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DECEMBER 2021



# 2021 ANNUAL REPORT

supporting women in engineering









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Report Coordination: Executive Committee

Technical Organization: Executive Committee

Final Writing: Maina Garcia, Emily Yap, Grace Kennedy, Ashley Ansari and Marcella Bernardo

Visual identity and Graphic Design: Rafaella L. P. Peres

https://thewren.global/

# **EXECUTIVE SUMMARY**

he Women's Research Engineers Network (WREN) was launched in April 2021 as a collaboration between early-career researchers at the University of Wollongong (UOW) -Australia, professors from University of São Paulo (USP) and USP Women's Office - Brazil. The WREN was seeded through six months of project funding provided by the Commonwealth through the Council on Australia Latin America Relations (COALAR), which is part of the Department of Foreign Affairs and Trade. The funding was allocated as part of the COALAR 2020-21 Special Grant Round focused on COVID-19 and economic recovery using digital technology platforms to strengthen links between Australia and Latin America.

The WREN was established to support women in engineering throughout their academic careers by fostering international collaborations, which are closely linked to successful grants and promotions. By generating more opportunities for women to find these collaborations, the network's mission is to narrow the gender gap felt by women in engineering careers. The United Nations identifies Gender Equality as Number 5 in its Sustainable Development Goals to transform our world for a better and more sustainable future. In its first year, WREN has successfully launched, and run five online events as webinars and workshops engaging with over 250 women engineering researchers in Australia and Brazil. Key outputs of the project have been new connections between event attendees, a map of potential collaboration and teaching opportunities built by WREN members through workshopping, and a website that will enable members to post, view and build further collaborative relationships. The WREN has also worked hard to establish visibility through its online presence through social media channels and marketing.

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This report presents the WREN's activities held from April to September 2021 and the valuable information collected from each event. It will be presented to the Associate Dean for Equity, Diversity and Inclusion of UOW, to the Provost of Graduate Studies at USP, and to the Provost of Research at USP and to COALAR.

### **The WREN Committee** April-September 2021

Current committee members:



#### Dr Mainã Portella Garcia

Research Fellow - MMMB/EIS -UOW

#### **Dr Marcela** Bernardo Papini

Research Fellow - SMART/EIS -UOW

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Former committe members:

Dr Apsara Jayasekara

Research Associate - School of Engineering Newcastle University



**Dr Emily** 

Yap

Research Engineer -

Industry 4.0

Hub - UOW

#### Dr Vera Lucia Arantes

Full Professor - USP - São Carlos Engineering School



Dr Ms

Grace

Kennedy

Research Fellow

- SMART/EIS -

UOW

#### Dr Janaina Mascarenhas

full professor at USP - São Carlos Engineering School, participated as committee member until July 2021



#### **Dr Ashley** Ansari

researcher fellow at UOW, has joined the committee in August 2021



Ms Prislaine Santos

is an active partner representing USP Women's Office



here has been increased awareness of the gender gap in academia, especially in Science, Technology, Engineering and Maths (STEM) fields. Nevertheless, the change to address this gap happens slowly and inequality still persists. The 'Women in STEM Decadal Plan' from the Australian Academy of Science [reference to go here] lists the numerous career barriers that women face throughout stages of their careers, which cause attrition and impedance of career progression (*Figure 1*).

# WOMEN IN ENGINEERING



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It can be observed that girls from a young age are affected by societal norms and stereotypes, which impact their attitudes towards pursuing a STEM career. By the stage where women in STEM enter academia, the list of barriers widen further, including but not limited to harassment, discrimination, bias, career interruptions and lack of job security.

One specific factor that contributes to increasing gender inequalities in STEM is the fact that women are less likely to achieve a greater social capital in their fields, in other words, supportive professional networks are limited [2]. It is suggested that tertiary education faculties and schools need to target initiatives that can promote women networking, to increase their social capital and boost professional development. At a societal and cultural level, the academic climate needs education strategies for the heavily male-dominated faculties on gender bias and stereotypes [2], leading to normalisation of gender diversity and equity.

Worryingly, the current inequality in academia is being exacerbated due to the impact of COVID-19 in certain groups including female researchers. It appears that women are submitting fewer papers [3] and the subsequent countermeasures for COVID-19 (such as lockdowns) have increased women's family responsibilities disproportionately [4]. The COVID-19 crisis has also disrupted travel to traditional face-toface conferences, which is an important mechanism to spark international collaborations.

