



THE LADIES IN INFORMATICS INITIATIVE

FOR 2020 MINERVA INFORMATICS
EQUALITY AWARD

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. Marjan Heričko, PhD

ADDRESS

**UM FERI, Institute of Informatics,
Koroška cesta 46, 2000 Maribor, Slovenia**

WEBSITE

<https://ii.feri.um.si/en/>

CONTACT

informatika@um.si

+386 2 220 72 95

RESPONSIBLE FOR THE APPLICATION

Lili Nemec Zlatolas, PhD

WEBSITE

<https://ladiesininformatics.um.si/>

CONTACT

ladiesininformatics@um.si

+386 2 220 73 93

ABSTRACT

The **Institute of Informatics** employs female members in all positions, and supports the transition of female PhDs into full-time Faculty positions. In the last year, three Teaching Assistant positions were opened, and female candidates occupied two. Female members, after receiving their PhDs, often continue their professional careers at the Institute, also because of safe, creative, open, healthy and balanced work environment and support in building a career. Importantly, the Institute has founded the ***Ladies in informatics initiative*** to connect female researchers and to continue to advocate gender equality in STEM fields, that has already resulted in several success stories.



Slovenian Female Engineer of the Year title for 2019.



First female winner of the Student Paper Contest at IEEE Region-8 contest over nearly thirty years.



Award for outstanding student work in 2018.



Award for the best student of all study programmes at the Faculty in 2018/2019.



Award for professional excellence in 2016.



Third place for the best student project in the field of Informatics.



Slovenian Congress Ambassador of the Year title for 2019.

DESCRIPTION

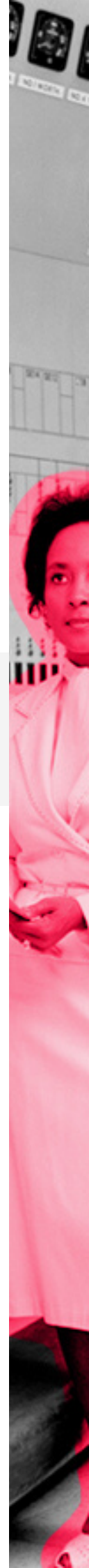
To provide an **equal environment** for both female and male researchers / academics has become one of the priorities of the **Institute of Informatics**. The Institute was established in 1993, and even though in the past, mostly men dominated the STEM domain, the Institute of Informatics, which operates at the **Faculty of Electrical Engineering and Computer Science** at the **University of Maribor**, has already employed and supported female members. Even more, one of the still-active members has been a part of the Institute since its establishment. Now, in 2020, the Institute has 51 employees, and 16 of them are female. The number of **female employees** in 2010 was seven, and in the last ten years, this has been **increased by 129%**. Strong collaborations, careful career planning support as well as a healthy and supportive work environment at the Institute have made all this possible. Since the establishment, the Institute's management has had a strong vision about achieving gender equality and diversity, and has put a great effort into providing an environment attractive to female academics - also by following the informal actions of promoting successful female researchers and **reducing the gender gap in STEM** fields. The growing ratio of female employees and their measured levels of contentment demonstrates this positive impact.

To **formalise** the **existing orientations** aimed at providing an equal environment, the **Ladies in Informatics** initiative was **founded** in 2018. The initiative pursues to **unite female scientists** with related research interests in the ICT domain. It is growing by welcoming new female researchers and student members, as this is important focus of *the initiative*. The work and activities within the initiative are pursuing several key **goals**:

- to **ADVOCATE** gender equality in STEM fields;
- to **COLLABORATE** with other female researchers and students;
- to **PROMOTE** female success stories;
- to **MOTIVATE** female students to enrol in STEM studies;
- to **SUPPORT** career building; and
- to **ENCOURAGE** healthy and balanced work environments.

