Report

D4.3 Final report on activities targeted for Early Stage Researchers

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Executive Summary

The OLISSIPO project actively provided comprehensive training to Early Stage Researchers (ESRs), creating a critical mass at the convergence of computer science and health research. Beyond individual development, the initiative sought to fortify collaborative networks by enhancing proficiency in theoretical modeling, computer science, and statistical learning.

Beyond staff exchanges, the project organized several activities dedicated to ESRs, namely schools, workshops and invited lectures, which contributed to enhancing the scientific profile of ESRs (see details in *Deliverable 2.4 - Final report on organized joint events, schools, workshops and conferences*). Additionally, the project supported ESRs' participation in different scientific courses and conferences, such as Courses on Computational Data Analysis, Cancer Genomics, and Computational Biology. In addition, the project also promoted their participation in courses and workshops in the areas of Project Management, Communication, Proposal Writing, Human Resources, Data Management Plan and Research Ethics.

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1. Introduction

The main aim of WorkPackage (WP) 4 of the OLISSIPO project is to sharpen the research profile of INESC-ID. Profiting from the existing staff exchange programme (WP1), Early-Stage Researchers (ESRs) are invited to visit the other Twinning partners, get to know the other's work, discuss ideas and establish new collaborations. The project also supports the participation of ESRs in external courses, workshops, national and international conferences and meetings. In addition, OLISSIPO promotes several training courses. Deliverable 4.1 described the main planned ESR training programme and Deliverable 4.2 the midterm report on ESRs-targeted activities. Importantly, this was complemented by management training in project management, communication, proposal writing, human resources, data management planning and research ethics.

1.1 Deliverable objective

This deliverable outlines the final report on the activities targeted for ESRs over the entire project duration.

2. Report on activities targeted for Early Stage Researchers

2.1. Scientific internships and exchanges

Profiting from the existing staff exchanges, ESRs had the opportunity to visit the Twinning partners (see *D1.3 - Final report staff exchanges*). These visits were crucial to getting to know the other institutions and teams, learning more about the work developed on similar topics, discussing new ideas, and establishing future collaborations.

2.2. Scientific courses and workshops

OLISSIPO has been supporting ESRs' participation in external courses, workshops, international conferences, and other meetings to leverage the scientific excellence of INESC-ID and Instituto Superior Técnico (IST).

2.2.1. Computational Data Analysis Course

OLISSIPO supported the participation of Carolina Peixoto, an INESC-ID ESR, in the Computational Data Analysis Course, held online between 20-27 May 2021, at the University of Minho, Portugal. This 7-day hands-on advanced course was intended for students and researchers of biological/biomedical fields who may have basic knowledge of statistics and data

analysis but want to learn the basics of fundamental advanced computational techniques to analyze large complex data sets.

2.2.2. Computational Biology Course

The ESR José Basílio and Mónica Silva from INESC-ID participated in this online course, promoted by the Centre for Neuroscience and Cell Biology, between 28 February and 4 March 2022. Its main aim was to provide an overview of different subarea techniques in Computational Biology.

2.2.3. The Gulbenkian Training Programme in Bioinformatics - Precision Oncology

The INESC-ID ESR Mónica Silva participated in this course, between 9 - 13 May 2022, at Instituto Gulbenkian Ciência, whose main is to present a complete computational pipeline for the analysis and interpretation of NGS data such as exome sequencing or targeted panels that are commonly used in the clinic.

2.2.4. CSAMA 2022

From 19 – 24 June 2022, the ESRs João Aparício and Mónica Silva from INESC-ID participated in this one-week intensive course, held in Brixen, Italy, on Statistical Data Analysis for Genome-Scale Biology teaches statistical and computational data analysis of multi-omics studies in biology and biomedicine. It comprises lectures covering underlying theory and state of the art, and practical hands-on exercises based on the R / Bioconductor environment. The course is intended for researchers who have basic familiarity with experimental technologies and their applications in biology and are interested in making the step from a user of bioinformatics software towards adapting or developing their own analysis workflows.

2.2.5. Machine Learning in Science Workshop

On 23 – 24 June 2022, the INESC-ID ESRs Carolina Peixoto and José Peixoto participated in this meeting promoted by CEAUL/FCT and held online. Carolina presented her work. The aim of this workshop is to bring together researchers from different areas of science, where they present their recent achievements in machine learning.

Figure 1. Mónica Silva and João Aparício with Prof. Wolfgang Huber and the EMBL project manager at CSAMA 2022.

2.2.6. Tidy Genomics Analysis Workshop

On 12 December 2022, José Basílio participated online in the Tidy Genomics Analysis workshop on Tidy single-cell and bulk transcriptomics and Tidy enrichment with plyranges and nullranges.