The Women's Research Engineers Network (WREN) launched in response to this uncertain climate, and is focused on two goals, to increase women's collaboration and to promote more fruitful academic environments for career development. The network not only connects women researchers in engineering but also acts as a platform where women have their voice recognized, share knowledge, new opportunities and foster collaborations. The network is open for all (women, men or others) who affirm the need for gender equity and ultimately wish to see a change in academia, particularly in engineering schools and faculties where women are in the minority.

During 2O21, the WREN has promoted and delivered a series of five online events. The details of each

**Figure 2:** Infographic showing the proportion of students and staff in terms of gender from Engineering School of São Carlos - Data presented by Dr Edson Cezar Wendland in the WREN 2nd event - Fostering Successfor Women in Engineering event are presented later in this report. The most well-attended event on "Gender Equity - Fostering Success for Women in Engineering" reunited leaders of engineering units (faculties and schools) from the University of Wollongong and University of São Paulo. In that webinar, leaders of each engineering unit presented a candid snapshot of the current situation within their units in terms of enrolment statistics, gender equity strategies and challenges. The information shared during the event is summarized in the following text and infographics.

The first infographic (Figure 2) shows data from Engineering School of São Carlos (EESC), University of São Paulo. A slight increase of female representation can be observed from undergraduate to graduate courses, and a further increase in the entry level of academia (post-doctorate positions). On average, three in ten students are female in undergraduate and graduate courses and the proportion of female postdoctorate positions represent 45% of enrolments. In academic positions the female representation falls significantly, to only 18%, this low representation has stagnated at this level for more than two decades. EESC however shows signs of progression towards gender diverse perspectives at the leadership level, from 2007 to 2011, EESC was led by a female dean for the first time.

#### ENGINEERING SCHOOL OF SÃO CARLOS - USP

#### UNDERGRADUATE

The proportion os female students has not changed much from the past 20 years. Female students are less than 30% of the total 4500 current students at the Engineering scholl of São Carlos







women in master and PhD courses is higher compared to undergraduate, but far from equality

#### RESEARCH

A further increase in women representation is observed in the research activities at Engineering School of São Carlos in the entry level (post Docs position), where 45% are women 55% However, since 1999, the School of São Carlos has not seen any significant difference in the percentage of women academics - in 2019 only 18% of academics were female The Engineering School of Lorena (EEL), the youngest school (founded 2006) of the University of São Paulo, shows (**Figure 3**) a better scenario of female representation: up to 40% in undergraduate and graduate courses. Similar levels of female representation is observed in academic research and teaching positions, which in average is only 39%.

#### ENGINEERING SCHOOL OF LORENA - USP



The Engineering School of São Paulo (EP), also known as POLI, shows (*Figure 4*) the lowest representation of female students in its undergraduate and graduate courses. There is a slight increase from 19% to 26%, respectively. Also, a significant gap in leadership position is observed at POLI. Only 9% of all full professors are female and it took 124 years for the Engineering School of Sao Paulo to be led by a woman. **Figure 4:** Infographic showing the proportion of students and staff in terms of gender from Engineering School of São Paulo - University of São Paulo - Data presented by Dr Liedi Légi Bariani Bernucci in the WREN 2nd event - Fostering Successfor Women in Engineering

Figure 3: Infographic showing the proportion of students and staff in terms of gender from Engineering School of Lorena, both part of the University of São Paulo - Data presented by Dr Silvio Silverio da Silva in the WREN 2nd event -Fostering Successfor Women in Engineering

#### UNDERGRADUATE



# ENGINEERING SCHOOL OF SÃO PAULO (EP) - USP



GRADUATE

representation of females students increase for high degree. However, normally the total number of graduate students is a lot less compared to undergraduate students RESEARCH & TEACHING

> only in 2000 POLI had its female full professor

#### only 9%

of the highest academic position (full professor) is occupied by women at the Engineering School of São Davide (DOL I) LEADERSHIP

the Engineering School of São Paulo (POLI) took



to elected the first women to act as dean. Prof Liedi Légi Bariani Bernucci is the first and current dean.



The Faculty of Engineering and Information Sciences (EIS), University of Wollongong (*Figure 5*), also shows a significant gap in female representation. In the undergraduate courses, only 16% are female. Although, the female proportion increases for graduate courses, reaching 40% in commencing students in 2020 and 31% in degree completion. The infographic shown in Figure 3b illustrates the well-known 'leaky pipeline' effect – where representation of females decreases significantly in senior academic positions. At the entry level (Level A), the representation of female academics is around 37%, but, at the highest academic level (Level E – senior professor), only 11% are female. From 2018-2021 EIS was led by a female dean for the first time.