The primary goal of *the initiative* is to **advocate** gender equality in STEM domains publicly. The Institute has, consequently, made several efforts to avoid gender bias, and has been gradually improving and **supporting** positions for women in the past two decades. Within the research work at the Institute, both male and female **researchers participate equally** within different research challenges, including Software Engineering, ICT security, Machine Learning, Advanced Data Technologies, Process Management, and IT auditing, among others. Female researchers participate actively in the development and evaluation of new theories, models, methods and algorithms, while supporting the progress of the digital transformation process. Therefore, the **gender equality is lived and performed actively**, it is not merely planned. To overcome the barriers of existing gender-stereotyping, the Institute goes to great lengths while providing **equal opportunities** for men and women, based on merit - hard work, performance, and seniority - and not gender. Furthermore, the Institute has **supported** women fully to get the well-deserved permanent positions at different levels of academic rankings, and is supporting the increasing number of **female Professors**. In the last two years, two females and one male achieved the position of an Assistant Professor. In addition, one female Assistant Professor **filled** a newly open call for applications for a higher position, which was released due to the **retirement of a male Professor**.

Connecting with other female researchers and initiatives allows members of *the initiative* to exchange opinions and form vital, fruitful, long-term research collaborations. The **collaborations**, with related initiatives with similar goals, provide greater opportunities for the success of female researchers. One of our founding members is the **Chair** of the **IEEE Women in Engineering organisation** in Slovenia. In addition, some of the initiative's members are involved actively in the **Women in Cyber Manifesto** development. **Collaborations with students** are crucial in encouraging promising students taking part in research and other projects. It involves several steps, including **mentoring**, where the experiences and knowledge of our members are shared reflexively and openly with younger students. Female members of the initiative play an active and crucial role in research and education mentorship throughout their careers. In that way, students are often



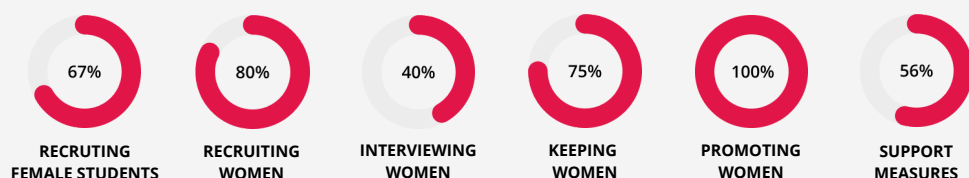
invited to join the Institute, based on their exceptional work and achievements. Provided mentoring and successful collaborations have contributed to many **success stories** and great research accomplishments. In the last year, the Institute employed two female students, who were awarded by the Faculty for their outstanding student work. One of them joined the Institute under the postgraduate research **funding for Young Researchers** funded by the Slovenian Research Agency. The same funding was also granted to two female students who achieved 3rd place under a female mentor at the competition for the best student project in Informatics, resulting in on-going employment at the Institute, which is actually a long-term strategy of the Institute (to first motivate and later employ the best female students).

The collaborations also bring great opportunities for the **promotion** of female academics. The Institute supports and encourages nominations for awards of successful female researchers. One of our members was awarded a prestigious title of a **Female Engineer of the year 2019** in Slovenia, and her story was covered broadly in national and international media. The promotion of such success stories **encourages female** candidates **to apply** for job positions in Informatics, and creates **opportunities** for sharing best practices. By promoting women with successful careers in Informatics, more female students are being **motivated** to enrol in the STEM studies. A female student, mentored by a member of the Institute, achieved a great success story, which is also shown as a motivation for girls to enrol into the ICT studies. In 2016 and 2017 she won the IEEE Slovenia and IEEE Region-8 student paper contest award as the **first-ever female contestant** to win both competitions over nearly thirty years. Furthermore, she was in the top 5% of the most successful students in her generation five years in a row. Based on the invitation, she joined the Institute, became a Teaching Assistant, and is currently finishing her last year of PhD studies.

