**ERCIM**
European Research Consortium
for Informatics and Mathematics

# Scientific Report

| | |
|---|---|
| First Name / Family Name | Jose David / Paton Romero |
| Nationality | Spanish |
| Name of the *Host Organisation* | Norwegian University of Science and Technology (NTNU) |
| First Name / Family Name of the *Scientific Coordinator* | Letizia / Jaccheri |
| Period of the Fellowship | 01/09/2021 to 31/08/2022 |

## I – SCIENTIFIC ACTIVITY DURING THE FELLOWSHIP

The research conducted during this *ERCIM Postdoc Fellowship* was framed in the fields of social sustainability and Information Technology (IT), with a special focus on understanding the interplay of the gender perspective in and by IT.

In this regard, several analyses of the state of the art of these areas have been performed, establishing the foundations to identify and define the best practices that should be considered so that gender challenges are addressed through the perspective of social sustainability both in and by IT. This kind of best practices have meant the development of the fourth version of the *"Governance and Management of Green IT"* (GMGIT) (https://green-it-gmgit.github.io), which is currently being validated and refined through empirical case studies in organizations at international level.

Through the new version of the GMGIT, the aspects and best practices related to social sustainability that must be considered in IT processes have been established, thus helping organizations to implement, evaluate/assess, and improve the governance and management of Green IT from this new perspective. The proposal of the GMGIT 4.0 and the results obtained through the case studies will be published after the validations that are currently being conducted.

In addition to the main research, the *Fellow* also co-supervised two Master's Theses related to gender balance/equality in IT and software processes and in tech entrepreneurship. Through these supervisions, the *Fellow* also encouraged and worked with the students to publish the results they obtained, nourishing the development of his main research, as well as establishing the foundations for future research and developments in these areas.

Likewise, in relation to the research performed on gender balance in and by IT, the *Fellow* has become a member of the *European Network for Gender Balance in Informatics* (EUGAIN) (https://eugain.eu/). He is part of the Working Group 4, providing his knowledge and experience to involve industry and society to achieve gender balance in IT. In addition, it is important to emphasize

that the *Fellow* has also been one of the organizers of the *1st International EUGAIN Summer Training School (EUGAIN-STS 2022)*, which was held in June in Lugano, Switzerland.

Finally, in general terms, in the frame of this *ERCIM Postdoc Fellowship*, the *Fellow* has made 8 publications (4 published and 4 under review), has co-supervised 2 Master's Theses, has given 3 seminars, has co-organized 1 training school, has attended 9 conferences (presenting papers in 4 of them and being session chair in 3 tracks of 2), and has participated in person in 2 meetings of the EUGAIN network. In the same way, thanks to the *ERCIM "Alain Bensoussan" Fellowship Program*, the *Fellow* has increased his network in NTNU and Norway (which has led him to obtain a new position as a researcher in Oslo), as well as in Greece, through the Research Exchange Program performed, establishing the connections for the development of future collaborations.

# II – PUBLICATION(S) DURING THE FELLOWSHIP

## Papers Published

[1] **Patón-Romero, J. D.** & Løvås, I. V. A Proposal to Develop Software to Prevent Young People to Acquire Extremist Beliefs. In: *10th International Conference on Sustainable Development (ICSD 2022)*, 2022.

[2] **Patón-Romero, J. D.**, Vinuesa, R., Jaccheri, L., & Baldassarre, M. T. Artificial Intelligence and Gender Equality: A Systematic Mapping Study. In: *15th International Conference on ICT, Society and Human Beings (ICT 2022)*, 2022, pp. 120–130.

[3] Wiken Wilson, A. & **Patón-Romero, J. D.** Gender Equality in Tech Entrepreneurship: A Systematic Mapping Study. In: *3rd Workshop on Gender Equality, Diversity, and Inclusion in Software Engineering (GE@ICSE 2022) at the 44th International Conference on Software Engineering (ICSE 2022)*, 2022.

[4] **Patón-Romero, J. D.** & Jaccheri, L. hUGe2: An Interdisciplinary Research Program for Sustainability. In: *1st International Workshop on Data Science for Equality, Inclusion and Well-being Challenges (DS4EIW 2021) at the 2021 IEEE International Conference on Big Data (IEEE BigData 2021)*, 2021, pp. 4303–4306. https://dx.doi.org/10.1109/BigData52589.2021.9671375

## Papers Under Review

[1] **Patón-Romero, J. D.**, Vinuesa, R., Jaccheri, L., & Baldassarre, M. T. State of Gender Equality in and by Artificial Intelligence. *IADIS International Journal on Computer Science and Information Systems (IJCSIS)*, 2022.