2.3. International Conferences

2.3.1. Cancer Genomics

Carolina Peixoto, an INESC-ID ESR, participated in this conference, promoted by EMBL and held online from 22 – 24 November 2021, to learn about and keep up to date with the rapidly progressing area of cancer genomics. It covered presentations from cancer genome projects, the areas of cancer functional genomics, systems biology, cancer immunogenomics and epigenomics, cancer mouse models and the translation and clinical impact of the obtained scientific results.

2.3.2. ISMB/ECCB'2021

The annual International Conference on Intelligent Systems for Molecular Biology (ISMB) and the European Conference on Computational Biology (ECCB), organised by the International Society for Computational Biology (ISCB) are the world's largest bioinformatics and

computational biology conferences. ISMB/ECCB'2021 provided an intense multidisciplinary forum for disseminating the latest developments in bioinformatics and computational biology. Carolina Peixoto participated online in this conference from 25-30 July 2021, which fostered dialogues, collaboration and learning opportunities.

2.3.3. Joint Meeting on Vascular Biology, Inflammation and Thrombosis 2022

On 1 June 2022, the ESR José Basílio participated in this meeting, held in Vienna and online, with a scientific poster entitled: "Bioinformatic support by the Coordination Project". This meeting was important to exchange ideas and create successful collaborations between young and established scientists working in the field.

2.3.4. 21st EPIA Conference on Artificial Intelligence

The ESR Beatriz Leitão presented her work at this event held on 31 August 2022 at IST. Entitled "Comparative evaluation of classification indexes and outlier detection of microcytic anemias in a Portuguese sample", this work was a collaboration between Prof. Susana Vinga with Prof. Paula Faustino from Instituto Ricardo Jorge.

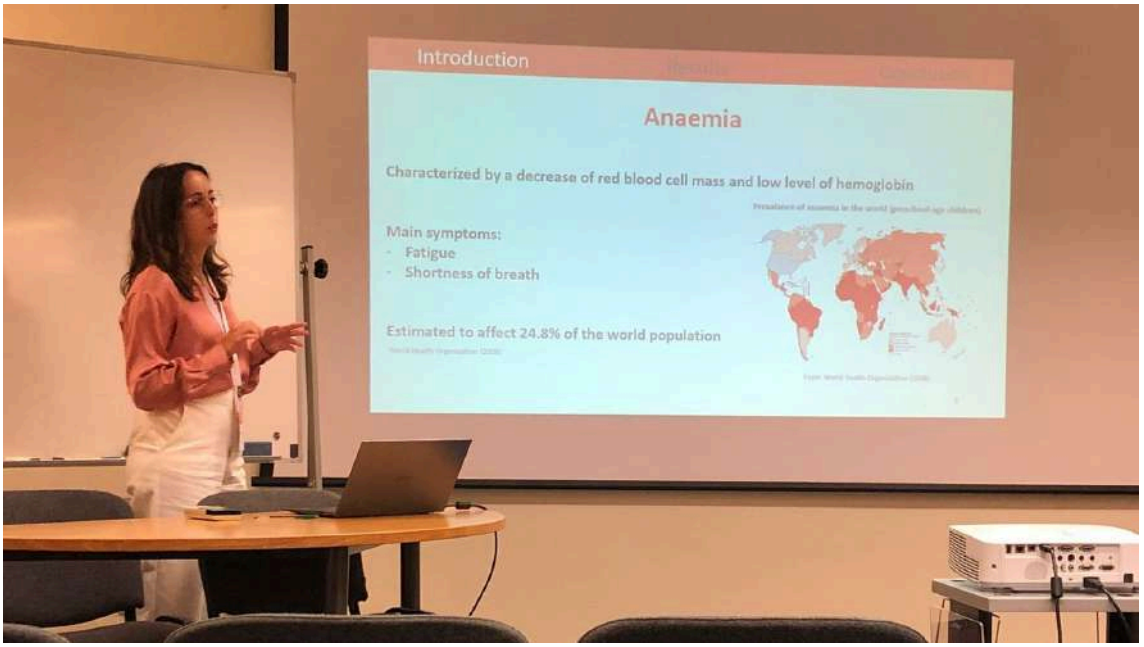

Figure 2. Beatriz Leitão at EPIA Conference in IST. with Prof. Wolfgang Huber and the EMBL project manager at CSAMA 2022.

"EPIA 2022 allowed me to open horizons in regard to the area of Artificial Intelligence and its potential in the future of humanity, through its multiple applications in various sectors of society. In addition to the scientific knowledge acquired, it was also possible to experience the importance of sharing experiences

between researchers/students as an accelerator of their projects, proving to be an extremely enriching experience." - Beatriz Leitão, ESR

2.3.5. IGC Symposium - [3C] Cells, Computers & Clinics

José Basílio presented his work in this event, held at IGC between 26 – 28 October 2022, entitled "Integrative Single Cell analysis of atherosclerotic arteries to identify unknown cellular identities.