Active engagement of female researches comes with a potential cost. In times where stress and anxiety are one of the greatest health risks, opportunities for physical exercise are decreasing. Burnout is a common 21st-century condition, and negotiating one's professional and family lives demands new ways of adjusting to the work environment. In that, the Institute provides guidance and **support** for female members and members-to-be by inviting them into *the initiative*, which allows female members to ask other female colleagues for sharing their own advice, ideas, suggestions, and reflections, especially when it comes to **maternity leave** and returning after it. **Flexible working hours** are possible at the Institute supporting women when on maternity leave, and also later, when it comes to care for children. All the female members are assured that their position will be waiting for them, and by joint planning, reassigning and rescheduling tasks, the Institute manages to ensure **uninterrupted workflows**. Their absence is **considered** in the **evaluation of achievements** for promotions by extending the evaluation periods for the length of the leave, which is usually one year long. Besides, the Institute creates a **positive balanced environment** for personal and professional growth by also **encouraging** healthy living through sports activities, team-building events and positive social gatherings, wherein the connections, and mutual respect between Institute's employees are being strengthened further.

Attracting more women in the field of ICT is a topic pursued by many organisations, and many initiatives supporting women. The publication *More Women in Informatics Research* and Education was a great inspiration in achieving even stronger gender equality at the Institute of Informatics. A **checklist** of the proposed 48 **measures** was adopted, and divided into six sections. An analysis was conducted, revealing which one of them are already being carried out and which not. The vast majority of the proposed actions were already implemented at the Institute. In total, **fulfilling 33 out of 48 proposed measures**, the Institute has set a goal of achieving all of them by creating a list of possible improvements. Figure below presents the status of the achieved level in each section, as captured by the publication of *Informatics Europe*.

ACTIONS - ACHIEVED LEVEL

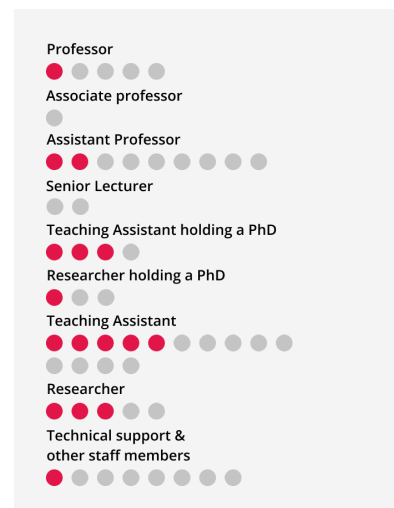


IMPACT

Actions aimed at providing an **equal environment** for female and male members at the Institute of Informatics had a **positive impact** on many different areas. Past successes have been formalised with the founding of the ***Ladies in Informatics initiative***. One of the focuses of the Institute, as well as *the initiative*, is a constant **self-evaluation** and **improvement**. The process of increasing our strengths is complemented with following the trends and further improving the work environment. In particular, that includes the use of different **quality metrics** for self-evaluation. There are numerous key **performance indicators**, as defined and monitored within the Institute, and they are complemented with indicators available in the publication ***More Women in Informatics Research and Education***. A few of these are addressing this year's topic of the *Minerva Informatics Equality Award* and will be presented in the following subsections.

ADVERTISE OPENLY FOR ALL POSITIONS, STATING THAT YOU ARE AN EQUAL OPPORTUNITY EMPLOYER.

The **equal opportunity** to get a position at the Institute has grown throughout the years, reaching a relatively **high percentage** in 2019. The Figure on the right shows the current state (March 2020) of all employees at the Institute, sorted in descending order and ranked by employment position. The data shows that **female staff** (pink circles) holds **high employment positions**, including three Professors, three Teaching Assistants with a PhD and one Researcher holding a PhD. All the Teaching Assistants holding a PhD are working towards a **possibility to occupy** the Assistant Professor position. **Equal opportunity** for employment is demonstrated with the number of employed women being the same as the approximate percentage of enrolled female students. Currently, there are 16 women employed at the Institute of Informatics, which represents **31.37% of all employees**.



