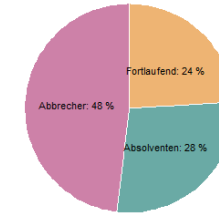
Mit Brückenkurs 2018/2019 - 45



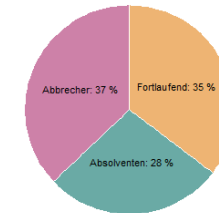
Mit Brückenkurs 2019/2020 - 52



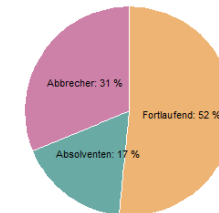
Ohne Brückenkurs 2016/2017 - 466



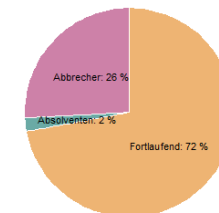
Ohne Brückenkurs 2017/2018 - 456



Ohne Brückenkurs 2018/2019 - 438



Ohne Brückenkurs 2019/2020 - 480



# Current female support activities (selected list)

- Paid female master students
  - financially supported via dean's budget
  - 6 positions 2016 – 2019
- “Visit a scientific conference” for female master students
  - 35 scholarships in 2016 – 2019 (then came Corona, we're reviving it)
- Excellence scholarships for female bachelor / master students
  - financially supported by SIEMENS AG Austria
  - 10 scholarships per year

Retain

# Current female support activities (selected list)

Promote

- “Talk at scientific conferences” for female PhD students
  - 38 scholarships in 2016 – 2019 (then came Corona, we’re reviving it)
- Post-doc positions for female scientists (since 2008)
  - 8 so far
  - 3 out of these 8 are full professors at the faculty right now
- Assistant Professorships (Tenure Track) for female scientists
  - 1 filled 2018 (out of 55 highly competitive applications)
  - 2 filled 2021 (out of 41 highly competitive applications)

# Current female support activities (selected list)

Sensitize

- Attend Gender Awareness Workshops at TU Wien
  - 28 so far (winter term 2016 + summer term 2017)
  - willingness of colleagues is limited 😞
- Foster female guest professorships
  - 9 so far (out of 78, less than 12% 😞)
- Gender competence as desired competence for professor positions
  - part of official hiring procedure of TU Wien since Oct 2021

# Side step 1 - ... the issue with the name\*)

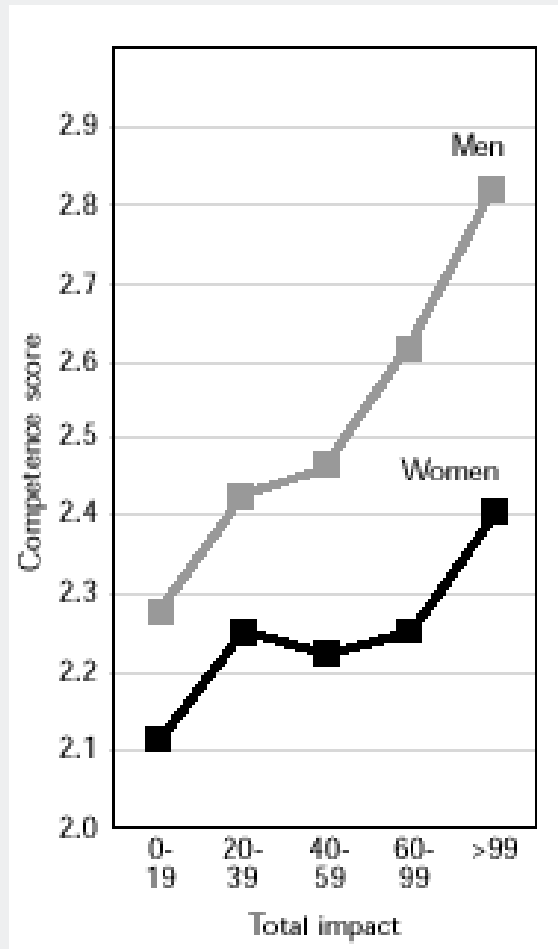
180 women and 180 men were asked to review a mathematics paper and rate it from 1 (very good) to 5 (very poor).

	author		
	John T. McKay	Joan T. McKay	J. T. McKay
Men	1.9	3.0	2.7
Women	2.3	3.0	2.6

M. A. Paludi and W. D. Bauer, "Goldberg Revisited: What's in an Author's Name", *Sex Roles: A Journal of Research*, 9 (1983) pp. 387-390.

P. Goldberg, "Are Women Prejudiced Against Women?" *Trans-Action* 5 (1968), pp. 28-30.

## Side step 2 - ... different ratings for women\*)



**Total impact** = Addition of the impact factors of all published journal articles

**Competence score:** impact factors

- Scientific productivity
- Gender
- Acquaintance with jury members

Christine Wennerås & Agnes Wold,  
« **Neptotism and Sexism in Peer Review** », Nature 387, 341 (**1997**)



## Side step 3 - ... what biases do you have?\*)

<https://implicit.harvard.edu/implicit/takeatest.html>

# What we have learned...

- Our competitor
  - Conservative society (home, school, culture)
- Mindset
  - Women are not in need of support but worthy of support
- Female students have to learn to accept support activities
  - Opinion poll (summer 2015) among female BI/CS students:  
only 27% are in favour of female support activities

# What we have learned ...

- Learn from best practice examples
  - CMU (Lenore Blum)
  - Harvey Mudd College (Maria Klawe)
  - University of Edinburgh (Jane Hillston)
  - University of Bamberg (Ute Schmid)
  - ...
- Curricula in universities have to be adapted
- Appropriate curricula in schools are necessary
  - Teach the teacher

# What we have learned...

- Role Models
  - Necessary at all career levels
  - AcademiaNet - <http://www.academia-net.de>
- Worthy of support
  - Dean's List, especially for female students
  - Award for attending Grace Hopper Conference (not yet realized)
- Sustainability, sustainability, sustainability, ...
  - (not only CO<sub>2</sub> reduction but female empowerment 😊)
- Resources necessary (money, human resources)

# Instruments @ TU Wien

- Vice Rector for Human Resources and Gender
- Office for Gender Competence
  - At Vice Rector level
- Working group on equality issues
- Faculties @ TU Wien (have to) implement female support activities (gradually)
- Most importantly - **Kindergarten @ TU Wien**
  - Christiane Nüsslein-Volhard,  
Nobel prize 1995 in Physiology or Medicine,  
**Foundation for the promotion of female scientists with children !**

# COST Action 19122 EUGAIN – Mapping to WGs

MC members: Gerti Kappel, Laura Kovács

## WG1 - From High-School to Informatics

- Abenteuer Informatik Workshops for Schools
- Digital Girls Hackathon at Vienna Digital Days 2021
- Girls Coding Summer Camps
- Bridging Course „Intro to Programming“

## WG2 - From Undergraduate Studies to PhD

- Master stipends for conference attendances
- Best master thesis awards (e.g. Dr. Maria Schaumayer prize)
- SIEMENS excellence scholarships for female students

## WG3 - From PHD to Professors

- dedicated female tenure-track positions since 2018
- 2 Netidee female fellowships for innovative PhD research
- TUWien Women's Award 2020/2022

## WG4 – Cooperation with Industry and Society

- Consolidating the Digital Humanism Initiative
- TUforMath Lectures Series
- SCIENCE Lecture Series of the Vienna Universities and the City of Vienna

## WG5 – Strategy & Dissemination

- EU Marie Skłodowska-Curie COFUND Doctoral programme LogiCS@TU Wien
- Special Research Program SpyCoDe of the Austrian Science Fund
- TU Wien Doctoral College SecInt