Figure 3. José Basílio presenting at IGC Symposium in 2022.

2.3.6. PhD Open Days

On 14 – 16 November 2022 at IST, José Basílio presented a poster of his work, a collaboration between INESC-ID and the Medical University of Vienna.

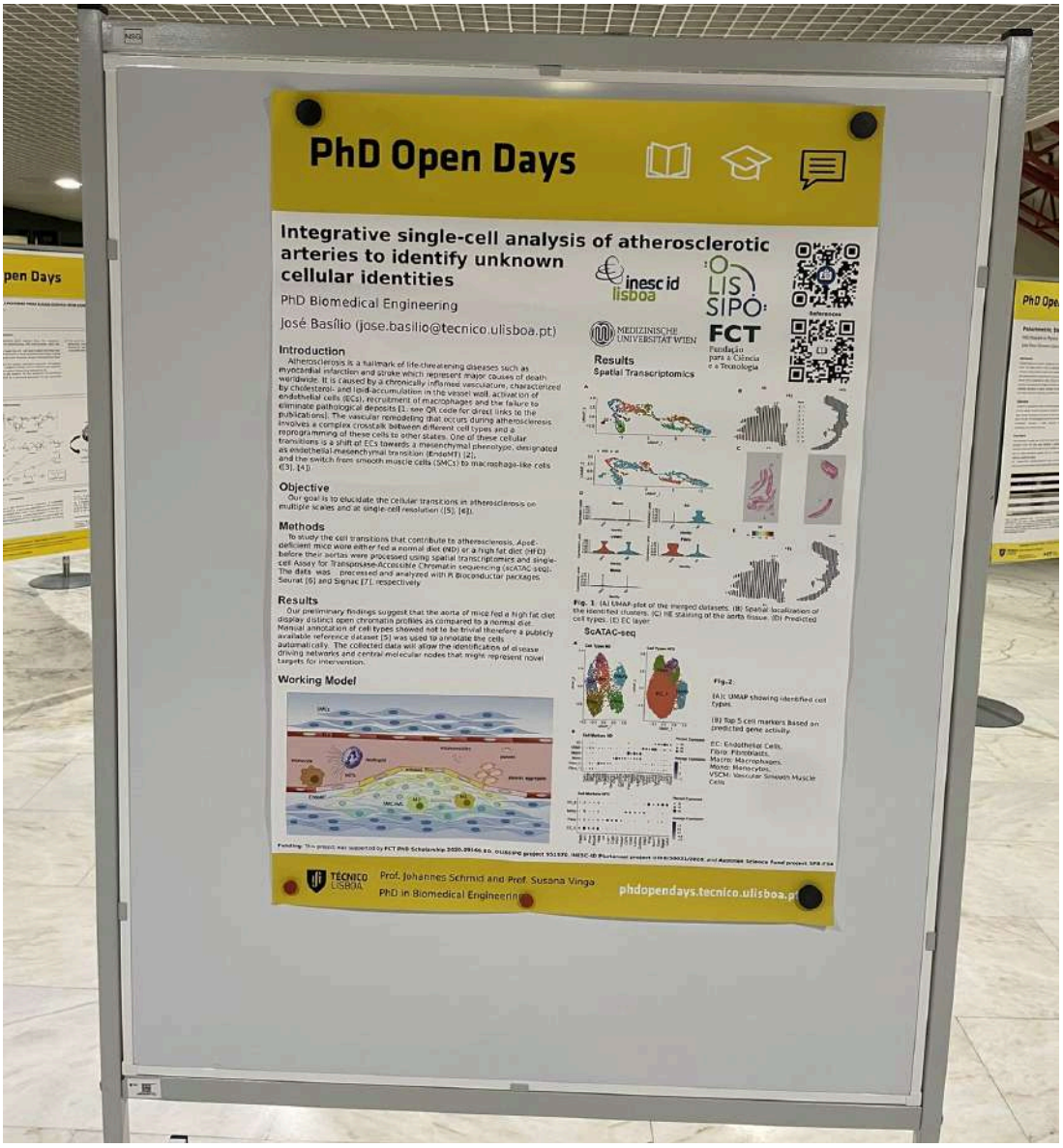

Figure 4. Poster of José Basílio representing OLISSIPO at IphD Open Days in 2022.

2.3.7. 22nd EPIA Conference in Artificial Intelligence

The INESC-ID ESR Ana Rita Baião presented her work at this annual AI conference, which was held on 5 September 2023 in Faial, Azores.

Figure 5. Ana Rita Baião giving a talk on EPIA Conference in Artificial Intelligence 2023.