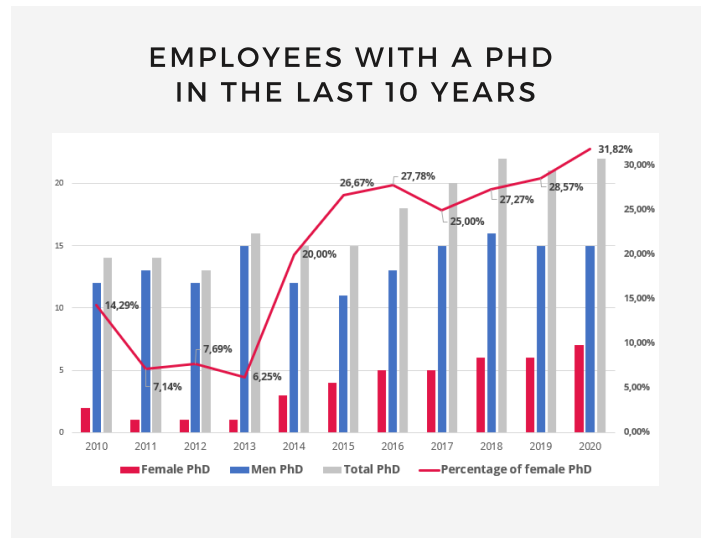
BALANCE THE DIDACTIC AND SCIENTIFIC RESPONSIBILITIES OF ALL STAFF AND MAKE EXPLICIT THE PRIORITIES FOR EVALUATING AN INDIVIDUAL'S PERFORMANCE.

Female PhDs from *the initiative* have been involved actively in **teaching, research and project-related activities**. In the last 10 years, **five female researchers** obtained their PhDs and produced almost **60 bibliographic units** per person in the past five years. They have co-authored 19 publications, that were published in **journals with high Impact Factor**, 12 of these publications were published in journals ranked in the upper two quartiles. The highest-ranking journal with a publication by one of the members had an Impact Factor of more than 3.5. All five female researchers also co-authored 37 papers at **renowned international conferences**, while presenting their knowledge to other experts. In the last five years, they were invited to give **lectures** at five Universities in Europe, the USA and Asia. **Teaching** is also an important part of a career at the Faculty, and all female Researchers who received their PhD in the last 10 years have been involved actively in developing and teaching new units. The average **score** teachers at the Faculty of Electrical Engineering and Computer Science received from students **for pedagogical work** in 2018/19 was 1.22 on a -2 to 2 scale. The female PhDs and Postdoctoral Researchers from the Institute received a **high average** score of 1.41. This shows that female PhD teachers are educational leaders as well, while being highly motivated to present their knowledge to the students in a dynamic, innovative, and original way. The Institute is also very successful in receiving funds from H2020, Interreg and similar projects. All members are involved actively in leading or collaborating in the projects. Among the **Managers** of the projects being active in the last 2 years, female members are leading 47% of international projects at the Institute. 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, and organisations** (*IEEE Women in Engineering, SIST, ISACA, IBIMA, EAEEIE, Czech Invest, IFIP, SIA, ADBIS, Blockchain Lab:UM, CyberSec Lab:UM, IEEE Computational Intelligence Society, DAAD*). This demonstrates, that there is a **balance** in the **responsibilities** they have and they are **successful** in accomplishing goals.

MONITOR THE PERCENTAGE OF WOMEN AT ALL LEVELS IN THE ORGANISATION.

The Institute of Informatics **encourages** women to continue their professional career at the University of Maribor. Out of all employees who obtained a PhD in the last 10 years and were employed at the Institute, **83.3% of females remained at the Institute**. This is in stark contrast to males, of whom only 38.9% stayed. The encouragement of **transition of female PhD** students to Faculty positions can also be detected within the researchers who joined the Institute under the support of the postgraduate research funding Young Researcher. In the last 10 years, all female young researchers **continued their careers** at the Institute. The percentage of female staff at the Institute holding a PhD has also risen in the past 10 years, as seen in the Graph on the right.



