

# George Datseris

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## Curriculum Vitae

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### Academic Background

- Present **PhD in Physics: Mesoscopic Transport Theory for Graphene Nanostructures**, *Max Planck Institute for Dynamics and Self-organization*, Dynamics of Mesoscopic Systems group, Göttingen, Germany.  
Supervisors: Prof. Theo Geisel, Dr. Ragnar Fleischmann
- 2015-2016 **Research Assistant**, *Max Planck Institute for Dynamics and Self-Organization*.  
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 Diakonou)

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### Fellowships & Awards

- 2018 **DSWeb 2018 Dynamical System Software Competition by SIAM**.  
First place winner using the software **DynamicalSystems.jl** as a submission. For more details please see the official statement.
- 2018 **IMPRS Travel Grant**.  
For travelling to London, U.K. and participating in the conference JuliaCon 2018.
- 2016 - 2019 **International Max Planck Research School Scholarship**.  
This 3-years scholarship covers a full PhD project and was awarded to me on July/2016 for my PhD project.

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## Scientific Publications

- 2019 **Quantum transport in graphene through the lens of the Husimi function**, *G. Datseris & R. Fleischmann*, in prep..
- 2019 **Estimating Lyapunov exponents in billiards**, *G. Datseris, L. Hupe & R. Fleischmann*, submitted in Chaos (arxiv.org/abs/1904.05108).
- 2019 **Does it Swing? Microtiming Deviations and Swing Feeling in Jazz**, *G. Datseris, A. Zieries, T. Albrecht, V. Priesemann, Y. Hagmayer & T. Geisel*, submitted in Scientific Reports (arxiv.org/abs/1904.03442).
- 2019 **Predicting Spatio-Temporal Time Series Using Dimension Reduced Local States**, *J. Isensee, G. Datseris & U. Parlitz*, submitted in J. Nonlin. Sci. (arxiv.org/abs/1904.06089).
- 2019 **Robustness of ballistic transport in antidot superlattices**, *G. Datseris, T. Geisel & R. Fleischmann*, New J. Phys. (doi.org/10.1088/1367-2630/ab19cc).
- 2015 **Effective intermittency and cross correlations in the standard map**, *G. Datseris, P. Schmelcher & F. Diakonov*, Phys. Rev. E **92**, 012914 (2015).

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## Developed and Published Software

- **DynamicalSystems.jl** - Award winning software library for exploring non-linear dynamics and chaos.
- **DynamicalBilliards.jl** - An easy-to-use, modular, performant and extendable Julia package for dynamical billiards in two dimensions.
- **TimeseriesPrediction.jl** - Prediction of timeseries using methods of non-linear dynamics and timeseries analysis.
- **DrWatson.jl** - A software package that helps scientists deal with their simulations and code.
- **MusicManipulations.jl** - Manipulate music data, humanize, quantize and enhance performances with Julia.
- **MIDI.jl** - A Julia library for handling MIDI files.
- **MotifSequenceGenerator.jl** - Generate random sequences of motifs, under the constrain that the sequence has some given total length.

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## Computer skills

- Expert Python, Julia, L<sup>A</sup>T<sub>E</sub>X, Microsoft Office, Cubase.
- Intermediate Mathematica, Adobe Photoshop, Adobe Illustrator, Corel Photo-paint.
- Basic C, Computer Hardware and Support, 3D Modelling in Maya.

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## Supervised Theses

- 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.

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## Teaching

- 2017/18/19 **Software video tutorials**, *Online*.  
Multiple videos uploaded (or livestreamed) on YouTube explaining the use of software described in the *Software* section of the CV.
- 2017 **Jumping into Julia**, *Max Planck Institute for Dynamics and Self-Organization*.  
Single day workshop about the programming language Julia and how can one start using it in scientific work.
- 2017 **Introduction to the Physics of Complex Systems**, *University of Göttingen*.  
Tutoring for the course (total amount of around 48 hours) with lecturers R. Fleischmann, U. