

## Issue 4 | November 2023



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## EDITORIAL

Dear Readers,

Welcome to the third Newsletter of the OLISSIPO project! OLISSIPO is a Twinning project, funded by the European Commission within Horizon 2020, to boost the research profile and innovation competence in Computational Biology at INESC-ID. Launched in January 2021, this 3-year funded project is providing training to Early Stage Researchers (ESR), PhD students, strengthening collaborations between international institutions and INESC-ID and Instituto Superior Técnico (IST) and increasing the management and administration skills of INESC-ID.

Outreach activities are engaging young students from secondary schools in Portugal. Overall, the success of this project is resulting in the extension of the recruitment pool and existing network of INESC-ID, becoming by turning it attractive for young scientists that want to pursue a research career or improve their knowledge transfer skills in these areas.

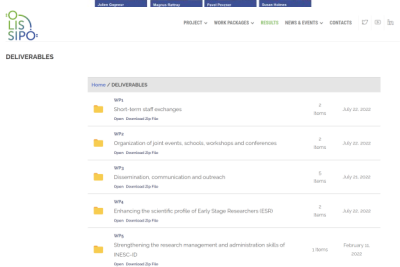
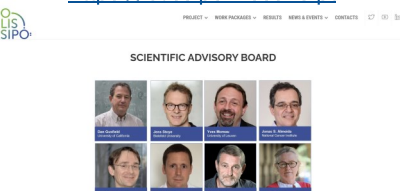
The OLISSIPO Coordination Team: [Susana Vinga](#) (INESC-ID), [Niko Beerenwinkel](#) (ETH Zürich), [Marie-France Sagot](#) (Inria), [Wolfgang Huber](#) and Simone Bell (EMBL) Sara Tanqueiro (INESC-ID)

The link to society is also included in the project.

## WEBSITE



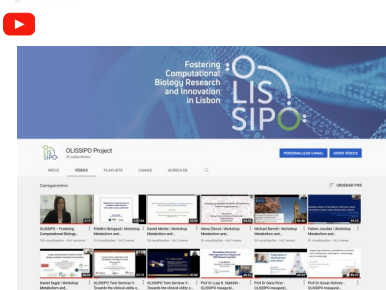
<https://olissipo.inesc-id.pt>



## SOCIAL MEDIA



**OLISSIPO Fostering Computational Biology Research**  
 An @EU H2020-funded project enhancing the competences in Computational Biology at INESC-ID in Lisbon. Horizon 2020 grant agreement No 951970.



## PROMOTIONAL MATERIALS

OLISSIPO [Poster](#), [Leaflet](#) and [Video](#)





## PAST EVENTS

During 2021, the coronavirus pandemic restrained work travel. Issue 1 described several online activities carried out during the first year of the OLISSIPO project. In 2022, travel restrictions were alleviated for European countries and the OLISSIPO team had the opportunity to start traveling by the end of March. In parallel with staff exchanges, we have been dedicated to organize OLISSIPO events in 2023.

### ◇ [OLISSIPO Summer School](#) | 2-7 July 2023 | 26

The OLISSIPO Summer School on Computational phylogenetics to analyse the evolution of cells and communities, was held in Lisbon, Portugal, at INESC-ID. It was three days of brilliant discussions and cutting-edge computational and biological science.

The school included talks of 15-20 minutes where attendees presented their work.

The Summer School was composed of four comprehensive and interdisciplinary workshops:

- *Designing phylogenetic models for clonal lineage reconstruction* by Russell Schwartz;
- *Inferring the evolution of genes and syntenies from tree reconciliation. An application to CRISPR-Cas systems* by Nadia El-Mabrouk and Mattéo Delabre;
- *Phylogenetic analysis of single-cell DNA sequencing data* by David Posada and João Alves;
- *Adventures in cophylogenetic tree reconciliation* by Ran Libeskind-Hadas.

The speakers that the Summer School brought to Lisbon, and the INESC-ID and Instituto Superior Técnico (IST) communities, distilled some of the most innovative applications of computational biology to phylogenetics from a diverse set of research centres: from the University of Vigo and the Université de Montréal, to Claremont McKenna College and Carnegie Mellon University.

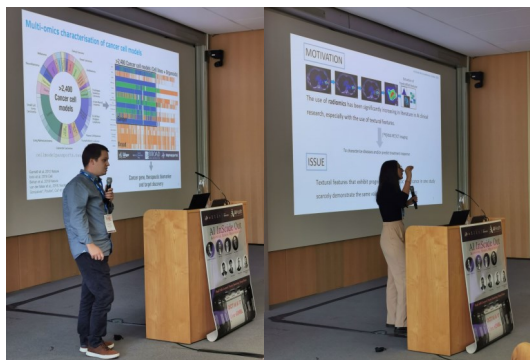
The OLISSIPO 2023 Summer School was organized by Susana Vinga, Marie-France Sagot (Inria), Niko Beerenwinkel (ETH Zürich), Wolfgang Huber (EMBL), Blerina Sinimeri (Inria and LUISS University), Alexandre Francisco (INESC-ID/IST), João Carrigo (BioMérieux) and Sara Tanqueiro (INESC-ID).





## ◇ OLISSIPO Annual Meeting & Retreat | 16-18 October 2023 | 22

Our team landed in Heidelberg last 15th of October, ready for the OLISSIPO Annual Meeting, held at EMBL from October 16-18, 2023.



On the first two days of our visit to EMBL, we had the chance to participate in the {Un-}Conference: AI Methods for Health, Life, and Natural Science hosted by AI Health Innovation Cluster and ELLIS - European Laboratory for Learning and Intelligent Systems (Heidelberg Unit). Prof. Emanuel Goncalves and the ESR Cláudia Constantino shared their work with lightning talks.