EESC - USP EEL - USP EP/POLI - USP EIS - UOW

Figure 6: Proportion of female representation comparison

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In summary, the data shows that the gender gap in engineering departments exists and intensifies along the career levels (Figure 6). The universities must work on different fronts to tackle this problem. Actions to attract more female students to engineering courses, although important, is not sufficient. Policies and initiatives are essential to decrease the gap the progresses through the academic levels. The next section shows the initiatives in place listed by the leadership of each university during the WREN's event, "Gender Equity – Fostering Success for Women in Engineering".

# Initiatives – in the engineering academic workplace units

A list of initiatives promoting gender equity from both universities (UOW and USP) were collected from WREN's second event and are presented in table 1. Despite the current snapshot demonstrating the gender gap highlighted in the previous section, both universities acknowledge this situation and are implementing, or planning short and longer-term strategies to enact change and actively pursue gender equity.

UNIV	ERSITY INITIATIVE	TARGET GROUP
USP	The Mother Research Program aims to reduce the economic vulnerability of Graduate female students during the COVID-19 pandemic. The program offered 73 short-term grants to Graduate female students on parental leave. Another 25 Graduate female students had their existing research grants extended for 2 months (Not all of them belong to STEM faculties). This initiative also covered 3 male students	Female students who require parental leave
USP	Regimental changes with new policies that retain female academics in Graduate Programs during periods that include pregnancy and maternity leave	Female academics
USP	<ul> <li>Increasing visibility to Women in Science:</li> <li>USP Black, Latin American and Caribbean Women Meeting</li> <li>1st Graduate Meeting of USP - "Women do science"</li> <li>Campaign of the International Day of Women and Girls in Science</li> <li>Journeys of Women in Science and Awards to female researchers at USP for their contributions facing COVID-19</li> </ul>	Students, faculties and academics
USP	<ul> <li>Feminism network between engineering students:</li> <li>Coletivo Feminista Enedina Alves Marques (Lorena)</li> <li>Coletivo Mulheres da CAASO (São Carlos)</li> <li>Participation and leadership of female students in school councils</li> <li>Promoting discussions about Diversity, Inclusion and also about how to face harassment</li> </ul>	Female students and academics
USP	<ul> <li>Encouraging young girls:</li> <li>USP e as Profissões (careers)</li> <li>Visiting high schools and receiving their students at the engineering school</li> <li>Scientific research program</li> <li>She in Engineering - project involving girls from high-school</li> </ul>	Young girls and female students
USP	<ul> <li>Fostering women in leadership positions:</li> <li>Encouraging Posdoctoral women to become faculty members</li> <li>Encouraging women professors to run for the head of Departments</li> <li>Inviting women among the faculty members to be part of committees and also to preside some of them</li> </ul>	Early and mid- career academics

UNIVE	RSITY	TARGET GROUP
UOW	An Associate Dean EDI (Equity, Diversity & Inclusion) and an EDI Champion in every School, ensuring women and other underrepresented groups are welcomed & celebrated and form a key part of our fabric & culture. The EDI Committee overlool Gender equality, Indigenous strategy, Disability inclusion, LGBTQI+ inclusion, Cultur diversity, and Support for Early-mid career researchers	Minority groups
uow	Recruitment initiatives If there is no female applicant, then the job is re-advertised. In response of the s126 Guideline of the Anti-Discrimination Act 1977 (NSW) to target women, transgender and/or gender diverse candidates.	Female academics
UOW	Support in Promotion process from the Executive Dean, targeting women at the top their level for the past 3 years. A personal engagement is carried out	o of Female academics
UOW	Support for career interruptions. UOW offers Parental Leave for new mothers or fathers, which provides equal opportunities for parents of either gender to have flexibility to decide how to share the responsibilities as a primary carer or return to work post-maternity leave	Female & Male academics
UOW	Workplace flexibility arrangements that support all genders	All genders
UOW	Networking – Monthly EIS women academic lunch <b>Linking Women Network</b> : <u>https://intranet.uow.edu.au/pods/linkingwomen/index.html</u> <b>Leadership Program for Senior Academic Women</b> : <u>https://intranet.uow.edu.au/pods/</u> <u>senioracademicwomensleadershipprogram/index.html</u>	Female academics & students
	WREN: <u>https://thewren.global/</u> UOW Women in STEM - Club run by students for students and women in the workforce <u>STEM Camp for Girls - University of Wollongong - UOW</u>	



