






Zafeiropoulos Haris



Bioinformatics, Systems Biology, Microbial Ecology

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Social Network

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

Workshops

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

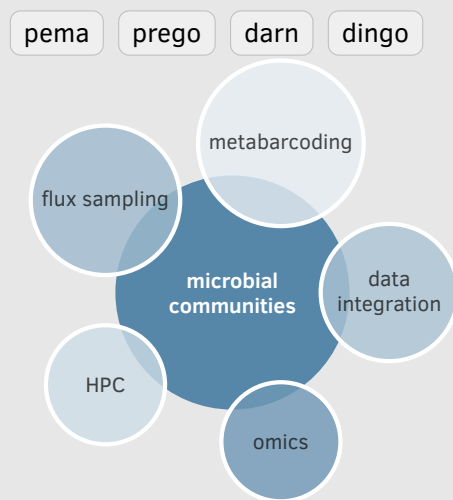
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About Me

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



Barskills

Coding/programming

Scientific writing

Microbial ecology

Memberships



Mikrobiokosmos



International Society of Microbial Ecology

Teaching

- | | | |
|------|---|-----------------|
| 2023 | eDNA metabarcoding, pipeline development & high performance computing | slides |
| | Lecture on MSc "Applied Bioinformatics & Data Analysis" [link] of Democritus University of Thrace, Greece | |
| 2022 | Genome-scale model reconstruction | GColab notebook |
| | Lectures on "Master en bioinformatique et modélisation" [link] of Université Libre de Bruxelles | |
| 2020 | Environmental DNA & DNA metabarcoding | slides |
| | Lecture on MSc "Environmenta Biology" [link] of University of Crete. | |

Awards

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

References

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| Emmanuel D. Ladoukakis | Biology Department, University of Crete, Voutes University Campus, Iraklio, GR 70013 Biology building, 3rd floor, Office: 316a
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| Elias Tsigaridas | Institut de Mathématiques de Jussieu - Paris Rive Gauche, Sorbonne Université - Campus Pierre et Marie Curie, Case courrier 247, 4, place Jussieu, 75252, Paris Cedex 05, France
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