

# Dimitrios – Georgios **Kontopoulos**

WALTER BENJAMIN POSTDOCTORAL FELLOW (HE/HIM)

Department of Ecology and Evolutionary Biology, University of California, Los Angeles, CA, USA

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I am an integrative biologist. My research focuses on understanding **how diverse biological systems (from molecules to ecosystems) respond to environmental changes over various timescales**. I approach this goal using approaches from a wide range of fields, including ecoinformatics, phylogenetic comparative methods, comparative genomics, and behavioral experiments.

## Research appointments and internships

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- **Walter Benjamin Postdoctoral Fellow at Prof. Noa Pinter-Wollman's group**, University of California, Los Angeles, USA. **June 2025 - Present**
- **Postdoctoral researcher at Prof. Michael Hiller's group**, LOEWE Centre for Translational Biodiversity Genomics & Senckenberg Research Institute, Frankfurt am Main, Germany. **May 2021 - Dec. 2024**
- **Visiting researcher**, Imperial College London, Silwood Park, Ascot, United Kingdom. **Dec. 2019 - Apr. 2021**
- **Research assistant at Prof. Samraat Pawar's group**, Imperial College London, Silwood Park, Ascot, United Kingdom. **Oct. 2015 - Sep. 2016**  
**Nov. 2014 - May 2015**
- **Postgraduate intern at Dr. Sofia Kossida's group**, Bioinformatics and Medical Informatics Lab of the Biomedical Research Foundation of the Academy of Athens, Athens, Greece. **Nov. 2012 - Sep. 2013**
- **Summer intern at Prof. Marie-Paule Lefranc's group**, Laboratoire d'ImmunoGénétique Moléculaire of the Institut de Génétique Humaine, Montpellier, France. **May - June 2013**
- **Summer intern at Prof. Zissis Mamuris' group**, Laboratory of Genetics, Comparative and Evolutionary Biology of the Department of Biochemistry and Biotechnology of the University of Thessaly, Larissa, Greece. **July 2011**
- **Intern at Dr. George Skavdis' group**, Laboratory of Molecular Regulation of the Department of Molecular Biology and Genetics of the Democritus University of Thrace, Alexandroupolis, Greece. **Mar. - May 2010**

## Education

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- **Imperial College London**, Silwood Park, Ascot, United Kingdom **Oct. 2015 - Dec. 2019**  
**PhD:** "Limits to thermal adaptation in ectotherms"
- **Imperial College London**, Silwood Park, Ascot, United Kingdom **Sep. 2013 - Sep. 2014**  
**MRes Biodiversity Informatics and Genomics**, graduated with Distinction.  
**Thesis:** "Phylogenetic constraints and environmental drivers of thermal adaptation among the phytoplankton"
- **Democritus University of Thrace**, Alexandroupolis, Greece **Sep. 2008 - Oct. 2012**  
**BSc Molecular Biology and Genetics**, graduated with 7.46/10 ("Very Well").  
**Thesis:** "Pinda: a gene duplication detection program"

## Publications


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**Peer-reviewed papers** († equal contribution; ✉ corresponding author)


- 19 Yi, X. ✉, **Kontopoulos, D.-G.**, & Hiller, M. ✉ (2025) [Comprehensive phylogenetic trait estimations support ancestral omnivory in the ecologically diverse bat family Phyllostomidae](#). *Evolution*. 79(11):2406-2420.
- 18 **Kontopoulos, D.-G.** ✉, Patmanidis, I., Barraclough, T.G., & Pawar, S. (2025) [Changes in flexibility but not in compactness underlie the thermal adaptation of prokaryotic adenylate kinases](#). *Evolution Letters*. 9(5):598-609.
- 17 Morales, A.E.†, Dong, Y.†, Brown, T., Baid, K., **Kontopoulos, D.-G.**, Gonzalez, V., Huang, Z., Ahmed, A.-W., Bhuinya, A., Hilgers, L.,