# WHAT MORE CAN WE DO?

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Engineering is a profoundly creative profession. As any creative profession, what comes out is a function of the life experience of the people who do it. Without diversity the set of life experiences brought to bear on a particular problem are limited. As a result society pays an opportunity cost - a cost in products not built, in designs not considered, in constraints not understood, and in processes not invented" [5]

The former president of the National Academy of Engineering, William W. Wulf, has beautifully pondered the importance of diversity in Engineering. He wrote:

# This citation reminds us of the importance of lasting action to address gender inequity.

STEM disciplines are directly correlated to a sustainable development and life quality of a population and its economy - knowing that STEMrelated jobs have relatively high remuneration compared to other professions. The lower representation of women in STEM violates the general principle of justice and quality, weakens scientific production, and perpetuates the already existing gender inequality in relation to status and income. The United Nations report [6] estimates that the increase of women in STEM will have a great impact through increasing the Gross Domestic Product (GPD) per capita of countries.

Consequently, as a society, we are all losing when engineering schools and faculties have only 9 to 12% of women in leadership roles. To that extent, the WREN committee has selected



some actions that should be considered and implemented in both universities to improve gender equity. The WREN will:

1. Bring awareness of grant schemes that may have opportunities for improvement in terms of gender equity and policies to tackle the factors preventing women from career advancement.

2. Members will be encourage to assess the data related to opportunities in engineering at their universities in order to measure how they are being distributed between men and women.

3. Bring discussion of structural changes in engineering schools and faculties.

Gender inequity at universities is a complex and multifaceted problem. Therefore, to tackle such problem, it is necessary to implement a range of systematic actions and structural changes. The actions listed below are a collected from different sources, including the Early and Mid-career Researcher Forum of the Australia Academy of Science report [7].

#### UNIVERSITY OF WOLLONGONG:

- Associate Dean of Equity, Diversity & Inclusion (EDI) to participate in all internal grants schemes.
- Participation of early and mid-career researchers in the EDI committee.
- Open access to gender data related to grant schemes, restructures, COVID-19 impact, etc.
- Discussion around quotas to guarantee an equitable distribution of internal UOW grants, in the Engineering faculty.

#### UNIVERSITY OF SÃO PAULO:

- Implementation of a Gender Equity Committee similar to the committee established in UOW.
- Establish an internal policy to encourage multidisciplinary projects that aims to attract young girls to STEM, from high school to graduates.
- Create academic and industry mentoring program in STEM areas for USP academics and staff.
- Implement policies aiming to increase diversity in research groups, international and national collaborations & exchange, as well as grants targeting minority groups.
- Structure a program targeting diversity representation in leadership positions in all career levels.

# **ACTIVITIES IN 2021**

The network has promoted five online events and a website. Each event had participation and contributions from Australia and Brazil.

#### EVENT 1: Research Engineering in Australia & Brazil

The WREN's inaugural event titled "Research Engineering in Australia & Brazil - Connecting and collaborating to shape the future" was held on the 24/25th May 2O21. The purpose of the event was to introduce the educational system of each country and present current collaborations and future opportunities.

#### Speakers:

- Associate Prof. Montse Ros Dean of Teaching, Engineering & Information Sciences, University of Wollongong
- Associate Prof. Roseli de Deus Lopes Deputy Director of the Institute of Advanced Studies, University of São Paulo

	AUSTRALIA	BRAZIL	TOTAL	
No. registrations	15	99	114	
No. Attendees	5	38	44	-

#### Summary:

- The Women's Research Engineers Network (WREN) Inaugural event - YouTube
- The event was an opportunity for members of the network to understand the educational system of each country and to get to know existing opportunities. Mutual understanding is the very first step to collaboration.



#### EVENT 2: Gender Equity - Fostering Success for Women in Engineering

The event was held on the 28/29th June 2021. The purpose of the event was to raise awareness of the gender gap in engineering and showcase women initiatives within the organizations. The data showing the disparity of women in engineering was summarised and was presented earlier in this report.

#### Speakers:

- Dr Mark Freeman Senior Lecturer of School of Computing & Information Sciences and Associate Dean (Equity, Diversity and Inclusion), University of Wollongong
- Prof. Dr. Maria Arminda do Nascimento Arruda
   Coordinator of USP Mulheres (Women's Office), University of São Paulo
- Prof. Dr. Silvio Silverio da Silva Dean of Engineering School of Lorena, University of São Paulo
- Prof. Dr. Edson Cezar Wendland Dean of Engineering School of São Carlos, University of São Paulo
- Prof. Dr. Liedi Légi Bariani Bernucci Dean of Engineering School, University of São Paulo



	AUSTRALIA	BRAZIL	TOTAL
No. registrations	25	102	117
No. Attendees	12	66	80

#### Summary:

- Fostering Success for Women in Engineering-Striving for Gender Equity - Part 1 - YouTube
- Fostering Success for Women in Engineering-Striving for Gender Equity - Part 2 - YouTube
- This event was extremely important as it highlighted the gender gap in each institution and the responses of each engineering department to narrow the inequalities. It was also an opportunity to celebrate women's valuable work in the engineering departments - many related to COVID-19 recovery, and as leaders in academia and workplace.

#### EVENT 3: Research & Teaching Networking – Sparking Collaborations for a Sustainable World

The WREN's third event was held on the 30/31st August 2021. The purpose of this event was to learn how research and teaching are aligned with the United Nations Sustainable Development Goals and to kick off WREN members' networking.

Speakers:

- Prof. Jennifer L. Martin Deputy Vice-Chancellor (Research and Innovation), University of Wollongong
- Ms Lia Sherwood Research Development and Impact Manager, University of Wollongong
- Dr Belinda Kathlyn Gibbons Senior Lecture Faculty of Business and Law, University of Wollongong
- Prof. Vera Lúcia Arantes Coordinator of Materials Engineering Undergraduate Course at EESC - University of Sao Paulo

	AUSTRALIA	BRAZIL	TOTAL
No. registrations	13	76	89
No. Attendees	19	19	38

#### Summary:

This was an opportunity for the network members to discuss and present their research, teaching interests and how they related to the SDGs. Some connections and possible collaborations were sought. One of the WREN outcomes is that this networking can progress through next events and website.

#### EVENT 4: Feminisms – Why engineers (and everyone) should care?

The event was held on the 3O/31st August 2O21, the opening of the seminar had the distinguished participation of Professor Patrícia M. Davidson, vice-chancellor of the University of Wollongong, and Professor Vahan Agopyan, president of the University of São Paulo. During the lectures, sociologists from both universities spoke about how feminisms impacted and still impact societies.

Speakers:

- Prof. Patricia M. Davidson Vice-Chancellor, University of Wollongong
- Prof. Vahan Agopyan President, University of São Paulo
- Dr Quah EE Ling Senior Lecturer in Sociology, University of Wollongong
- Prof. Eva Alterman Blay Emeritus professor at the University of São Paulo

	AUSTRALIA	BRAZIL	TOTAL
No. registrations	43	43	86
No. Attendees	31	32	63

#### Summary:

- Feminisms Why Engineers (and everyone)
   Should Care? Youtube
- The speakers brought perspectives from Australia and Brazil in terms of feminisms and highlighted the current scenario.



#### EVENT 5: Career Development Workshop

The event was held in two days 1st and 2nd December 2O21, under the moderation of Dr Shelda Debowski. Shelda guided the participants to reflect on their career strategy and create a roadmap to career success. Academics at all levels, and research students (PhD and Masters level) were welcomed

	AUSTRALIA	BRAZIL	TOTAL
No. registrations	23	25	48

## IMPACT STATEMENT

The WREN committee has submitted proposals to three other grants:

 I. Australia-ASEAN 2021 round. This project aims to expand the WREN to ASEAN.

 2. Teaching & Learning UOW internal grant. This project aims to integrate female role models into the engineering curriculum. First and second year students will be exposed to successful female engineers (alumni, local and international participation).

 3. National Science Week 2022 Grant. This project's goal is to encourage high school students from regional schools to participate in science activities and, through a strong female representation, it also aims to inspire young girls' participation in STEM. Collaboration between the WREN and the Industry 4.0 Hub, UOW.

Another proposal involving the University of São Paulo were selected in the Women in Science: UK-Brazil Gender Equality Partnerships Call by The British Council. The WREN seminars, as well as other USP initiatives, helped to increase the visibility of women researchers in the STEM



fields and highlight this gender gap, inspiring new proposals for broader gender equity.