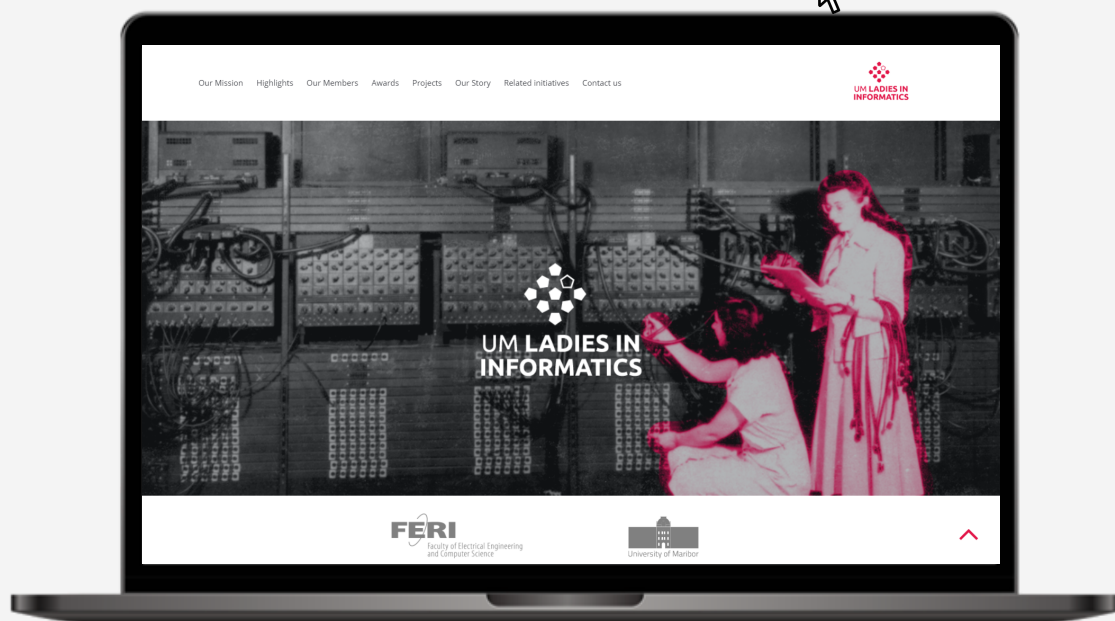
LOOK FOR AND PROPOSE SUITABLE WOMEN WHEN ASKED TO NOMINATE CANDIDATES FOR PRIZES, AWARDS OR PRESTIGIOUS TASKS.

Female members represent a large proportion of award-winning employees of the Institute of Informatics. The Institute **strongly supports** gender **equality** in **nominations**. In 2019, a female member received one out of two **Faculty awards** for **outstanding research work**, whereby gender equality has been achieved. Furthermore, in 2019, 42% of Faculty awards were awarded to women, exceeding the 30% recommended threshold. The work and achievement of our award-winning colleague were confirmed additionally when she received the **Female Engineer of the year 2019** title. She has convinced with her **success story**. Many other rewards were given to our female members in recent years. Our member was the **first-ever female to win** both competitions, IEEE Slovenia and **IEEE Region-8 student paper contest award**. In addition to many **Faculty awards** for **professional work**, one of the Institute's female members also received a **Slovenian Congress Ambassador of the Year** title for 2019, which was received for profound work on **organising international conferences** in Slovenia in recent years. Her outstanding work made a significant contribution in the Congress domain, which can be further complemented by the achievements of other members. Female members were involved actively and engaged as **general** and **local Chairs** at **several conferences**. In the last 10 years, the members of the Institute organised nine international scientific conferences and a yearly national conference, at which female members were general or local Chairs in 58% of the cases, which is a prestigious task with high networking possibilities.

*The success of the **Institute of Informatics** will be continued in achieving the trending actions, educating new engineers as well as encouraging other organizations and faculties to implement best practices, recognized within the initiative **Ladies in Informatics**.*

LADIES IN INFORMATICS

<https://ladiesininformatics.um.si/>



Part of women from the Institute of Informatics.



Female members of the Institute challenge the male football team in a monthly game called *El Clásico*.



Promoting ICT on European Researchers' Night 2019.



Encouraging healthy living through team sports activities.



A visit to the *Information service for Slovenian science, culture and education* with ICT students.