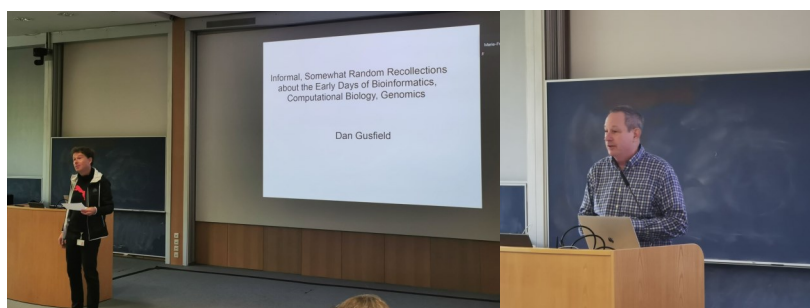
Prof. Jens Stoye and Prof. Dan Gusfield from the Scientific Advisory Board (SAB) joined the OLISSIPO team in Heidelberg for the Annual Meeting with the Scientific Board (Prof. Jonas Almeida joined via ZOOM). The team focused on overviewing the activities developed within the project and the next steps for the future.

In parallel, students continued free discussions on-site to find synergies and possible collaborations.

Taking advantage of the presence of SAB members in EMBL, on October 18, INESC-ID ESRs presented their work to receive feedback and discuss science and exchanged knowledge.



We also had the opportunity to hear from Prof. Dan Gusfield an amazing talk focusing more on the past of Bioinformatics, Computational Biology and Genomics. This lecture was opened to EMBL and hosted by Dr Wolfgang Huber.



## STAFF TRAINING

One of the main aims of OLISSIPO is to sharpen the research and management profile of INESC-ID. Thus, the project supports staff participation in external courses, workshops and national and international conferences.

### ◇ [EMBL Training](#) | 9-12 May 2023 | 38

The EMBL team, one of the partner institutions of the OLISSIPO project, visited INESC-ID to give a series of workshops in the area of Computational Biology:

- *Introduction to R* with Dr Mike Smith. This one day course provided an introduction to data handling with the R language and covered some useful tools for data wrangling, exploration and plotting using the tidyverse.

- *Biostatistical Basics in R* by Dr Sarah Kaspar. This course equipped the participants with basic statistical concepts that helped them to better understand their biological data, and which are also the foundation for many advanced biostatistical topics.

- *Drug Synergy* by the ESR Petr Smirnov. This workshop introduced the fundamental concepts behind analysing drug combination experiments on immortalised cancer cell lines; discussed common models for assessing drug synergy, and introduced R/Bioconductor tools implementing these methods.

- *Single-Cell* by the EMBL ESRs Donnacha Fitzgerald, Hosna Baniadam, Harald Vöhringer, Petr Smirnov and Tümay Capraz. The aim of this workshop was to introduce single-cell (including multi-omic and spatial) methods, what can be achieved with them and principles for their analysis.

We would like to thank Donnacha, Harald, Hosna, Mike, Petr, Sarah and Tümay, our wonderful lecturers from the OLISSIPO partner EMBL for accepting this invitation to help us train our Early-Stage Researchers.



### ◇ [Workshop on Project Management](#) | 10 May 2023

In parallel, we had a Workshop on Project Management with Simone Bell, the senior project manager at EMBL, who has been a precious help in executing this project. The INESC-ID project managers (Dra Sara Tanqueiro, Dra Ana Rita Nunes and Dra Natália Souza) attended this event.

### ◇ [22nd EPIA Conference in Artificial Intelligence](#) | 5 September 2023

Our ESR Ana Rita Baião presented her work on *Evaluating the causal role of environmental data in shellfish biotoxin contamination on the Portuguese coast* at the 22nd EPIA Conference in Artificial Intelligence, held in Faial, Azores. This work was supervised by Prof. Susana Vinga and Marta Belchior Lopes. It was an excellent opportunity for Rita to discuss some ideas with experts in the field of AI. Congratulations Rita!





## DISSEMINATION, COMMUNICATION & OUTREACH

### ◇ 24th anniversary of Pavilhão do Conhecimento | July 2023

The OLISSIPO project and INESC-ID were present at the 24th anniversary of Pavilhão do Conhecimento, one of Portugal's most well-known science museums. Dr Pedro Ferreira, the INESC-ID Communication Officer, the ESRs Ana Rita Baião, João Tiago Aparício and the PI Rui Henriques engaged more than 200 kids and their families in an Outreach activity dedicated to Computational Biology!



### ◇ Modern Statistics for Biology Training School 2023 | October 2023



Prof. Susana Vinga presented some results of the OLISSIPO project and her research at INESC-ID in the fantastic Modern Statistics for Biology Training School 2023 organized at the University of Tirana, Albania. They explored the main statistical and machine learning methods and their practical applications in the fields of biology and health. Thanks a lot for the invitation, and looking forward to more events!

### ◇ [2nd Microbiome PT Summit](#) | October 26-27 2023

The OLISSIPO project was present in the 2nd Microbiome PT Summit, organised by BioData.pt, ELIXIR PT and SymbNET at Instituto de Medicina Molecular. The purpose of the event was to gather the scientific community in Portugal that is working with microbiomes. The Summit had several sessions with renowned names in the field working in academia and industry.



## UPCOMING EVENTS

### ◇ [Workshop Metabolism and mathematical models: Two for a tango – 3rd Edition](#)

14-15 November 2023 (Online)

### ◇ OLISSIPO Winter School

TBA 2024, Portugal

## ●●● MORE INFORMATION

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