- Winkler, S., Hughes, G., Li, X., Lu, P., Yang, Y., Kirilenko, B.M., Devanna, P., Lama, T.M., Nissan, Y., Pippel, M., Dávalos, L.M., Vernes, S.C., Puechmaille, S.J., Rossiter, S.J., Yovel, Y., Prescott, J.B., Kurth, A., Ray, D.A., Lim, B.K., Myers, E., Teeling, E.C., Banerjee, A., Irving, A.T. , & Hiller, M.  (2025) [Bat genomes illuminate adaptations to viral tolerance and disease resistance](#). *Nature*. 638:449-458.
- 16 Kontopoulos, D.-G.** , Levesque, D.L., & Hiller, M.  (2025) [Numerous independent gains of daily torpor and hibernation across endotherms, linked with adaptation to diverse environments](#). *Functional Ecology*. 39(3):824-839.
- 15 Kontopoulos, D.-G.** , Sentis, A., Daufresne, M., Glazman, N., Dell, A.I., & Pawar, S. (2024) [No universal mathematical model for thermal performance curves across traits and taxonomic groups](#). *Nature Communications*. 15:8855. **[Co-second place winner of the 2025 Outstanding Paper Award from the Early Career Ecologists Section of the Ecological Society of America]**
- 14 Pawar, S.** , Huxley, P.J. , Smallwood, T.R.C., Nesbit, M.L., Chan, A.H.H., Shocket, M.S., Johnson, L.R., **Kontopoulos, D.-G.**, & Cator, L.J.  (2024) [Variation in temperature of peak trait performance constrains adaptation of arthropod populations to climatic warming](#). *Nature Ecology & Evolution*. 8:500-510.
- 13 Kirilenko, B.M.**, Munegowda, C., Osipova, E., Jebb, D., Sharma, V., Blumer, M., Morales, A.E., Ahmed, A.-W., **Kontopoulos, D.-G.**, Hilgers, L., Lindblad-Toh, K., Karlsson, E.K., Zoonomia Consortium, & Hiller, M.  (2023) [Integrating gene annotation with orthology inference at scale](#). *Science*. 380(6643):eabn3107.
- 12 Smith, T.P.** , Mombrikotb, S., Ransome, E., **Kontopoulos, D.-G.**, Pawar, S., & Bell, T. (2022) [Latent functional diversity may accelerate microbial community responses to temperature fluctuations](#). *eLife*. 11:e80867.
- 11 Kordas, R.L.**, Pawar, S., **Kontopoulos, D.-G.**, Woodward, G., & O’Gorman, E.J.  (2022) [Metabolic plasticity can amplify ecosystem responses to global warming](#). *Nature Communications*. 13:2161.
- 10 Kontopoulos, D.-G.** , Smith, T.P., Barraclough, T.G., & Pawar, S. (2020) [Adaptive evolution shapes the present-day distribution of the thermal sensitivity of population growth rate](#). *PLOS Biology*. 18(10):e3000894.
- 9 Kontopoulos, D.-G.** , van Sebillé, E., Lange, M., Yvon-Durocher, G., Barraclough, T.G., & Pawar, S. (2020) [Phytoplankton thermal responses adapt in the absence of hard thermodynamic constraints](#). *Evolution*. 74(4):775-790. **[Top cited article 2020-2021 in Evolution]**
- 8 García-Carreras, B.** , Sal, S., Padfield, D., **Kontopoulos, D.-G.**, Bestion, E., Schaum, C.-E., Yvon-Durocher, G., & Pawar, S.  (2018) [Role of carbon allocation efficiency in the temperature dependence of autotroph growth rates](#). *Proceedings of the National Academy of Sciences*. 115(31):E7361-E7368.
- 7 Kumbhar, R.**, Vidal-Eychenié, S., **Kontopoulos, D.-G.**, Larroque, M., Larroque, C., Basbous, J., Kossida, S., Ribeyre, C., & Constantinou, A.  (2018) [Recruitment of ubiquitin-activating enzyme UBA1 to DNA by poly\(ADP-ribose\) promotes ATR signalling](#). *Life Science Alliance*. 1(3):e201800096.
- 6 Kontopoulos, D.-G.** , García-Carreras, B., Sal, S., Smith, T.P., & Pawar, S. (2018) [Use and misuse of temperature normalisation in meta-analyses of thermal responses of biological traits](#). *PeerJ*. 6:e4363.
- 5 Kontopoulos, D.-G.** , Kontopoulou, T., Ho, H.-C., & García-Carreras, B. (2017) [Towards a theoretically informed policy against a rakhghoul plague outbreak](#). *The Medical Journal of Australia*. 207(11):490-494. **[Third place in the 2017 Christmas Competition of the Medical Journal of Australia]**
- 4 Kontopoulos, D.-G.** , Vlachakis, D. , Tsiliki, G., & Kossida, S. (2016) [Structuprint: a scalable and extensible tool for two-dimensional representation of protein surfaces](#). *BMC Structural Biology*. 16:4.
- 3 Kontopoulou, T.** , **Kontopoulos, D.-G.** , Vaidakis, E., & Mousoulis, G.P. (2015) [Adult Kawasaki disease in a European patient: a case report and review of the literature](#). *Journal of Medical Case Reports*. 9(1):75.
- 2 Vlachakis, D.**, **Kontopoulos, D.-G.**, & Kossida, S.  (2013) [Space Constrained Homology Modelling: the paradigm of the RNA-dependent RNA polymerase of dengue \(type II\) virus](#). *Computational and Mathematical Methods in Medicine*. 2013:108910.
- 1 Kontopoulos, D.-G.** & Glykos, N.M.  (2013) [Pinda: a web service for detection and analysis of intraspecies gene duplication events](#). *Computer Methods and Programs in Biomedicine*. 111(3):711-714.



