2019 Minerva Informatics Equality Award:
Ladies in Informatics

Contact information

Name of legal entity:	Institute of Informatics, Faculty of Electrical Engineering and Computer Science, University of Maribor, Slovenia
Head of the Institute of Informatics:	prof. dr. Marjan Heričko
Address:	UM FERI, Institute of Informatics Koroška cesta 46 2000 Maribor Slovenia
Contact email:	informatika@um.si
Website:	https://ii.feri.um.si/en/
Phone number:	+386 2 220 72 95
Responsible for the application:	dr. Lili Nemec Zlatolas
Contact email:	ladiesininformatics@um.si
Website:	https://ladiesininformatics.um.si/
Phone number:	+386 2 220 73 93

Abstract

Women at the Institute of Informatics are strongly supported and encouraged to prioritize their workload to meet institutional needs and are adequately compensated for their efforts, know-how and wide scope of responsibilities. The Institute provides an opportunity for everyone to create their own work-life balance. Therefore female staff members were supported in their efforts to found an initiative called *Ladies in Informatics*, uniting female scientists with related research interests in the domains of computer science and informatics. At the Institute, gender balance is achieved within project teams, research, and working groups as well as in pedagogical and research activities.

Description

The Faculty of Electrical Engineering and Computer Science at the University of Maribor is one of the leading teaching and research institutions in Slovenia in the field of Electrical Engineering, Informatics and Computer Science. Academic and research work is conducted at the following institutes: the Institute of Automation, the Institute of Computer Science, the Institute of Electrical Power Engineering, the Institute of Electronics and Telecommunications, the Institute of Informatics, the Institute of Mathematics and Physics, the Institute of Media Communications and the Institute of Robotics.

The Institute of Informatics was established in 1993, but its members had previously actively participated in developments and innovations in the field of computer science, software engineering and informatics. There are 43 full time employees at the Institute of Informatics, including 16 university professors, 21 teaching assistants and 6 members of technical staff. Currently there are 9 female scientists employed at the Institute of Informatics, all at higher positions, working to develop their careers in the field of teaching and research. The institute

members are organised into four laboratories: the Laboratory for Information Systems, Laboratory for Data Technologies, Laboratory for Real-time Systems and Laboratory for Communication Technology. Inside the laboratories, male and female researchers participate equally within different research challenges, including in software engineering, ICT security, machine learning, advanced data technologies, process management and IT auditing. Since researchers and research groups deal with various topics related to the development of quality IS, female researches actively participate in the development and evaluation of new theories, models, methods and algorithms, supporting the progress of the digital transformation process. The female researchers' activities have significantly influenced advancements within the Institute as well as the general domain of IS development. In addition to research results, female involvement is demonstrated by their participation within several important faculty bodies:

- Participation in the Senate, which is the highest professional body of the Faculty. The Institute of Informatics currently has 2 members in the Senate of the Faculty, 1 of which is female. She has been in the senate for the past 8 years as a member of the Institute and will also be confirmed for the next 4-year mandate.
- 25% of the Laboratories at the Institute of Informatics are led by a female member.
- One of the female members at the institute is the representative for the whole faculty in the union for higher education in Slovenia.

In addition to their regular duties, female staff members from the Institute of Informatics founded the initiative *Ladies in Informatics*, which unites female scientists with related research interests in the computer science and informatics domain. The initiative was founded in 2018, but the idea originates from 1993 when the Institute was established. The Institute of Informatics has employed female scientists from the beginning, but the number of female scientists has increased over time and the initiative *Ladies in Informatics* aims at welcoming new female staff and student members to the Institute of Informatics.

Related research fields allow members of *Ladies in Informatics* to exchange opinions and form different research collaborations. However, an important aspect that makes the initiative even more important is the mentoring part, wherein the experiences and knowledge of members are unreservedly shared, adding an important female perspective to the collected recommendations gathered from male colleagues. Excellent mentoring and collaborations have contributed to many success stories and great research achievements. Two female students from the study program Informatics and Communication technologies, led by a female mentor from the Institute of Informatics, achieved third place at an Informatics competition at the Days of Slovenian Informatics. Another female student, supported by mentorship at the Institute, won the IEEE Slovenia and IEEE Region 8 student paper contest award. She was the first female contestant to win both competitions. All three award-winning female students have also joined the Institute of Informatics as faculty members and are now members of the initiative *Ladies in Informatics*.

Young teenage girls enrolling in our Faculty also feel encouraged when they see female faculty members who have already received success in their careers in the field of informatics. Therefore, despite still-present gender stereotypes in STEM fields, in 2018/2019 almost half of the students enrolled in the 1st year of Informatics and Communication Technologies study program, which is offered by the Institute of Informatics, were female.
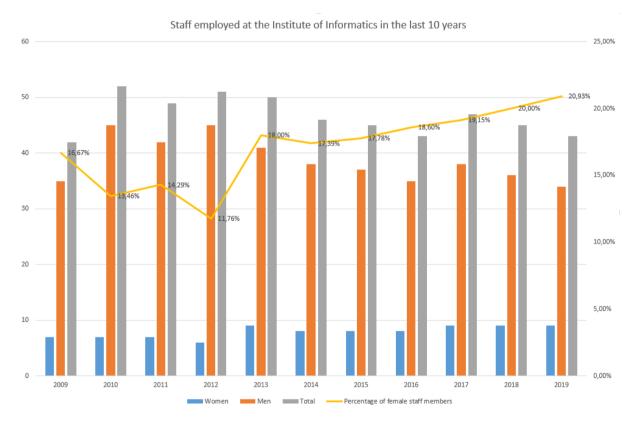
Impact