[2] **Patón-Romero, J. D.**, Block, S., Olssen, H., & Jaccheri, L. Gender Balance in Software Engineering Processes: An Empirical Study. *Empirical Software Engineering*, 2022.

[3] **Patón-Romero, J. D.**, Block, S., Ayala, C., & Jaccheri, L. Gender Equality in Information Technology Processes: A Systematic Mapping Study. In: *Future of Information and Communication Conference (FICC 2023)*, 2023.

[4] **Patón-Romero, J. D.**, Block, S., Olssen, H., & Jaccheri, L. Dev-Balance: Improving Gender Balance in Software Development Processes. In: *Damian, D., Blincoe, K., Ford, D., Serebrenik, A., Masood, Z. (Eds.). Equity, Diversity, and Inclusion in Software Engineering: Best Practices and Insights. Apress, New York, NY, USA, 2023*.

# III – ATTENDED SEMINARS, WORKHOPS, CONFERENCES

## Seminars Taught

[1] **Patón Romero, J. D.** Governance and Management of Green IT. Seminar at: *Industrial Systems Institute (ISI)*, Patras, Greece, July 8th, 2022.

[2] **Patón Romero, J. D.** Governance and Management of Green IT. Seminar at: *X Encuentro Regional de Semilleros de Investigación*, Universidad Cooperativa de Colombia (UCC), Cali, Colombia, April 28th, 2022. *(Online)*

[3] **Patón Romero, J. D.** Governance and Management of Green IT. Seminar at: *Norwegian University of Science and Technology (NTNU)*, Trondheim, Norway, April 1st, 2022.

## Training Schools Organized & Attended

[1] 1st International EUGAIN Summer Training School (EUGAIN-STS 2022), Lugano, Switzerland, June 6th-8th, 2022.

## Conferences & Workshops Attended

[1] 10th International Conference on Sustainable Development (ICSD 2022), Online, September 7th-8th, 2022.

[2] 15th International Conference on ICT, Society and Human Beings (ICT 2022), Portugal, Lisbon, July 19th-21st, 2022.

[3] 44th International Conference on Software Engineering (ICSE 2022), Pittsburgh, PA, USA, May 22nd-27th, 2022.

[4] 3rd Workshop on Gender Equality, Diversity, and Inclusion in Software Engineering (GE@ICSE 2022), Online, May 20th, 2022.

[5] Trondheim Tech Port Conference 2022, Trondheim, Norway, March 28th, 2022.

[6] 1st International Workshop on Data Science for Equality, Inclusion and Well-being Challenges (DS4EIW 2021), Online, December 15th-18th, 2021.

[7] 12th International Conference on Software Business (ICSOB 2021), Online, December 2nd-3rd, 2021.

[8] 33rd Norwegian ICT Conference for Research and Education (NIKT 2021), Trondheim, Norway, November 29th - December 2nd, 2021.

[9] 8th ACM Celebration of Women in Computing (womENcourage 2021), Online, September 22nd-24th, 2021.

## COST Action Meetings Attended

[1] EUGAIN Working Groups Meeting, Oulu, Finland, June 13th-14th, 2022.

[2] EUGAIN Working Groups Meeting at the Women in Informatics Research and Education Workshop in conjunction with 17th European Computer Science Summit (ECSS 2021), Madrid, Spain, October 26th-28th, 2021.

## Session Chair in Conferences

[1] *"Sustainability and Learning"* track at the 44th International Conference on Software Engineering (ICSE 2022), Online, May 12th, 2022.

[2] *"Teaching and Productivity"* track at the 44th International Conference on Software Engineering (ICSE 2022), Online, May 11th, 2022.

[3] *"Software Sustainability"* track at the 12th International Conference on Software Business (ICSOB 2021), Online, December 2nd, 2021.


# IV – RESEARCH EXCHANGE PROGRAMME (REP)

The Research Exchange Program (REP) was conducted during July 2022 at the *Industrial Systems Institute (ISI)* in Patras, Greece, with the Dr. Georgios Mylonas.

During this REP, the *Fellow* made a seminar, titled *"Governance and Management of Green IT"*, to an audience consisting of ISI staff and collaborating researchers, as well as colleagues from the Athena Research Center and Greek Universities.

Likewise, the *Fellow* had a series of meetings with the Director and several researchers from ISI, through which different topics related to research and ideas for future collaborations were discussed. In fact, the collaboration between both parties will continue since work is being done on the submission of a joint proposal for a research project.