



# Danilo Basili

## WORK EXPERIENCE

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### Bioinformatician

**Unilever** [ 01/06/2021 – Current ]

City: Cambridge

Country: United Kingdom

As Bioinformatician I do provide computational expertise to support the development of Next Generation Risk Assessment (NGRA) of Unilever products. More specifically, we leverage gene expression profile to derive points of departure (PoDs) of chemical activity in order to drive safety decisions on the product sold by Unilever.

### Postdoctoral Research Associate

**University of Cambridge, Department of Chemistry, Centre for Molecular Informatics** [ 02/12/2019 – 31/05/2021 ]

City: Cambridge

Country: United Kingdom

I'm leading a project funded by Unilever and in collaboration with US EPA with the goal of advancing Next-Generation Risk Assessment (NGRA) by developing Novel Approach Methodologies (NAMs) able to discriminate adaptive and adverse responses with the final goal of deriving more reliable point of departures (PoDs) for improving current risk assessment frameworks. Moreover, I'm involved in multiple projects in collaboration with AstraZeneca, Unilever and Universities across Europe and U.S. In addition, I do provide supervision and support to PhD and Master's students.

### Postdoctoral Researcher

**Marche Polytechnic University, Department of Health and Environmental Sciences (DiSVA)** [ 12/2017 – 12/2019 ]

City: Ancona

Country: Italy

As Computational Biologist I have been delivering expertise in experimental designs that leverage omics technologies to address complex biological questions. Moreover, I provided bioinformatic solutions spanning from pathway analysis and mathematical modelling to more complex machine learning application and network analysis to extrapolate biological meanings from the data. My research activity focused on the application of omics technologies to 1) investigate chemical Mode of Action (MoA) in the context of the Adverse Outcome Pathway (AOP) framework, 2) investigate chemical toxicity effects on the microbiota, 3) Mining spectroscopy data to evaluate the effects of different soil tillage methods and nitrogen fertilization levels on the biochemical composition of durum wheat (*Triticum turgidum* subsp. *durum*) leaves and caryopses and 4) De novo genome and transcriptome assembly approaches on swordfish and tuna larvae to increase the biological knowledge needed to support the development of successful stock management plans. Moreover, I have been involved in the writing of both national and international research grants

## **Causal Worker**

**Computational Biology Facility (CFB), University of Liverpool, UK** [ 08/2018 – 09/2018 ]

City: Liverpool

Country: United Kingdom

As casual worker at CBF (<http://cbf.liverpool.ac.uk/>), I have been offering computational biology expertise in the analysis of Omics datasets in Life Sciences. The CBF seeks to remove the informatics bottleneck in the Omics pipeline by offering services and bioinformatics solutions ranging from large scale analysis, such as full systems biology investigations to smaller scale and bespoke services. More specifically I have been collaborating in a project analysing PVL Cancer epigenomic data.

## **Visiting Researcher**

**University of California San Diego (UCSD)** [ 06/2012 – 12/2012 ]

City: San Diego, California

Country: United States

Master Degree thesis was carried out in the BIOGEM facility led by Prof. Gary Hardiman at University of California - San Diego (UCSD).

The project overall goal was to characterize changes in fish microbiota following exposures to endocrine disrupting chemicals using next-generation sequencing technologies (Illumina HiSeq 2000 and PacBio RS)

## **EDUCATION AND TRAINING**

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### **Doctor of Philosophy (PhD) in Biological Sciences**

**University of Liverpool - Institute of Integrative Biology** [ 01/05/2013 – 03/09/2018 ]

Address: Crown Street, L69 7ZB Liverpool (United Kingdom)

<https://www.liverpool.ac.uk/integrative-biology/>

### **Master's Degree in Marine Biology**

**Marche Polytechnic University - Department of Health and Environmental Science (DiSVA)** [ 09/2010 – 27/02/2013 ]

Address: Via Breccie Bianche, 60131 Ancona (Italy)

<https://www.univpm.it/Entra/>

### **Bachelor's Degree in Biological Sciences**

**University of Rome "La Sapienza"** [ 09/2007 – 12/2010 ]

Address: Piazzale Aldo Moro 5, 00185 Rome (Italy)

<https://www.uniroma1.it/en/pagina-strutturale/home>

## LANGUAGE SKILLS

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Mother tongue(s): **Italian**

Other language(s):

**English**

**LISTENING C2 READING C2 WRITING C2**

**SPOKEN PRODUCTION C2**

**SPOKEN INTERACTION C2**

## DIGITAL SKILLS

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Microsoft Office: Word, Excel, Access, Power Point, Outlook. / R programming / Python programming / LINUX / UNIX / MAC OSX / WINDOWS / problems solving / decision-making / Team-working skills

