

George Datseris

Curriculum Vitae

Academic appointments

- 01/2023 - **Royal Society Newton International Fellow**, *University of Exeter*, Department of Mathematics and Statistics, Exeter, United Kingdom.
Mentors: Peter Ashwin, Geoffrey Vallis
- 01/2020 - **Postdoc in climate science**, *Max Planck Institute for Meteorology*, Department of Atmosphere in the Earth System, Hamburg, Germany.
12/2022 Supervisors: Bjorn Stevens, Hauke Schmidt
- 04/2016 - **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.
09/2019 Supervisors: Theo Geisel, Ragnar Fleischmann
- 10/2015 - **Research assistant**, *Max Planck Institute for Dynamics and Self-Organization*, Department of Nonlinear Dynamics.
04/2016
- 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 **Showcase in AIP Publishing**, Our paper *Framework for global stability analysis of dynamical systems* (Datseris, Rossi, Wagemakers 2023) was showcased in the American Institute of Physics (AIP) Publishing Showcase on Kudos.
- 2023 **Featured Article in Chaos**, Our paper *Framework for global stability analysis of dynamical systems* (Datseris, Rossi, Wagemakers 2023) 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.
- 2023 **Marie Skłodowska 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 Skłodowska 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 **70th 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 (award: 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 (award: circa 1,800€/month tax excluded).

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_1lXcAAAAJ

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**, *35th 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**, *8th 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

- 2023 **Advanced implementations for Attractors.jl (minimal fatal shock, accelerated basin fractions identification)**, *S. Vayl*, Google Summer of Code project.
- 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 - **Chaos in 1D and 2D Maps**, *University of Athens*.
- 06/2014 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 - **Educational science videos**, *Online*.
- present 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 70th 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 - **Software video tutorials**, Online.
present Multiple videos uploaded (or livestreamed) on YouTube explaining educating on using specific software packages for the Julia language.

Software

Developed software

I have been involved in the development of a lot of software packages for the Julia programming language. Below I list the ones I have spent the majority of my time in developing software. (*software having * have already been used in published research*)

- TransitionsInTimeseries.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

- Reviewer work Reviewed publications for the following journals: Journal of Open Source Software (x4), European Physics Journal B, Chaos (x4), PLOS ONE, PLOS ONE: Applied Mathematics, Journal of Climate (x2), Geophysical Research Letters (x2), New Journal of Physics (x2), IEEE Transactions on Systems, Man, and Cybernetics: Systems.
- 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 Hacktoberfest at the Max Planck Institute for Dynamics and Self-Organization;
Organizing 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).