To overcome gender stereotypes, the Institute of Informatics goes to great lengths to provide equal opportunities for men and women, based solely on merit – hard work, performance, and

seniority – not gender. Women get equal access to promotions, roles within the organization and financial compensation. Currently, there are 9 women employed at the Institute of Informatics and altogether there are 43 employees; thus 20.93% of employees are women. For comparison, the Institute of Computer Science at the Faculty for Electrical Engineering and Computer Science employs 63 employees, of which only 4 (6.3%) are women. To conclude, the atmosphere at the Institute of Informatics is welcoming and supporting to female staff members.

In the last 10 years (from 1 April 2009 until 31 March 2019), there have been 11 different women and 67 different men employed at the Institute of Informatics. On average, a female faculty member was employed for 7.64 years at the Institute over the last 10 years, while the average employment time for men was 5.65 years. This shows that women feel encouraged to stay at the Institute for longer periods of time. Five women and 18 men were employed constantly during the last decade; the percentage of women employed at the institute has in fact risen. Out of all employees who obtained a PhD in the last 10 years and were employed at the Institute of Informatics, 83.3% of females stayed at the institute. This is in stark contrast to males, of whom only 42.7% stayed at the Institute after obtaining their PhD.

Staff employed at the Institute of Informatics in the last 10 years

The table shows the current state (March 2019) of all employees at the Institute of Informatics sorted in descending order and ranked by employment position. The data shows that female staff hold higher employment positions, broken down into: 3 professors, 3 teaching assistant with a PhD and 3 teaching assistants. 2 of the teaching assistants holding a PhD are on the path to being elected as assistant professors in the next few years. To compare the percentage of employed females at the Institute to the 2017 winner of the Minerva Informatics Equality Award: at the Institute we have 20% of women working as full professors compared to their 10.1% of women as full professors. There is no associate professor at our institute, whereas at the Radboud University there are 12.9%. However, at our institute, there are 25% female employees who are assistant professors, while there are 20.3% female faculty members. All the

teaching assistants holding a PhD are in a post-doc position, doing research to get a promotion to assistant professor. So to compare, there are 60% of female post docs in comparison to Radboud University, where there were 33.8%.

Employment position	Male	Female	Total	% of female staff
Professor	4	1	5	20.00%
Associate professor	1	0	1	0.00%
Assistant professor	6	2	8	25.00%
Senior lecturer	2	0	2	0.00%
Teaching assistant holding a PhD	2	3	5	60.00%
Teaching assistant	13	3	16	18.75%
Technical support & other staff members	6	0	6	0.00%
Total	34	9	43	20.93%

In addition to the various efforts of female researchers in scientific and industrial endeavours, they are also taking part in a vast number of projects, organizations, and memberships (IEEE Women in Engineering, SIST, ISACA, IBIMA, EAEEIE, Czech Invest, IFIP, SIA, ADBIS, Blockchain Lab:UM, CyberSec Lab:UM, IEEE Computational Intelligence Society, DAAD). As of 2019, this includes a full partnership in two currently running H2020 projects on Cyber-Security.

To break down stereotypes even more and to strengthen our bond, the members of *Ladies in informatics* challenged their male colleagues in futsal, frequently believed to be a male sports game. A futsal game with female staff members playing against male staff members started as pure entertainment, but resulted in an even tighter bond among female members at the Institute. Futsal is a group sport that demands teamwork that is based on trust. Moreover, respect within the team and for your opponents has to be maintained. Although these are athletic concepts, many parallels could be drawn with successful research work. This sport connects women into a team ready to inspire others to reduce gender gap differences in STEM fields. At first, the game of female contestants against male contestants at the Institute was played once a month in a game called *El Classico of the Institute of Informatics*, but later some members of the female team joined the games on a weekly basis, as equal competitors.

The Institute also supports women when it comes to maternity leave. For the heads of the Institute and laboratories, maternity leave was not a problem nor addressed with negative connotations. With joint planning, reassigning and rescheduling tasks before the leave, the institute has managed to ensure uninterrupted workflows. After maternity leave, all female employees return to their previous work positions, with the possibility of further developing their careers. A positive attitude towards maternity has encouraged 67% of current female employees to take their one-year maternity leave. Out of all the women who have been on maternity leave, 67% of women have been on maternity leave twice and 33% have been on maternity leave once.

Gender balance within project teams, research, and working groups, pedagogical and research activities is reached in the Institute of Informatics. Colleagues are respectful, professional and unbiased, which results in a female-friendly workplace. Woman feel encouraged to speak their mind and present their ideas. The Institute provides the opportunity for all to create their own work-life balance. All these facts result in a positive working atmosphere that helps to retain researchers regardless of the numerous opportunities on the IT job market.

Reference list

- A website of the initiative Ladies in Informatics: https://ladiesininformatics.um.si/