



# Zafeiropoulos Haris

Bioinformatics, Systems Biology, Microbial Ecology

- April 24, 1991
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## Social Network

- Github Profile
- [haris.zaf2](#)
- [@haris\\_zaf](#)

## Languages

- English ●●●●●
- French ●●●●●

## Coding Skills

- Unix / Linux / AWK ●●●●●
- Python 3.0 ●●●●●
- Matlab ●●●●●
- R / Rstudio ●●●●●
- C++ ●●●●●
- HTML / CSS / JS ●●●●●
- Docker & Singularity ●●●●●
- REST API ●●●●●

## Math and Stats

- Linear Algebra ●●●●●
- Constraint-based modelling ●●●●●

## Research projects - working Experience

- 2022 - currently **3D'omics** Post-doc  
Generate 3D omics landscapes, achieving reconstructions of intestinal host microbiota ecosystems.
- 2022 - 2022 **A workflow for marine Genomic Observatories data analysis** Research associate  
Making the large volumes of data produced by genomic observatories more easily interpretable by providing the taxonomic inventories of each sample in a timely manner and in a non-technical format
- 2018 - 2021 **PREGO: Process, environment, organism (PREGO)** PhD  
PREGO is a systems-biology approach to elucidate ecosystem function at the microbial dimension.
- 2019 - present **ELIXIR-GR** technical support  
ELIXIR-GR is the Greek National Node of the ESFRI European RI ELIXIR, a distributed e-Infrastructure aiming at the construction of a sustainable European infrastructure for biological information.
- 2018 - 2020 **RECONNECT** PhD  
RECONNECT is an Interreg V-B "Balkan-Mediterranean 2014-2020" project. It aims to develop strategies for sustainable management of Marine Protected Areas (MPAs) and Natura 2000 sites.

## Education

### Graduate studies

- 2018 - 2022 **PhD in Bioinformatics** University of Crete, Biology department  
**Dissertation** IMBBC - HCMR  
Microbial communities through the lens of high throughput sequencing, data integration and metabolic networks analysis
- 2016 - 2018 **M.Sc. in Bioinformatics** University of Crete, School of Medicine  
grade: 9.1/10.0  
**Master Thesis** IMBBC - HCMR  
eDNA metabarcoding for biodiversity assessment: Algorithm design and bioinformatics analysis pipeline implementation

### Undergraduate studies

- 2011 - 2016 **B.Sc. in Biology** National & Kapodistrian University of Athens  
grade: 6.2 / 10.0  
**Bachelor Thesis** School of Science, department of Biology  
Morphology, morphometry and anatomy of species of the genus *Pseudamnicola* in Greece

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## My so-far research

## Publications

- 2023 **Metabolic models of human gut microbiota: Advances and challenges.**  
*Garza, D.R., Gonze, D., Zafeiropoulos, H., Liu, B. and Faust, K. Cell Systems*, 14(2), pp.109-121., DOI: 10.1016/j.cels.2022.11.002
- 2022 **Deciphering the community structure and the functional potential of a hypersaline marsh microbial mat community.**  
*Pavloudi, C. and Zafeiropoulos, H. FEMS Microbiology Ecology* 98.12 (2022): fiac141. DOI: 10.1093/femsec/fiac141
- 2022 **Automating the Curation Process of Historical Literature on Marine Biodiversity Using Text Mining: The DECO Workflow.**  
*Paragkamian, S., Sarafidou, G., Mavraki, D., Pavloudi, C., Beja, J., Eliezer, M., Lipizer, M., Boicenco, L., Vandepitte, L., Perez-Perez, R., Zafeiropoulos, H. and others Frontiers in Marine Science*, 9, p.940844., DOI: 10.3389/fmars.2022.940844
- 2022 **PREGO: A Literature and Data-Mining Resource to Associate Microorganisms, Biological Processes, and Environment Types**  
*Zafeiropoulos, H., Paragkamian, S., Ninidakis, S., Pavlopoulos, G., A., Jensen, L., J., Pafilis, E. Microorganisms* 10, no. 2 (2022): 293, DOI: 10.3390/microorganisms10020293
- 2021 **The Dark mAtteR iNvestigator (DARN) tool: getting to know the known unknowns in COI amplicon data.**  
*Zafeiropoulos, H., Gargan, L., Hintikka, S., Pavloudi, C. & Carlsson, J. Metabarcoding and Metagenomics*, 5, p.e69657., DOI:10.3897/mbmg.5.69657
- 2021 **0s & 1s in marine molecular research: a regional HPC perspective**  
*Zafeiropoulos, H., Gioti A., Ninidakis S., Potirakis A., ..., & Pafilis E. GigaScience*, 9(3), p.giab053, DOI: 10.1093/gigascience/giab053
- 2021 **Geometric Algorithms for Sampling the Flux Space of Metabolic Networks**  
*Chalkis, A., Fisikopoulos, V., Tsigaridas, E. & Zafeiropoulos, H. 37th International Symposium on Computational Geometry (SoCG 2021)*, 21:1–21:16, 189, DOI: 10.4230/LIPIcs.SoCG.2021.21
- 2021 **The Santorini Volcanic Complex as a Valuable Source of Enzymes for Bioenergy**  
*Polymenakou, P.N., Nomikou, P., Zafeiropoulos, H., Mandalakis, M., Anastasiou, T.I., Kiliadis, S., Kyripides, N.C., Kotoulas, G. & Magoulas, A. Energies*, 14(5), p.1414.
- 2020 **PEMA: a flexible Pipeline for Environmental DNA Metabarcoding Analysis of the 16S/18S ribosomal RNA, ITS & COI marker genes**  
*Zafeiropoulos, H., Viet, H.Q., Vasileiadou, K., Potirakis, A., Arvanitidis, C., Topalis, P., Pavloudi, C. & Pafilis, E. GigaScience*, 9(3), p.giaa022, DOI:10.1093/gigascience/giaa022