## Commentaries

- 1 Pawar, S.**  & **Kontopoulos, D.-G.** (2025) [Toward a general understanding of thermal performance curves in biology](#). *Proceedings of the National Academy of Sciences*. 122(51):e2528528122.

## Invited book chapters

- 1 **Kontopoulos, D.-G.**  Phylogenetic comparative approaches for the study of biological scaling. In: Synthesizing biological scaling: towards a universal theory. Santa Fe Institute Press. *In press*.

## Preprints

- 1 **Kontopoulos, D.-G.** , Ahmed, A.-W., Bein, B., Levesque, D.L., & Hiller, M.  [Comparative genomics indicate multiple genetic routes to the evolution of torpor in placental mammals.](#) *bioRxiv*.

## Fellowships, scholarships, and awards

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Total funds secured: >€380,000

- 8 Outstanding Paper Award (co-second place winner) from the **Early Career Ecologists Section of the Ecological Society of America** for peer-reviewed paper #15 above. **Aug. 2025**
- 7 Walter Benjamin Postdoctoral Fellowship from the **German Research Foundation (DFG)**. €133,585 **June 2025 - May 2027**
- 6 **EMBO** Postdoctoral Fellowship. €168,000 **Mar. 2022 - Apr. 2024**
- 5 Top cited article award from **Evolution** for peer-reviewed paper #9 above. **Mar. 2022**
- 4 Third place in the Christmas Competition of the **Medical Journal of Australia** for peer-reviewed paper #5 above. **Dec. 2017**
- 3 Travel award from the **Department of Life Sciences, Imperial College London** for attending the 2017 Congress of the European Society for Evolutionary Biology in Groningen, the Netherlands. £500 **May 2017**
- 2 Science and Solutions for a Changing Planet Doctoral Training Partnership scholarship from the **Natural Environment Research Council**. £57,300 **Oct. 2015 - Apr. 2019**
- 1 Scholarship for 2013-2014 postgraduate education abroad (1st cycle) from the **Greek State Scholarships Foundation (IKY)**. €13,680 **Dec. 2013**

## Presentations

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### Invited talks

- 4 **Evolution of ecophysiological responses to temperature changes.** Université Clermont Auvergne, France, 10th November 2023.
- 3 **Deep-time evolution of biological responses to temperature changes.** Ecology & Evolution Seminar Series, Imperial College London, Silwood Park Campus, United Kingdom, 10th October 2019.
- 2 **Deep-time evolution of physiological responses to temperature changes.** Stanford University, CA, United States of America, 13th September 2019.
- 1 **Trait correlations vs environmental drivers in the evolution of phytoplankton thermal responses.** National Taiwan University, Taiwan, 26th March 2018.

### Contributed talks

- 8 **Kontopoulos, D.-G.**, Ahmed, A.-W., Bein, B., & Hiller, M. (2024) The impact of phylogenetic diversity on the strength of gene-trait associations. *18th Conference of the Hellenic Society for Computational Biology and Bioinformatics, Lamia, Greece, 17-19th October*.
- 7 **Kontopoulos, D.-G.**, Levesque, D.L., & Hiller, M. (2023) Physiological, ecological, and genomic underpinnings of daily torpor and hibernation across mammals and birds. *2023 Annual Meeting of the Ecological Society of America, Portland, OR, United States of America, 6th-11th August*.
- 6 **Kontopoulos, D.-G.**, van Sebillie, E., Lange, M., Yvon-Durocher, G., Barraclough, T.G., & Pawar, S. (2018) Non-random adaptive evolution of the thermal sensitivity of growth rate among phytoplankton. *Gordon Research Seminar on Unifying Ecology Across Scales, Biddeford, ME, United States of America, 21st-22nd July*.

- 5 **Kontopoulos, D.-G.**, van Sebillé, E., Lange, M., Yvon-Durocher, G., & Pawar, S. (2018) Trait correlations vs environmental drivers in the evolution of phytoplankton thermal responses. *65th Annual Meeting of the Ecological Society of Japan, Sapporo, Japan, 14th-18th March.*
- 4 **Kontopoulos, D.-G.**, Yvon-Durocher G., & Pawar, S. (2017) Niche convergence in the macroevolution of the thermal sensitivity of phytoplankton growth rate. *2017 Congress of the European Society for Evolutionary Biology, Groningen, the Netherlands, 20th-25th August.*
- 3 **Kontopoulos, D.-G.**, Yvon-Durocher, G., & Pawar, S. (2016) Deep-time macroevolution of thermal sensitivity of growth rate among phytoplankton. *Annual Meeting of the British Ecological Society, Liverpool, United Kingdom, 11th-14th December.*
- 2 **Kontopoulos, D.-G.**, Yvon-Durocher, G., Chen, B., Thomas, M. K. & Pawar S. (2014) Γενικά μοτίβα θερμικής προσαρμογής μεταξύ των ειδών του φυτοπλαγκτού [General patterns of thermal adaptation among phytoplankton]. *7th National Congress of the Hellenic Ecological Society, Mytilene, Greece, 9th-12th October.*
- 1 **Kontopoulos, D.-G.** & Glykos, N.M. (2012) Pinda: a web service for detection and analysis of intraspecies gene duplications. *7th Conference of the Hellenic Society for Computational Biology and Bioinformatics, Heraklion, Greece, 4th-6th October.*

### Contributed posters

- 3 **Kontopoulos, D.-G.**, Patmanidis, I., Barraclough, T.G., & Pawar, S. (2018) Nonsynonymous mutations are more detrimental at high temperatures; a prokaryote-wide study of adenylate kinases. *Gordon Research Conference on Unifying Ecology Across Scales, Biddeford, ME, United States of America, 22nd-27th July.*
- 2 **Kontopoulos, D.-G.**, Yvon-Durocher, G., & Pawar, S. (2016) Deep-time macroevolution of thermal sensitivity of growth rate among phytoplankton. *Gordon Research Conference on Unifying Ecology Across Scales, Biddeford, ME, United States of America, 24th-29th July.*
- 1 **Kontopoulos, D.-G.**, Yvon-Durocher, G., Allen, A.P., Chen, B., Thomas, M.K., & Pawar, S. (2014) Phylogenetic constraints and environmental drivers of thermal adaptation among the phytoplankton. *Annual London Evolutionary Research Network Conference, London, United Kingdom, 5th November.*