2.3.8. The 9th International Conference on Machine Learning, Optimization, and Data Science

On September 22 – 26, 2023, Filipe Ferras (ESR) presented his work at the conference LOD'2023 — The 9th International Conference on Machine Learning, Optimization, and Data Science (Grasmere, Lake District, England) on Comparative Analysis of Machine Learning Models for Time-Series Forecasting of *Escherichia Coli* Contamination in Portuguese Shellfish Production Areas.

2.3.9. Un-}Conference: AI Methods for Health, Life, and Natural Science

The INESC-ID ESR Cláudia Constantino presented her work carried out in collaboration with the Champalimaud Foundation: "Lack of reproducibility of radiomic textural features in real-world [18F]FDG PET/CT imaging". This event was hosted by AI Health Innovation Cluster and ELLIS - European Laboratory for Learning and Intelligent Systems (Heidelberg Unit) at EMBL on 16 October 2023.

Figure 6. Cláudia Constantino presenting her work at the Un-}Conference: AI Methods for Health, Life, and Natural Science at EMBL.

2.3.10. IDEAL'2023 - 24th International Conference Intelligent Data Engineering and Automated Learning

On November 22–24, 2023, Diogo Ribeiro (ESR) presented his work at the conference IDEAL'2023 - 24th International Conference (Évora, Portugal), on Causal Graph Discovery for Explainable Insights on Marine Biotoxin Shellfish Contamination.

2.3.11. IEEE International Symposium on Biomedical Imaging

The INESC-ID Early-Stage Researcher Cláudia Constantino had the opportunity to present her work at IEEE International Symposium on Biomedical Imaging in Athens, Greece between 27-30 May 2024. This work has been developed together with the Nuclear Medicine-Radiopharmacology team and Hematology Department at Champalimaud

Foundation and reflects a robust deep learning segmentation model of lymphoma lesions in FDG PET/CT images.