## PUBLICATIONS

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### **Latent Variables Capture Pathway-Level Points of Departure in High-Throughput Toxicogenomic Data**

[2022]

<https://pubs.acs.org/doi/pdf/10.1021/acs.chemrestox.1c00444>

Chemical Research in Toxicology

### **A Comparison of Reproductive Performances in Young and Old Females: A Case Study on the Atlantic Bluefin Tuna in the Mediterranean Sea**

[2021]

<https://www.mdpi.com/2076-2615/11/12/3340>

Animals

### **The probiotic *Lactobacillus rhamnosus* mimics the dark-driven regulation of appetite markers and melatonin receptors' expression in zebrafish (*Danio rerio*) larvae: Understanding the role of the gut microbiome**

[2021]

<https://www.sciencedirect.com/science/article/abs/pii/S1096495921000737#!>

Comparative Biochemistry and Physiology Part B: Biochemistry and Molecular Biology

### **A Spectroscopic Approach to Evaluate the Effects of Different Soil Tillage Methods and Nitrogen Fertilization Levels on the Biochemical Composition of Durum Wheat (*Triticum turgidum* subsp. *durum*) Leaves and Caryopses**

[2021]

<https://www.mdpi.com/2077-0472/11/4/321>

Agriculture

## **Opsins and gonadal circadian rhythm in the swordfish (*Xiphias gladius*) ovary: Their potential roles in puberty and reproductive seasonality**

[2021]

<https://www.sciencedirect.com/science/article/pii/S0016648020304603?via=ihub>

General and Comparative Endocrinology

## **De novo transcriptome assembly, functional annotation and characterization of the Atlantic bluefin tuna (*Thunnus thynnus*) larval stage**

[2020]

<https://www.sciencedirect.com/science/article/abs/pii/S1874778720300957>

Marine Genomics

## **New Associations between Drug-Induced Adverse Events in Animal Models and Humans Reveal Novel Candidate Safety Targets**

[2020]

<https://pubs.acs.org/doi/10.1021/acs.chemrestox.0c00311>

Chemical Research in Toxicology

## **Maturity assignment based on histology-validated macroscopic criteria: Tackling the stock decline of the Mediterranean swordfish (*Xiphias gladius*)**

[2020]

<https://onlinelibrary.wiley.com/doi/abs/10.1002/aqc.3248>

Aquatic Conservation: Marine and Freshwater Ecosystems

## **Photoperiod Manipulation Affects Transcriptional Profile of Genes Related to Lipid Metabolism and Apoptosis in Zebrafish (*Danio rerio*) Larvae: Potential Roles of Gut Microbiota**

[2019]

<https://link.springer.com/article/10.1007/s00248-019-01468-7>

Microbial Ecology

## **Nitrogen and chlorophyll status determination in durum wheat as influenced by fertilization and soil management: Preliminary results**

[2019]

<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0225126>

PLoS One

## **A de novo transcriptome assembly approach elucidates the dynamics of ovarian maturation in the swordfish (*Xiphias gladius*)**

[2019]

<https://www.nature.com/articles/s41598-019-43872-6>

Scientific Reports

## **Setting of a precision farming robotic laboratory for cropping system sustainability and food safety and security: preliminary results**

[2019]

<https://iopscience.iop.org/article/10.1088/1755-1315/275/1/012021/meta>

IOP Conference Series: Earth and Environmental Science

## **Endocrine-disrupting chemicals in aquatic environment: what are the risks for fish gametes?**

[2018]

<https://link.springer.com/article/10.1007/s10695-018-0507-z>

Fish Physiology and Biochemistry

## **In Silico Computational Transcriptomics Reveals Novel Endocrine Disruptors in Largemouth Bass (*Micropterus salmoides*)**

[2018]

<https://pubs.acs.org/doi/abs/10.1021/acs.est.8b02805>

Environmental Science & Technology

## **VOLUNTEERING**

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### **Volunteer**

[ Seal Rehabilitation and Research Centre, Pieterburen, Netherlands, 01/2012 – 02/2012 ]

Responsible in the caring of the seals, providing medicines, food and pool cleaning

<https://www.zeehondencentrum.nl/>

## **CONFERENCES AND SEMINARS**

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### **Eurotox 2021**

[ Virtual, 27/09/2021 – 01/10/2021 ]

I have been presenting a poster about "A transcriptomic-based new approach methodology (NAM) identifies points of departures (PoDs) of adaptive stress in HepG2 cells"

