George Datseris

Curriculum Vitae

Academic background and achievements

Academic Background

01/2020 - present **Postdoc**, *Max Planck Institute for Meteorology*, Department of Atmosphere in the Earth System (dir. Bjorn Stevens), Hamburg, Germany.

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

10/2015 - 04/2016 **Research Assistant**, *Max Planck Institute for Dynamics and Self-Organization*, Department of Nonlinear Dynamics (dir. Theo Geisel).
6-month funded period that constituted my MSc Thesis.

2014 - 2016 **Master's Degree in the specialty of "Physics of Materials" (120 ECTS)**, *National and Kapodistrian University of Athens, Faculty of Physics*, Athens, Grade 9.28/10.0.
Thesis: Quasi-classical Magneto-transport in Graphene Antidot Super-lattices (supervised by Prof. Theo Geisel & Prof. Georgios Triberis)

2009 - 2014 **Bachelor in Physics (240 ECTS), Majored in Solid State Physics**, *National and Kapodistrian University of Athens, Faculty of Physics*, Athens, Grade 8.06/10.0.
Thesis: Auto- and Cross- Correlations in the Standard Map: Structure and Origin (supervised by Prof. Fotios Diakonos)

Fellowships, Awards, Highlights

2022 **Newton International Fellowship**.
I was awarded the Newton International Fellowship by the Royal Society, to work on my own two-year project in the University of Exeter, mentored by Peter Ashwin and Geoffrey Vallis (30,000£/year nontaxable).

2022 **Max Planck Institute for Meteorology Distinction**.
Recognized for my "exceptional performance in intellectual culture and community building" as part of a yearly distinction nomination done within the Max Planck Society. 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 has scored 92.8/100, which while not high enough for full funding due to budget constraints, 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**.
I have won the first place award for this competition run by the Dynamical Systems division of SIAM. My submission was my software **DynamicalSystems.jl**. Prize also included a fund of 500€.

2018 **IMPRS Travel Grants**.
For travelling to London, U.K. and participating in the conference JuliaCon2018 as well as travelling to Potsdam, Germany and participating in the conference deRSE19 (1,500€).

2016 - 2019 **International Max Planck Research School (IMPRS) Excellence Fellowship**.
This competitive fellowship of the IMPRS for the Physics of Biological and Complex Systems covers a full PhD project (1,800€ monthly, 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`.

Publications: Journal articles

All published journal articles are available on 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.

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

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 1,000 views (September 2022).

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`.

2021 **Good scientific code**, *Hamburg / online*.
Two-day long workshop on writing good scientific code and scientific project reproducibility. This workshop was also performed in Göttingen two years prior.

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 currently ∼12,000 views.

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

Developed and Published Software

I have developed, or had significant contributions to, numerous scientific software packages for the Julia language, all of which are open source and hosted on GitHub. Notable software is DrWatson, which was created to help scientific project reproducibility and management. Software having * have already been used in published scientific research (not only by myself).

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

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.

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).