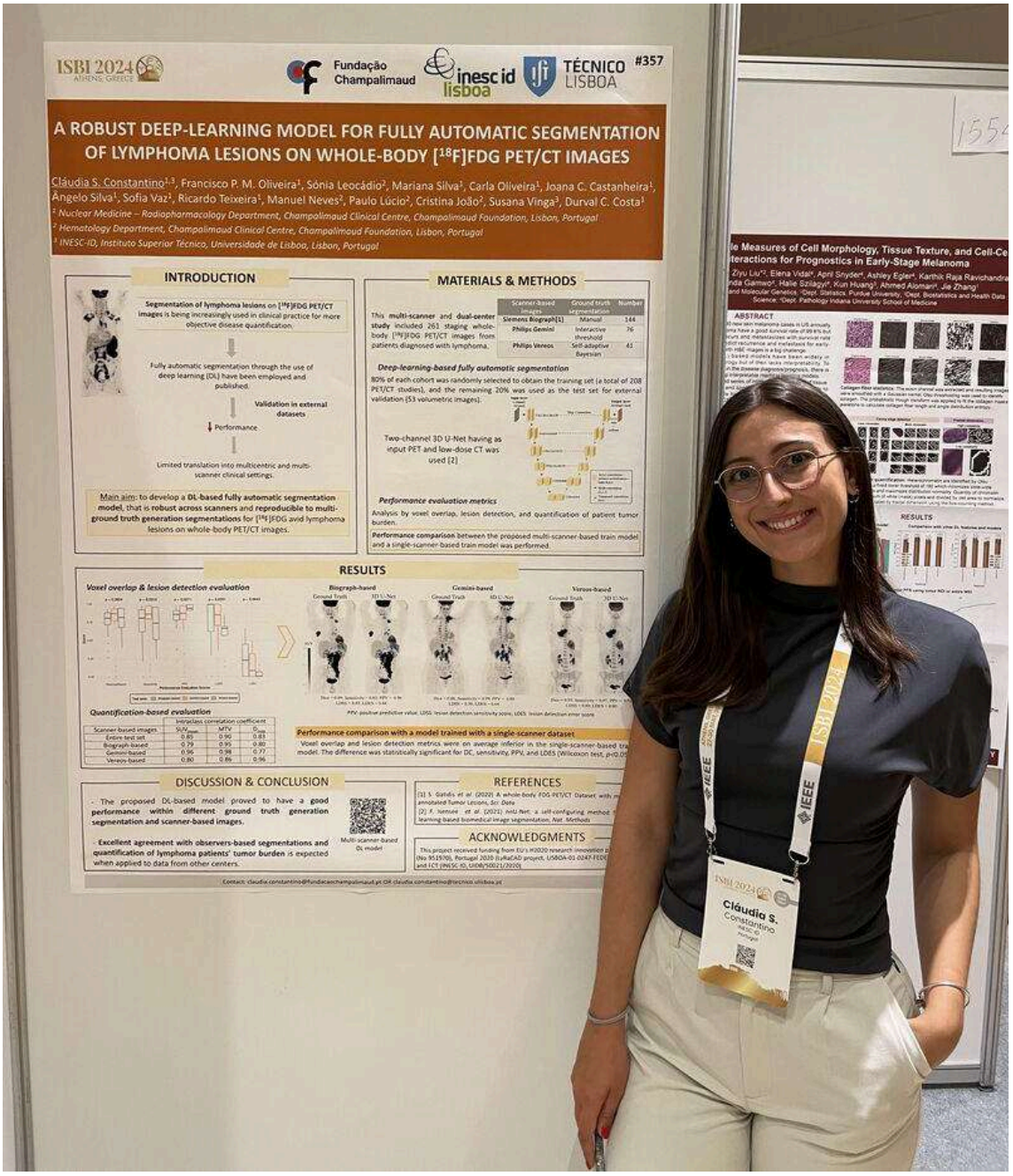

Figure 7. Cláudia Constantino presented her work at the IEEE International Symposium on Biomedical Imaging in Greece.

2.4. Training Activities for ESR

2.4.1. Voice and Communication Training Workshop (1st Edition)

Between 5 and 7 July 2021, Carolina Peixoto Prof. Susana Vinga and the project manager Sara Tanqueiro participated in this intensive and practical 3-day workshop organized by Raquel Bulha from TIMBRE at INESC-ID. Participants had the opportunity to discover how to effectively communicate with others in both a professional and personal sense and become aware of their own voice.

Figure 8. Voice and Communication Training Workshop.

2.4.2. Workshop on Mental Health

This workshop, given by Dr. Isabel Gonçalves from the Academic Development Office of IST, was held on 13 December 2021. It focused on mental health and how the pandemic has been affecting people's daily lives, thoughts, and behaviors. The INESC-ID ESRs Carolina Peixoto and Mónica Silva, Prof. Susana Vinga, Prof. Inês Lynce, and Dr. Sara Tanqueiro participated in this event.

Figure 9. Mental Health Workshop with Dr Isabel Gonçalves.

"This seminar gave me the opportunity to discuss ways to identify potential problems within my team, as a first step to find supporting strategies to cope with mental problems and promote a healthy environment." - Prof. Susana Vinga, PI

"This seminar allowed me to understand the wide impact of COVID-19 pandemic in our wellbeing, leading me to be more aware of signs that those around me might be struggling to manage this critical period - and that such is to be expected and normalized. It was a great opportunity to reflect on the importance and urgency of having dialogues on the thematic of mental health." - Mónica Silva, ESR

"This seminar was very important because it covered a very relevant, and sometimes neglected topic, mental health. I have learnt how to be aware of my peers and my own mental health and also learnt strategies on how to cope with stress and anxiety." - Carolina Peixoto, ESR

"In the last decade, we have been increasingly recognising the importance of emotional and mental health and its impact on our daily life, thoughts and behaviors. The emergence of the pandemic has exacerbated poor mental health: uncertainty and the fear of the unknown can be determinants of anxiety and depression. In this seminar I learnt how to identify and distinguish between these two states, what we can do to help others in these situations and what tools we have to deal with stress. Overall, it was really worthwhile and valuable to reflect on this extremely important topic we unconsciously tend to neglect in the rush of the days." - Sara Tanqueiro, Project Manager

2.4.3. Voice and Communication Training Workshop (2nd Edition)

From 4 – 5 February 2022, Mónica Silva and José Basílio participated in the second edition of this workshop on Voice and Com, organized by Raquel Bulha from TIMBRE at

INESC-ID. Participants had the opportunity to discover how to effectively communicate with others in both a professional and personal sense and become aware of their own voice.

Figure 10. Voice and Communication Training Workshop (2nd Edition).

"It will be very useful in the future! Raquel was fantastic, and we were in an amiable and participatory group, which allowed us to exchange essential feedback with each other to improve!" - Mónica Silva, ESR

"Raquel makes the course very light and funny, but at the same time, she helps us to improve our expression. The group was also very cohesive, and we were able to learn a lot from each other." - José Basílio, ESR

2.4.4. Career Development

During the OLISSIPO Retreat in Lisbon, Prof. Susan Holmes, one of the OLISSIPO SAB members, gave a talk about Career development to 29 ESRs and researchers on 14 July 2022.