## Research skills

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### Thermal biology

- quantifying the shape of thermal performance curves for physiological, ecological, or other biological traits through diverse (80+) nonlinear mathematical models.
- identifying trait-trait and trait-environment associations through phylogenetic generalised linear mixed models with numerous (up to 22 so far) covarying response variables.
- sampling of *Linepithema humile* ants from natural colonies, conducting behavioral experiments at multiple temperatures and humidity levels, and analysing the data using Artificial Intelligence software.

### Statistics & data science

- Bayesian statistics.
- phylogenetic comparative methods.
- likelihood-based model selection.
- dimensionality reduction and clustering.
- machine learning.

### Bioinformatics

- genome alignment and annotation.
- Gene Ontology term enrichment.
- genome-wide screening for signatures of selection, gene losses, or evolutionary rate shifts, associated with a trait of interest.
- analysis of sequence or physicochemical conservation.
- protein structure modelling and comparison.
- molecular dynamics simulations.

### Phylogenetics

- likelihood-based reconstruction of gene and species trees.
- timetree inference.

### Ecological modelling

- modelling predator-prey population dynamics using ordinary differential equations.
- agent-based modelling with NetLogo.

## Scientific programming

- extensive experience in Perl and R.
- good experience in Python and SQL.
- basic experience in Common Lisp, C, and Shell.
- version control using Git.
- some experience in web development.

## Teaching experience

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### As a course demonstrator

- **Further Topics in Statistics** 2015-18  
MSc/MRes “Ecology, Evolution and Conservation”, Imperial College London
- **Intro to UNIX and Linux** 2017  
MSc/MRes “Computational Methods in Ecology and Evolution” and “Quantitative and Modelling Skills in Ecology and Evolution” Centre for Doctoral Training, Imperial College London
- **Statistics** 2014-15  
BSc “Biological Sciences”, year 1, Imperial College London
- **Biological Computing in Python II** 2014  
MSc/MRes “Computational Methods in Ecology and Evolution”, Imperial College London
- **Computational Biostatistics** 2014  
BSc “Biological Sciences”, year 2, Imperial College London

### As a course tutor

- **MSc/MRes “Computational Methods in Ecology and Evolution”**, Imperial College London 2014-15

### As a workshop presenter

- **“How to generate topological constraints using the Open Tree of Life”** 30th March 2017  
Silwood Computer Skillz Workshop, Imperial College London

## Mentoring

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### Undergraduate interns

- **Sofia Barreras** - BS “Atmospheric and Oceanic Sciences”, University of California, Los Angeles. 2026  
**Duties:** determining ant counts and body lengths from images using ImageJ.
- **Catherine Tran** - BS “Ecology, Evolution, and Behavior”, University of California, Los Angeles. 2025-26  
**Duties:** determining ant counts from images using ImageJ.

### Master’s students

- **Georgios Kalogiannis** - MRes “Computational Methods in Ecology and Evolution”, Imperial College London. 2024  
**Thesis:** “Gene loss is an important signature of insect size evolution”  
**Primary supervisor:** Samraat Pawar
- **Aditi Madkaikar** - MRes “Computational Methods in Ecology and Evolution”, Imperial College London. 2023  
**Thesis:** “Predicting the thermal niche of a ubiquitous bacterium using whole genome sequence”  
**Primary supervisor:** Samraat Pawar  
**Other supervisors:** Arianna Basile
- **Kate Griffin** - MSc “Computational Methods in Ecology and Evolution”, Imperial College London. 2022  
**Thesis:** “Can’t stand the heat? An analysis of the thermal sensitivity of arthropods, how it has evolved & factors influencing it”  
**Primary supervisor:** Samraat Pawar  
**Other supervisors:** Paul Huxley, Lauren Cator

