George Datseris

Curriculum Vitae

Academic appointments

01/2023 - present **Royal Society Newton International Fellow**, *University of Exeter*, Department of Mathematics and Statistics, Exeter, United Kingdom.
Mentors: Peter Ashwin, Geoffrey Vallis

01/2020 - 12/2022 **Postdoc in climate science**, *Max Planck Institute for Meteorology*, Department of Atmosphere in the Earth System, Hamburg, Germany.
Supervisors: Bjorn Stevens, Hauke Schmidt

04/2016 - 09/2019 **PhD in physics: Ballistic electron transport in graphene nanodevices and billiards ("summa cum laude")**, *Max Planck Institute for Dynamics and Self-organization*, Department of Nonlinear Dynamics, Göttingen, Germany.
Supervisors: Theo Geisel, Ragnar Fleischmann

10/2015 - 04/2016 **Research assistant**, *Max Planck Institute for Dynamics and Self-Organization*, Department of Nonlinear Dynamics.

2009 - 2016 **BSc and MSc in physics, majored in condensed matter**, *National and Kapodistrian University of Athens, Faculty of Physics*, Athens.
Thesis supervisors: Fotios Diakonos, Georgios Triberis

Awards and highlights

2023 **Marie Sklodowska Curie Postdoctoral Fellowship**, awarded by the European Commission, and funded by the UK Research and Innovation, to work on an individual project in the University of Exeter (award: 220,908.48€).

2022 **Walter Benjamin Fellowship**, awarded by the German Research Foundation (DFG) to work on an individual project in the University of Exeter (award: 74,004.72€).

2022 **Newton International Fellowship**, awarded by the Royal Society to work on an individual project in the University of Exeter (award: 131,250£).

2022 **Max Planck Institute for Meteorology Distinction**, awarded for my "exceptional performance in intellectual culture and community building". This award also came with a premium payout (6,000€).

2022 **MSCA Seal of Excellence**, My application for a Marie Sklodowska Curie Actions Postdoctoral Fellowship scored 92.8/100, which while not high enough for funding, warrants a Seal of Excellence from the European Commission, certifying the high-quality of the project proposal.

2022 **Featured Article in Chaos**, Our paper *Effortless estimation of basins of attraction* (Datseris & Wagemakers 2022) was selected as a Featured Article in the journal's website, which signifies that the editors felt that our article was one of the journal's best.

2021 **Editor's Highlight in Eos.org**, Our paper *Earth's albedo and its symmetry* (Datseris & Stevens 2021, AGU Advances) was selected as an Editor's Highlight in Eos.org (fewer than 2% of AGU journal articles are featured in this way).

2020 **70$^{\text{th}}$ Lindau Nobel Laureate Meeting**, I was one of the few young scientists selected to participate in the meeting, which provided direct interaction with several Nobel Laureates.

2018 **DSWeb 2018 Dynamical Systems Software 1st place**, Award given by the Dynamical Systems division of SIAM for my submission **DynamicalSystems.jl** (award: 500€).

2018 **IMPRS Travel Grants**, For participating in JuliaCon2018, London, U.K. and deRSE19, Potsdam, Germany (1,500€).

2016 - 2019 **International Max Planck Research School (IMPRS) Excellence Fellowship**, A competitive fellowship given by the IMPRS for the Physics of Biological and Complex Systems that covers a full PhD project (circa 1,800€ per month after taxes).

Publications

Books

2022 **Nonlinear Dynamics: A concise introduction interlaced with code**, *G. Datseris & U. Parlitz*, Springer-Nature, Undergraduate Lecture Notes In Physics Series, `https://link.springer.com/book/10.1007/978-3-030-91032-7`.

Journal articles

See my manually curated Google Scholar page:
`https://scholar.google.com/citations?hl=en&user=5U_llXcAAAAJ`

Invited talks

This section lists invited talks, not contributed conference talks. I contribute on average 3 conference talks per year in international conferences.

03/2023 **Finding and continuing attractors and their basin fractions for arbitrary dynamical systems**, *Max Planck Institute for Evolutionary Biology*, invited by Maria Alejandro Ramirez.

01/2023 **Cloud controlling factors and causal timeseries analysis**, *Stockholm University Meteorology Department (MISU)*, invited by Frida Bender and Rodrigo Caballero.

08/2022 **Stability indicators in DynamicalSystems.jl**, *Minisymposium "Stability indicators and machine learning" in Dynamics Days 2022*, invited by Nahal Sharafi.

08/2022 **Why you should do your agent based modelling with Agents.jl**, *University of Europe for Applied Sciences / Statista*, invited by Iris Lorscheid (UoE) and Jeremiah Lasquety-Reyes (Statista).

06/2022 **An open approach to nonlinear dynamics**, *Ray Juan Carlos University, Madrid*, invited by Miguel Sanjuan.

05/2022 **DynamicalSystems.jl - nonlinear dynamics software for everyone**, *Technical University Munich, weekly seminar of dynamics group*, invited by Niklas Boers.

04/2022 **An open approach to nonlinear dynamics**, *University of Oldenburg*, invited by Ulrike Feudel.

11/2021 **Earth's albedo and its symmetry**, *Max Planck Institute for Dynamics and Self-Organization, Göttingen*, invited by Michael Wilczek.

05/2021 **Earth's albedo symmetry and cloudiness**, *35^{th} CERES-NASA Science Team Meeting*, invited by Norman Loeb.

11/2019 **Phase space analysis of quantum transport in graphene**, *Technical University Vienna*, invited by Stefan Rotter.

09/2019 **Music timeseries analysis: universal structure and its impact on the listening experience**, *University of Nottingham*, invited by Philip Moriarty.