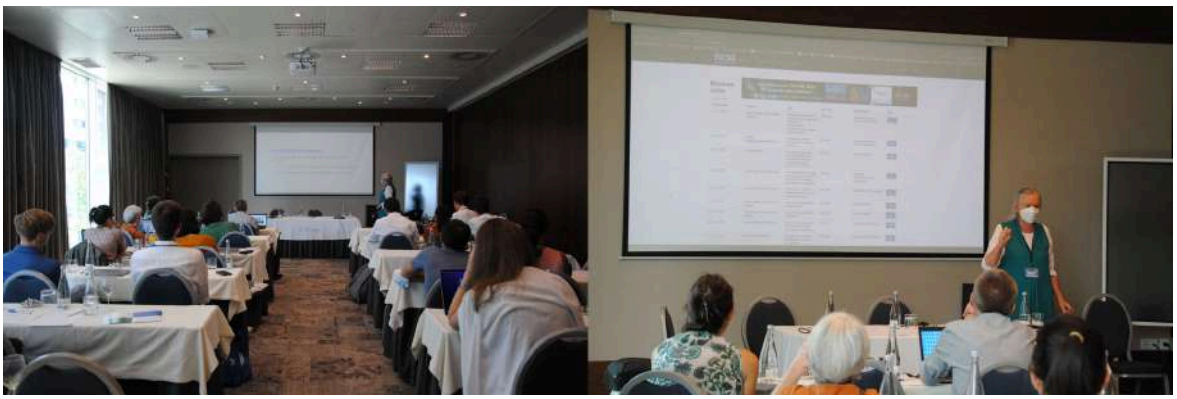

Figure 11. Seminar on Career Development by Prof. Susan Holmes during the OLISSIPO Retreat.

"The Career Development session was an outstanding and unique opportunity to learn from the experience of such a highly-successful and bright professional such as Professor Susan Holmes. Besides tips on how to keep up to date with the new developments in our own field of work, I particularly enjoyed to hear Prof. Susan Holmes' thoughts on how to balance the different timings of one's life, experimenting

and finding what one likes the most as a non-intellectual endeavor, with the take-home message that one's career does not have to be linear to be successful, but can instead be expected to be quite dynamic and diverse to be richer! Overall, this talk was very reassuring and useful to me." - Mónica Silva, ESR

"Susan's talk was really interesting to learn about less talked aspects of a career in science. From the pros and cons and different paths of careers in Europe vs US, to what we should focus on when designing our web portfolio." - João Aparício, ESR

"The experience of someone already with a long career and knows how to communicate that experience. I really liked the message that it's never too late to start a PhD. The proactive role of those who go to job interviews, such as knowing how to ask questions and show knowledge of what is done in that department and how our expertise can improve the quality of the workplace." - José Basílio, ESR

2.4.5. Workshop in Science Communication and Outreach

On 15 July 2022, during the OLISSIPO Retreat in Lisbon, Prof. Ana Sanchez, from ITQB/UNL (Portugal), gave a workshop on Science Communication and Outreach for the ESR and researchers of the team.

Figure 12. Workshop on Science Communication during the OLISSIPO Retreat.

"The Communication session by Professor Ana Sanchez was quite intriguing and undoubtedly useful. This session allowed us to get a peek into the complexity of the (science) communication world and its major challenges. We had a complementary group exercise that led us to directly realize the type of questions one should ask oneself before preparing any kind of communication, and how important it is to discuss these ideas beforehand with our peers, friends and a diverse public to fine-tune our story-telling abilities." - Mónica Silva, ESR

"This talk made me rethink science communication. It presented a useful framework to prepare scientific communication in different contexts. I quite liked the exercise where we had to not only dejargonize but also fully translate a particular paper for a communication to a younger audience. I felt like it was a nice way to make us understand how hard it can be." - João Aparício, ESR

"Knowing our audience and knowing how to shape our form of communication according to whoever listens to us. Practical exercise to engage with the audience." - José Basílio, ESR

2.4.6. EMBL training

From 21 – 25 November 2022, taking advantage of INESC-ID visit to EMBL in Heidelberg, the Portuguese team (Prof. Susana Vinga, Dr Sara Tanqueiro, Vanda Fidalgo – Head of INESC-ID Human Resources - and the ESRs José Basílio, Carolina Peixoto, Rita Baião, Raquel Romão and Laura Quintas) participated in several training actions given by EMBL staff. These actions covered Ethics and research integrity; Equality, Diversity and Inclusion; Make decisions and solve problems creatively; Annual performance review and feedback and; Email management.

2.4.7. Workshop on "How to Design a Graphical Abstract"

(See also D2.4 - Final report on organized joint events, schools, workshops and conferences)

The Workshop "How to design a graphical abstract" took place at INESC-ID on 19 April 2024, from 9:00 - 18:00, by Dr. Rita Félix (CNC Center for Neuroscience and Cell Biology, Coimbra, Portugal - https://ritallfelix.wixsite.com/portfolio). It aimed to explain what a graphical abstract is and to give design tools and tips on how to create a better, clearer, and engaging graphical abstract. This workshop is tailored to give participants tools to improve their graphical abstract, without having to learn how to use a new software program (like Adobe Illustrator). In the hands-on part of the Workshop, the participants worked on their own graphical abstract, shared it with the class, worked on it, and took home a new version.

Figure 13. Group Picture with the Participants of the Workshop "How to design a graphical abstract".

