UniBE Foundation

Women in Biomedical Engineering and Artificial Intelligence in Medicine Scholarships

University of Bern
ARTORG Center for Biomedical Engineering Research and Center for Artificial Intelligence in Medicine (CAIM)

At the ARTORG Center for Biomedical Engineering Research multidisciplinary teams are joining in a mission to tackle healthcare challenges and unmet clinical needs. To address the existing gender gap in the fields of science, technology, engineering and mathematics (STEM), harness the high-performance capacity of diverse teams and foster young talents, the ARTORG and the Center for Artificial Intelligence in Medicine (CAIM) plan to support two female STEM graduates through a full scholarship for a two-year master's programme.

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Women are still underrepresented in STEM fields.[2]

Background Over the past years, there has been significant progress in increasing the representation of women in STEM (science, technology, engineering and mathematics). However, despite the stronger emphasis on gender equality, gender disparity continues to persist in these domains within the modern labor market. Recent data shows that less than a third of female students choose to study higher education courses in subjects like maths and engineering[1] and STEM jobs are still majorly underrepresented by women.[2] Also, women in the STEM fields publish less and often receive less pay.[1] This gender imbalance is commonly referred to as the "STEM gap".

How to STEM the tide of women graduates leaving science Women are lost at every educational transition point on their way to a STEM career, the most troubling fields being engineering and computer science.[3] The fact that fewer women enter science isn't the only reason why there are few women in STEM in comparison with men. US Data show that women are also more likely to quit.[2] The tide of women STEM graduates leaving science represents a waste of social investment and individual effort, and suggests that there are structural problems around retaining women in STEM carriers.[4]

Qualified and motivated STEM professionals are much sought after in academic research and industry globally, however, the "STEM Gap" can only be addressed if more women are encouraged to take up studies of STEM subjects and then remain in the STEM domain.

Overall Goal

- To attract young female STEM talents from emerging economies
- To address the existing gender gap
- To increase the possibility of building diverse teams and thus harness the power of diverse teams

Our Strategy To address the existing gender gap and harness the power of heterogenous teams, the ARTORG and CAIM want to encourage STEM undergraduates from diverse backgrounds to embark on postgraduate education in Biomedical Engineering (BME) and Artificial Intelligence (AI). To this end, the ARTORG and CAIM wish to support two female STEM graduates from emerging economies through full scholarships for a two-year master's programme at ARTORG or CAIM.

Fostering young talents – Promoting excellence

The support consists of a full scholarship at ARTORG or CAIM covering tuition fees, mentoring, study equipment and room, board and living expenses[5] for the full duration of the two-year program of studies, including an applied Master's thesis in the second year of study (BME/AI in Medicine (AIM) Scholars).

[1] Beaulah Ndlovu, N. et al. These 7 women in STEM give timeless advice to other aspiring scientists. *World Economic Forum* (2020).

[2] 8 Statistics and Facts about Women in STEM – Built By Me ® – STEM Learning

[3] Where Are the Women in STEM? - Higher Education Today (higheredtoday.org)

[4] Sirimanne, S. How can we STEM the tide of women graduates leaving science? *World Economic Forum* (2020).

[5] Student Financing: https://www.unibe.ch/studies/organizational_matters/student_financing/financial_matters/index_eng.html

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Benefits

- Expand research-footprint for medical tech nology innovation
- Supply workforce for new clinical and medical service provision roles
- Achieve gender parity goals enshrined in policy aims (cantonal and federal Gender equality guidelines)
- Identification of potential future emloyees with outstanding training and expertise

Financial Need

The costs for a full scholarship for a two-year master's programme are as follows:

Project costs/scholarship		CHF
Living expenses (room, board, etc.)		
Year 1	Living expenses (2'200 CHF*/month)	26'400
Year 2	Living expenses (2'200 CHF*/month)	26'400
Total living expenses		**52'800**
Other expenses		
Year 1	Tuition fees (950 CHF/ semester)	1'900
	Study equipment (laptop etc.)	2'000
Year 2	Tuition fees (950 CHF/ semester)	1'900
Total other expenses		**5'800**
Total living- & other expenses		**58'600**
Overhead costs (6%)		3'500
Total project costs/scholarship		**62'100**

*Student Financing: https://www.unibe.ch/studies/organizational_matters/student_financing/financial_matters/index_eng.html

Scholarships The call for applications for the scholarships will be promoted on relevant platforms. The attribution of the scholarships will be based on the official application of the candidates to the respective Master programmes at the University of Bern. A specific motivation letter will develop the arguments of the candidate for receiving a scholarship. A multidisciplinary committee will rank the submissions along a predetermined evaluation grid and designate the laureates.

Artificial Intelligence (AI) in Medicine

Artificial intelligence is rapidly changing the landscape of healthcare. Modern machine learning techniques make it possible to extract information from clinical, medical, biological, lifestyle and other health-related data related to acute and chronic diseases. The goal is prevention, earlier, faster and more accurate diagnosis, improved and personalised treatment and more efficient disease management. Patient-specific and intelligent recommendation models based on reinforcement learning, deep learning and natural language processing could automate current clinical procedures and make them more efficient and patient-friendly.

ARTORG and CAIM

The **ARTORG Center for Biomedical Enginering Research** at the University of Bern is a multidisciplinary Center of Excellence for medical technology. Joining engineers, computer-, material- and life scientists, clinicians, and biologists its mission is to tackle healthcare challenges and unmet clinical needs in diagnosis, monitoring, treatment, and rehabilitation through innovative healthcare technology solutions that have proven itself in real-world clinical settings. The ARTORG has a strong clinical and translational focus and spans the entire process from discovery to clinical adoption.

The **Center for Artificial Intelligence in Medicine (CAIM)** is embedded within the ARTORG and the teaching and translation platform for medical technology that exploits the healthcare potential of Artificial Intelligence (AI) technology to deliver better care to patients and facilitate the work of healthcare professionals. CAIM researchers understand healthcare digitalization as a chance, creating innovation that brings meaning to the ever-increasing flood of health data to enable clinicians to push the boundaries of what is possible in treatment, rehabilitation, and prevention. CAIM starts from a clinical perspective, putting patient benefit first and supporting personalized treatment approaches and educates the next generation of digital medicine experts.

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«Education breaks barriers and these two scholarships will not only contribute closing the gender gap in STEM but will also support the creation of inspiring role models for girls and young women in STEM studies.»

UniBE Foundation
The UniBE Foundation encourages and supports the University of Bern so that a new generation of researchers can develop pioneering and globally acclaimed solutions for the economy of the future, sustainable habitats, and an ethical standard of living. The Foundation orients its funding according to the University's strategy, placing particular emphasis on excellence, innovation, and potential for the future.

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