The WREN committee attended the IEEE Women in Engineering (WIE) NSW Affinity group to build links between the two networks. Both groups serve a similar demographic, but the WREN focuses on engineering academics, whereas the scope of IEEE WIE covers women in engineering across all sectors. Discussions were productive, and we will look to engage for synergistic, joint WREN-IEEE events and mutual publicizing of each network's activities in 2022.

The WREN committee was invited to the Women in Engineering Illawarra talk organized by

the Illawarra Sutherland Regional Group of Engineers Australia to present the members research and career paths. The audience of this event is women engineers in their early- and mid-career paths, industry leaders, undergraduate and graduate women in engineering, and possibly female high school students who are keen to pursue a career in engineering – event happening in Dec 2021 (affected by COVID restrictions).

WREN initiative has been presented in the "I Congresso USP de Cultura e Extensão" - <u>https://</u> <u>prceu.usp.br/congresso/</u>, which is an internal USP conference, which brings together cultural and societal initiatives within USP.

# MEDIA ENGAGEMENT

#### **ONLINE ARTICLES:**

Jornal da USP ———	https://jornal.usp.br/artigos/ mulheres-nas-areas-stem-da- usp-e-a-busca-pela-equidade/
Jornal da USP	<u>https://jornal.usp.br/artigos/a-</u> guerra-contra-o-genero/
News piece UFOP website	https://caint.ufop.br/read/1376-rede-australiana-de- engenheiras-convida-para-quarto-seminario-online- feminisms-why-engineers-and-everyone-should-care
Jornal da USP	https://jornal.usp.br/institucional/ reitor-participa-de-evento- promovido-por-rede-internacional- de-pesquisadoras-em-engenharia/
Jornal da USP	<u>https://jornal.usp.br/universidade/engenheiras-</u> debatem-oportunidades-no-ensino-e-pesquisa- que-promovam-mundo-sustentavel/
Jornal da USP	https://jornal.usp.br/universidade/seminario- internacional-debate-iniciativas-para- iaualdade-de-aenero-na-enaenharia/





#### ONLINE ARTICLES:

UOW Universe	<u>https://www.uow.edu.au/</u> media/2021/engineering-better- opportunities-for-women
Article on UOW Research and Innovation Magazine —	- <u>https://www.uow.edu.au/research-</u> <u>and-innovation/magazine/2021/</u> <u>tackling-gender-inequality-</u>
BROADCASTING MEDIA:	through-a-global-pandemic.pnp
ABC Radio interview	https://uowmailedu-my.sharepoint. com/:v:/g/personal/marcella_uow_edu_au/ EeCyyhKuT2dCpIJngNAndCMBkGkFaSw_3kkZLnxAV_ aQYg?e=nwy5H6_
UOWTV	https://fb.watch/5SJvfnUAhV/

Interview with the UNSW Women in \_\_\_\_\_ Maths and Science Champions Program Blog

https://blogs.unsw.edu.au/ mathssciencechampions/ blog/2021/07/introducing-wrenconnecting-women-engineers-inbrazil-and-australia/

#### PRINT MEDIA:

Illawarra Mercury -

https://www.illawarramercury.com.au/ story/7267636/uow-team-engineering-moreopportunities-for-women/?cs=300&fbclid=lw AR3Hx1t6HzNdfzM7qJ-i8-03JewaXL2udSUc BdhyMgFDCh4T6KwQBTabdP8



### REFERENCES

Øu3

- Science, A.A.o., Women in STEM Decadal Plan (Australian Academy of Science). 2019.
- [2] Casad, B.J. and e. al, Gender inequality in academia: Problems and solutions for women faculty in STEM. Journal of Neuroscience Research, 2021. **99**: p. 13-23.
- [3] Kitchener, C., Women academics seem to be submitting fewer papers during coronavirus. 'Never seen anything like it,' says one editor, in The Lily. 2020: <u>https://www. thelily.com/women-academics-seem-to-be-submittingfewerpapers-during-coronavirus-never-seen-anythinglike-it-says-one-editor/</u>.
- [4] Nash, M. and B. Churchill, Caring during COVID-19: A gendered analysis of Australian university responses to managing remote working and caring responsibilities. Gender Work Organ, 2020. 27: p. 833-846.
- [5] WULF, W.W., *Diversity In Engineering*. Leadership Manage. Eng., 2001. 1(4): p. 31-35.
- [6] Bello, A., Las mujeres en ciencias, tecnología, ingeniería y matemáticas en América Latina y el Caribe. 2020: ONU Mujeres.
- Dunstone, M. and B. Williamson. Gender Equity: Current issues, best practice and new ideas. 2013.

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