The 16 participants feedback was extremely positive, with some of the comments below:

"The time management was very well designed. I really enjoyed having the theoretical lessons at the beginning and the opportunity to work on the practical part, knowing that I could use Dr Rita's help in this exercise."

"The workshop helped me in grasping some common theoretical concepts of aesthetic representation/graphic design and put it to practice."

"Even though I love the artistic side of science, it's always good to know the basics and understand what works and what doesn't and why. I also liked the fact that the participants were given the opportunity to show and work on their project so that they could apply what they had learned in the classroom."

"The contents were well-structured, and the hands-on experience with Rita's feedback allowed us to start looking at our work from a new perspective."

"The tips Rita gave were really nice! It was also nice that she could give us feedback in the graphical abstract that we were currently doing!"

"It improved my capacity to convey information in graphical form."

"The workshop highlighted key design aspects to consider when creating a graphical abstract to improve the way the main message is perceived."

"From the outset, the presenter, Dr Rita, proved to be an approachable and helpful person, always ready to answer any question with the utmost friendliness. The slides used were rich in information and well organised, creating an excellent flow of knowledge."

"I would also like to congratulate Professor Susana, who was responsible for organising the event. Everything went very well!"

"I loved the workshop! Dr Rita was motivating and passed a clear message through the workshop."

"The only recommendation for future events is to set the schedule with the lunch break before so that it is easier for everyone to plan the day."

"A suggestion: Show more examples of graphical abstracts while explaining the teory.. also for us to see how the tips are applied to real examples.. and also to give us ideas of different types of graphical abstracts :D but it was amazing overall!"

"Rita was a great presenter, the quality of the material was top-notch, the organization was also really good. "Congratulations!"

"More sources and references of books and courses on the topic for continuous learning. Since this topic is not as widely spread as scientific writing."

"The workshop was well structured and it was very nice to have someone bridging both fields of science and graphical design leading the workshop. The feedback on our submitted abstracts was very useful and made the learning experience at the workshop more useful with the hands-on approach."

2.5. Summary of Publications

The project supported ESRs in the following scientific publications:

1. Lourenço, B., Vaz, C., Coimbra, M. E., & Francisco, A. P. (2024). phyloDB: A framework for large-scale phylogenetic analysis of sequence based typing data. Softwarex, 26. doi:10.1016/j.softx.2024.101668
2. Ribeiro, D., Ferraz, F., Lopes, M. B., Rodrigues, S., Costa, P. R., Vinga, S., & Carvalho, A. M. (2023). Causal Graph Discovery for Explainable Insights on Marine Biotoxin Shellfish Contamination. In:

Quaresma, P., Camacho, D., Yin, H., Gonçalves, T., Julian, V., Tallón-Ballesteros, A.J. (eds) Intelligent Data Engineering and Automated Learning – IDEAL 2023. IDEAL 2023. Lecture Notes in Computer Science, vol 14404. Springer, Cham. doi:10.1007/978-3-031-48232-8_44