<https://www.eurotox2021.com/>

### **11th World Congress on Alternatives and Animal Use in the Life Sciences (WC11)**

[ Virtual, 23/08/2021 – 27/08/2021 ]

<https://www.concawe.eu/event/11th-world-congress-on-alternatives-and-the-use-of-animal-in-the-life-sciences-wc11/>

### **OpenTox 2020**

[ Virtual, 21/09/2020 – 25/09/2020 ]

I have been organizing the conference and chairing the session on "New Methods in Predictive Toxicology"

<https://opentox.net/events/virtual-conference-2020>

## **SETAC Europe 30th Annual Meeting**

[ Dublin - Virtual, 03/05/2020 – 07/05/2020 ]

Conference helded virtually due to covid pandemic.

I have been presenting two posters:

- 1) Towards distinguishing adaptive and adverse response to chemicals using gene expression data
- 2) Investigating the potential of probiotic to mitigate BPA toxicity in zebrafish (Danio rerio): A metagenomic perspective

<https://dublin.setac.org/>

## **SETAC Europe 29th Annual Meeting**

[ Helsinki, Finland, 26/05/2019 – 30/05/2019 ]

I have been delivering a platform presentation and I have been presenting two posters:

- 1) Daphnia as a test organism for endocrine disruption (Platform)
- 2) Concerns for Di-isononyl phthalate contaminated diet in marine fish: focus on the effects on both the hepatic lipid metabolism and the muscle proteolysis of male gilthead sea bream (Spaurus aurata)"
- 3) Chemical prioritization by computational transcriptomics: a two case studies

<http://helsinki.setac.org/>

## **SETAC North America 39th Annual Meeting**

[ Sacramento, California, U.S.A., 04/11/2018 – 08/11/2018 ]

I have been delivering a platform presentation:

- 1) In silico computational transcriptomics reveals novel endocrine disruptors in Largemouth bass (Micropterus salmoides)

## **SETAC Europe 28th Annual Meeting**

[ Rome, Italy, 13/05/2018 – 17/05/2018 ]

I have been delivering a platform presentation and following a training course:

- 1) Predicting in vivo toxicity from in vitro transcriptional responses following chemical exposure (Platform)
- 2) The Endocrine System: Global Perspectives on Testing Methods and Evaluation of Endocrine Activity

In addition, I have been awarded both a registration and a training course grant for this conference. Last, I have been awarded a prize for the best research proposal in a competition between the italian and Uk branch. Title of the proposal was:

MONSTER: eMerging endOcrine disruptiNG chemicalS: Mode of action and associaTed mEtabolic disordeRs

<http://rome.setac.org/>

## **iEOS 2014**

[ Liverpool, UK, 15/09/2014 – 18/09/2014 ]

<http://environmentalomics.org/ieos2014/>

## **SETAC Europe 24th Annual Meeting**

[ Basel, Switzerland, 11/05/2014 – 15/05/2014 ]

I have been presenting a poster and following a training course:

- 1) New toxicity outcome using a non-model fish species Largemouth bass (*Micropterus salmoides*) (Poster)
- 2) Modelling human and ecosystems exposure and impacts for life-cycle assessment the USEtox® consensus model"

<http://basel.setac.eu/?contentid=763>

## **iEOS 2013**

[ Cardiff, UK, 09/09/2013 – 11/09/2013 ]

<http://environmentalomics.org/ieos2013/>

## **HONOURS AND AWARDS**

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### **SETAC prize for the student's best research proposal**

Society of Environmental Toxicology and Chemistry (SETAC) [ 2018 ]

The UK and Italian branch of the SETAC organized a competition for writing the best research proposal and I have been awarded the prize of a free registration grant for the next SETAC conference who took place in Helsinki.

The title of my research proposal was:

MONSTER: eMerging endOcrine disruptiNg chemicalS: Mode of action and associaTed mEtabolic disordeRs

### **Campusworld scholarship**

Marche Polytechnic University [ 2012 ]

I have been awarded a scholarship for my grades which allowed me to move to the University of California San Diego (UCSD) to carry out my Master's thesis

## **TEACHING EXPERIENCE**

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### **R programming courses**

[ 01/04/2021 – Current ]

Along with the Turtles of the Adriatic Organization (TAO) nonprofit organization we have been developed an R course for beginners which we run multiple times over the year in order to provide students and professionals with the skills needed to analyse and represent their data. I'm one of the teachers of this course.

<https://www.taoproject.it/corso-r/>

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*Autorizzo il trattamento dei dati personali presenti nel CV ai sensi del D.Lgs. 2018/101 e del GDPR 2016/679.*