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## My so-far research

### Conferences

2022	<b>1st Applied HoloGenomics conference @ Bilbao, Spain</b> <i>Poster presentation</i> microbetag: a microbial co-occurrence network annotator	AHC2022
2022	<b>18th International Symposium on Microbial Ecology @ Laussane, Switzerland</b> <i>Poster presentation</i> Reverse ecology and systems biology approaches to identify key processes ensuring life in extreme environments	ISME18
2021	<b>Bioinformatics Open Source Conference (BOSC) - online</b> <i>Flash talk</i> dingo: A python library for metabolic networks sampling & analysis.)	BOSC2021
2021	<b>1st DNAQUA International Conference - online</b> <i>Flash talk</i> PEMA v2: addressing metabarcoding bioinformatics analysis challenges	DNAQUA
2020	<b>Federation of European Microbiological Societies (FEMS) - online</b> <i>Flash talk</i> Mining literature and -omics (meta)data to associate microorganisms, biological processes and environment types	FEMS2020
2020	<b>PyData Global - online</b> <i>Oral presentation</i> Geometric and statistical methods in systems biology: the case of metabolic networks	PyData2020
2019	<b>network2019: 4th Symposium on Ecological Networks @ Paris, France</b> Participation.	network2019
2019	<b>8th International Barcode of Life Conference @ Trondheim, Norway</b> <i>ePoster presentation</i> P.E.M.A.: a Pipeline for Environmental DNA Metabarcoding Analysis	iBOL
2018	<b>European Conference on Computational Biology (ECCB) 2018 @ Athens, Greece</b> <i>Poster presentation</i> P.E.M.A.: a Pipeline for Environmental DNA Metabarcoding Analysis	ECCB18

### Workshops

2022	<b>Microbial communities: current approaches and open challenges</b> Participant	UMCW06
2021	<b>Microbiome Data Analyses Workshop Online</b> <b>Tutorial:</b> PEMA: a flexible Pipeline for Environmental DNA Metabarcoding Analysis of the 16S/18S rRNA, ITS and COI marker genes.	MDAWO

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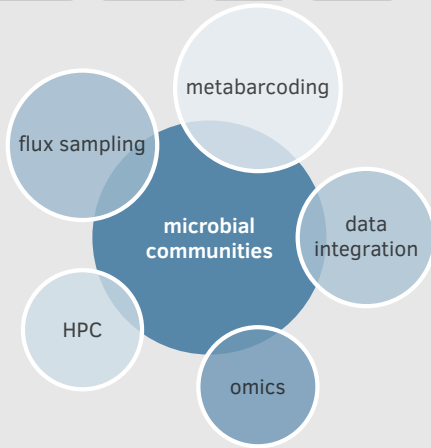
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## About Me

I am studying microbial ecology & ecosystem functioning by exploiting knowledge aggregation & data integration techniques. My interests focus on systems biology, metabolic modelling and microbial interactions.

## My so-far research

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## Barskills

Coding/programming

Scientific writing

Microbial ecology

## Memberships



Mikrobiokosmos



International Society of Microbial Ecology

## Teaching - Supervision

- 2023 **"Development of a Cytoscape App for microbe-microbe association networks"** post  
Google Summer of Code mentor
- 2023 **eDNA metabarcoding, pipeline development & high performance computing** slides  
Lecture on MSc "Applied Bioinformatics & Data Analysis" in [Democritus University of Thrace, Greece
- 2022 **Genome-scale model reconstruction** GColab notebook  
Lectures on "Master en bioinformatique et modélisation" of the Université Libre de Bruxelles.
- 2020 **Environmental DNA & DNA metabarcoding** slides  
Lecture on MSc "Environmenta Biology" in University of Crete.

## Awards

- 2021 **Google Summer of Code** GSoC  
Project title: *From DNA sequences to metabolic interactions: building a pipeline to extract key metabolic processes*
- 2021 **European Molecular Biology Organization Short-Term Fellowship** EMBO  
Project title: *"Exploiting data integration, text-mining and computational geometry to enhance microbial interactions inference from co-occurrence networks"*
- 2020 **Federation of European Microbiological Societies Meeting Attendance Grant** FEMS  
for joining the *"Metagenomics, Metatranscript- omics and multi 'omics for microbial community studies"* Physalia course
- 2019 **Short Term Scientific Mission (STSM) @ DNAqua-net COST action** DNAqua-net  
Project title *A comparison of bioinformatic pipelines and sampling techniques to enable benchmarking of DNA metabarcoding*. Report.
- 2018 **Best Poster Award @ Hellenic Bioinformatics conference** HBIO  
for *PEMA: a Pipeline for Environmental DNA Metabarcoding Analysis*

## References

- Karoline Faust Department of Microbiology, Immunology and Transplantation, Rega Institute for Medical Research, Laboratory of Molecular Bacteriology, KU Leuven Leuven, 3000, Leuven, Belgium  
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- Pafilis Evangelos Institute of Marine Biology, Biotechnology & Aquaculture, Hellenic Centre for Marine Research, (IMBBC - HCMR ), Gournes, PEDIADOS, P.O. Box 2214, Heraklion Crete 71003, Greece  
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