3. Peixoto, C., Lopes, M. B., Martins, M., Casimiro, S., Sobral, D., Grosso, A. R., Vinga, S. (2023). Identification of biomarkers predictive of metastasis development in early-stage colorectal cancer using network-based regularization. BMC Bioinformatics, 24(1), 17. doi:10.1186/s12859-022-05104-z
4. Mussbacher, M., Derler, M., Basílio, J., & Schmid, J. A. (2023). NF-κB in monocytes and macrophages - an inflammatory master regulator in multitalented immune cells. Frontiers in Immunology, 14. doi:10.3389/fimmu.2023.1134661
5. Luo, X. G., Kuipers, J., & Beerenwinkel, N. (2023). Joint inference of exclusivity patterns and recurrent trajectories from tumor mutation trees. Nature Communications, 14(1). doi:10.1038/s41467-023-39400-w
6. Ferraz, F., Ribeiro, D., Lopes, M. B., Pedro, S., Vinga, S., & Carvalho, A. M. (2023, Sep 22-26). Comparative Analysis of Machine Learning Models for Time-Series Forecasting of Escherichia Coli Contamination in Portuguese Shellfish Production Areas. Paper presented at the 9th Annual Conference on Machine Learning, Optimization and Data Science (LOD), Grasmere, ENGLAND.
7. Espada, J., Francisco, A. P., Rocher, T., Russo, L. M. S., & Vaz, C. (2023). On Finding Optimal (Dynamic) Arborescences. Algorithms, 16(12). doi:10.3390/a16120559
8. Costa, L. M., Colaco, J., Carvalho, A. M., Vinga, S., & Teixeira, A. S. (2023). Using Markov chains and temporal alignment to identify clinical patterns in Dementia. Journal of Biomedical Informatics, 140. doi:10.1016/j.jbi.2023.104328
9. Branco, A. P., Vaz, C., & Francisco, A. P. (2023). Computing RF Tree Distance over Succinct Representations. Algorithms, 17(1). doi:10.3390/a17010015
10. Baiao, A. R., Peixoto, C., Lopes, M. B., Costa, P. R., Carvalho, A. M., & Vinga, S. (2023, Sep 05-08). Evaluating the Causal Role of Environmental Data in Shellfish Biotoxin Contamination on the Portuguese Coast. Paper presented at the 22nd EPIA Conference on Artificial Intelligence (EPIA), Azores, PORTUGAL.
11. Peixoto, C., Martins, M., Costa, L., & Vinga, S. (2022). Kidney Cancer Biomarker Selection Using Regularized Survival Models. Cells, 11(15). doi:10.3390/cells11152311
12. Patrício, A., Lopes, M. B., Costa, P. R., Costa, R. S., Henriques, R., & Vinga, S. (2022). Time-Lagged Correlation Analysis of Shellfish Toxicity Reveals Predictive Links to Adjacent Areas, Species, and Environmental Conditions. Toxins, 14(10). doi:10.3390/toxins14100679
13. Leitao, B. N., Faustino, P., & Vinga, S. (2022, Aug 31-Sep 02). Comparative Evaluation of Classification Indexes and Outlier Detection of Microcytic Anaemias in a Portuguese Sample. Paper presented at the 21st EPIA Conference on Artificial Intelligence (EPIA), Univ Lisbon, Lisbon, PORTUGAL.
14. Jensch, A., Lopes, M. B., Vinga, S., & Radde, N. (2022). ROSIE: RObust Sparse ensemble for outlIEr detection and gene selection in cancer omics data. Statistical Methods in Medical Research, 31(5), 947-958. doi:10.1177/09622802211072456
15. Ferrarini, M. G., Ziska, I., Andrade, R., Julien-Laferriere, A., Duchemin, L., Cesar, R. M., Sagot, M. F. (2022). Totoro: Identifying Active Reactions During the Transient State for Metabolic Perturbations. Frontiers in Genetics, 13. doi:10.3389/fgene.2022.815476

16. Serras, J. L., Vinga, S., & Carvalho, A. M. (2021). Outlier Detection for Multivariate Time Series Using Dynamic Bayesian Networks. Applied Sciences-Basel, 11(4). doi:10.3390/app11041955
17. Neto, J. P., Alho, I., Costa, L., Casimiro, S., Valério, D., & Vinga, S. (2021). Dynamic modeling of bone remodeling, osteolytic metastasis and PK/PD therapy: introducing variable order derivatives as a simplification technique. Journal of Mathematical Biology, 83(4). doi:10.1007/s00285-021-01666-3
18. Lopes, M. B., Martins, E. P., Vinga, S., & Costa, B. M. (2021). The Role of Network Science in Glioblastoma. Cancers, 13(5). doi:10.3390/cancers13051045
19. Gomes, S. C., Vinga, S., & Henriques, R. (2021). Spatiotemporal Correlation Feature Spaces to Support Anomaly Detection in Water Distribution Networks. Water, 13(18). doi:10.3390/w13182551
20. Cruz, R. C., Costa, P. R., Vinga, S., Krippahl, L., & Lopes, M. B. (2021). A Review of Recent Machine Learning Advances for Forecasting Harmful Algal Blooms and Shellfish Contamination. Journal of Marine Science and Engineering, 9(3). doi:10.3390/jmse9030283
21. Constantino, C. S., Carvalho, A. M., & Vinga, S. (2021). Coupling sparse Cox models with clustering of longitudinal transcriptomics data for trauma prognosis. BioData Min, 14(1), 25. doi:10.1186/s13040-021-00257-8
22. Barata, C., Rodrigues, A. M., Canhao, H., Vinga, S., & Carvalho, A. M. (2021). Predicting Biologic Therapy Outcome of Patients With Spondyloarthritis: Joint Models for Longitudinal and Survival Analysis. Jmir Medical Informatics, 9(7). doi:10.2196/26823
23. Godinho, J., Carvalho, A. M., & Vinga, S. (2020, Dec 10-12). Latent Variable Modelling and Variational Inference for scRNA-seq Differential Expression Analysis. Paper presented at the 10th International Conference on Computational Advances in Bio and Medical Sciences (ICCABS), Electr Network.

3. Conclusions

WP4 addressed the training, mentoring and networking measures of the ESRs. It included scientific internships and exchanges, and the support for workshop and conference attendances. Training courses are also planned, to promote ESR careers. The topics include soft skills (e.g. scientific writing, presentation skills), intellectual property issues, and open source software.

This WP was specifically planned with the goal of enhancing the careers of ESR and the scientific capacity of INESC-ID. It included scientific internships and exchanges, and the support for workshop and conference attendances. In addition, OLISSIPO also promoted training courses in soft skills (e.g. scientific writing, communication), intellectual property issues, and open source software.