## Selected media coverage

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### Mentions in popular press

- [Feature](#) in the “[Feedback](#)” column of the [New Scientist](#) for peer-reviewed paper #16 above. 5th February 2025

### Institutional press releases and highlights

- [Press release](#) from the [Senckenberg Society for Nature Research](#) for peer-reviewed paper #16 above. Distributed by the [idw](#) (“[Science Information Service](#)”) and the [VBIO](#) (“[German Life Sciences Association](#)”). 27th January 2025
- [Highlight](#) from [Imperial College London](#) for peer-reviewed paper #10 above. 13th November 2020

## Outreach / public engagement

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- Exhibitor at the [Great Exhibition Road Festival](#), London, UK 7th-8th May 2016
- Co-organiser of the “[Drawing Climate Change](#)” activity at the [Science Museum Lates](#), London, UK 30th March 2016

## Service

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Manuscript reviewer for 15 Journals / peer review platforms: *Communications Biology*, *Communications Earth & Environment*, *Ecology Letters*, *eLife*, *Frontiers in Microbiology*, *Functional Ecology*, *Journal of Plankton Research*, *Journal of Thermal Biology*, *Life Science Alliance*, *Limnology and Oceanography*, *Physiological and Biochemical Zoology*, *Proceedings of the Royal Society B: Biological Sciences*, *Review Commons*, *Scientific Reports*, and *Systematic Biology*.

## Scientific workshops and courses attended

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- 6 [CIRTL@UCLA Introduction to Evidence-Based Undergraduate Teaching course](#), University of California, Los Angeles, CA, USA. Sep. 2025 - Dec. 2025
- 5 [CIMER/NRMN Postdoc Research Mentoring Workshop](#), University of California, Los Angeles, CA, USA. 28th Aug. 2025
- 4 [An Introduction to Mechanistic Niche Modelling with NicheMapR and TrenchR](#), 2023 Annual Meeting of the Ecological Society of America, Portland, OR, United States of America. 6th Aug. 2023
- 3 [EMBO Laboratory Leadership course](#), EMBO Solutions, Heidelberg, Germany. 5th-7th July 2023
- 2 “[Introduction to Agent-Based Modelling](#)” Massive Open Online Course, Santa Fe Institute, held online. June 2022 - Aug. 2022
- 1 [Evolutionary Quantitative Genetics workshop](#), Friday Harbor Laboratories, University of Washington, held online. 11th-15th July 2022

## Language skills

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Native proficiency in **Greek**, full proficiency in **English**, sufficient proficiency in **French**, basic proficiency in **German**.

## References

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### Prof. Samraat Pawar

**Title:** Professor of Theoretical Ecology

**Affiliation:** Department of Life Sciences, Imperial College London, Silwood Park

**Email address:** [s.pawar@imperial.ac.uk](mailto:s.pawar@imperial.ac.uk)

### Prof. Noa Pinter-Wollman

**Title:** Professor

**Affiliation:** Department of Ecology and Evolutionary Biology, University of California, Los Angeles

**Email address:** [nmpinter@ucla.edu](mailto:nmpinter@ucla.edu)

### Prof. Michael Hiller

**Title:** Professor of Comparative Genomics

**Affiliation:** Senckenberg Research Institute, Frankfurt and Goethe University

**Email address:** [michael.hiller@senckenberg.de](mailto:michael.hiller@senckenberg.de)

### Prof. Timothy G. Barraclough

**Title:** Professor of Evolutionary Biology

**Affiliation:** Department of Biology, University of Oxford

**Email address:** [tim.barraclough@biology.ox.ac.uk](mailto:tim.barraclough@biology.ox.ac.uk)

## Additional information

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**Member of Scientific Societies:** [Society for the Study of Evolution](#), [Ecological Society of America](#), [Panhellenic Association of Biologists](#), [Hellenic Bioscientific Association of the USA](#).

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