08/2019 **Fresh approach to dynamical systems software**, *8^{th} Recurrence Plot Symposium - Zhenjiang, China*, invited by Norbert Marwan.

07/2019 **Software to make your scientific life easier**, *New trends in biomedical imaging and data analysis (conference)*, invited by Ulrich Parlitz.

05/2019 **Music timeseries analysis: universal structure and its impact on the listening experience**, *Max Planck Institute for the Physics of Complex Systems*, invited by Holger Kantz.

04/2019 **Spatiotemporal timeseries prediction using locally reconstructed states**, *Potsdam Institute for Climate Impact Research*, invited by Norbert Marwan.

07/2018 **Fresh approach to dynamical systems software**, *TU Munich*, invited by Oliver Junge.

04/2018 **Nonlinear resonances and phase-space volume conservation lead to robust ballistic transport in antidot superlattices**, *Uni. Regensburg*, invited by Jonathan Eroms.

Education & outreach experience

Supervision

2021 **Model Serialization and Pathfinding for Agents.jl**, *A. Sabharwal*, Google Summer of Code project, co-supervised with T. DuBois.

2021 **Music Transformer**, *V. M. Vasi*, Google Summer of Code project, co-supervised with A. Sengupta.

2021 **Albedo hemispheric symmetry as a result of static asymmetries**, *I. Baffour*, Master thesis co-supervised with H. Schmidt.

2018 **Statistical properties of musical time series**, *L. Jahn*, Bachelor thesis co-supervised with T. Geisel.

2018 **Observing and predicting complex dynamics using local modelling**, *J. Isensee*, Bachelor thesis co-supervised with U. Parlitz.

2018 **Lyapunov exponents vs. phase space restrictions in dynamical billiards**, *L. Hupe*, Bachelor thesis co-supervised with R. Fleischmann.

Courses

2020-2021 **A practical introduction to nonlinear dynamics**, *University of Hamburg*.
Full semester course for PhD and Master students where I was the only lecturer, and a tutor helped me by giving exercises. The course is based on our aforementioned book published by Springer.

2021 **Agent based modelling with Agents.jl**, *SGH Warsaw School of Economics*.
One-day guest lecture for a course on Agent based modelling taught by B. Kaminski.

2016, 2017 **Introduction to the Physics of Complex Systems**, *University of Göttingen*.
Tutoring for the course (total amount of around 48 hours) taught by R. Fleischmann, U. Parlitz, K. Alim and A. Gholami. I tutored this course twice.

04/2014 - 06/2014 **Chaos in 1D and 2D Maps**, *University of Athens*.
Total of 9 hours guest lecture for the course "Non-linear dynamical systems" taught by T. Apostolatos and P. Ioannou.

2010 - 2014 **High school physics, chemistry and math**, *Private tutoring*.

Workshops, Videos, Outreach

2022 **Good Scientific Code Workshop**, *Online*.
A week-long block workshop on principles of good scientific code. It is available on YouTube channel "JuliaDynamics", with link `https://www.youtube.com/watch?v=x3swaMSCcYk`, with 1,500 views.

2021 - present **Educational science videos**, *Online*.
Education-oriented videos about various scientific topics related with nonlinear dynamics available on YouTube channel "JuliaDynamics". For example, my video "Explanation of the butterfly effect and deterministic chaos using billiards" has ∼20,000 views (February 2022).

2021 **Open Science Panel Discussion**.
Participated as one of the four panelists of the "Open Science" Panel Discussion which took place during the 70$^{\text{th}}$ Lindau Nobel meeting. I co-hosted the panel with Dr. Jex and Nobel Laureates Prof. Blackburn and Prof. Schekman. It is available publicly, `https://www.mediatheque.lindau-nobel.org/recordings/39149/open-science`.

2020 **Julia: Zero-To-Hero**, *Göttingen / online*.
Intensive workshop about the programming language Julia and how can one start using it in scientific work. Also available on YouTube with ∼20,000 views.

2021 **Good scientific code**, *Göttingen*.
One-day long workshop on writing good scientific code.

2017 - present **Software video tutorials**, *Online*.
Multiple videos uploaded (or livestreamed) on YouTube explaining educating on using specific software packages for the Julia language.

Software development

Published software

*Software having * have been used in published research.*

- InteractiveDynamics.jl
- DynamicalBilliards.jl*
- DrWatson*
- MIDI.jl*
- Agents.jl*
- SpikeSynchrony.jl
- DynamicalSystems.jl*
- TimeseriesPrediction.jl*
- MusicManipulations.jl*
- TimeseriesSurrogates.jl*
- ClimateBase.jl*
- ComplexityMeasures.jl*

Community activity

Hacktoberfest I have completed the Hacktoberfest challenge every year since 2017.

Additional qualifications

Community Service Reviewed publications for the following journals: Journal of Open Source Software, European Physics Journal B, Chaos, PLOS ONE, PLOS ONE: Applied Mathematics, Journal of Climate, Geophysical Research Letters, New Journal of Physics, ReScience-C.

Soft Skills Attended courses on networking, negotiation, conflict management, grant writing, career development, and a semester-long course on project management and productivity.

Professional Drummer Degree on modern drumset and Jazz music theory. Graduated from Philippos Nakas school of music in association with Berklee college of music with diploma grade: "Very Good" on July 2015.

Event Organizing Hacktoberfest at the Max Planck Institute for Dynamics and Self-Organization, Göttingen GGNB PhD School Debate club, Bi-annual retreat of the PhD school for the Physics of Biological and Complex Systems.

Languages Greek (mothertongue), English (exceptional), Spanish (B2 degree).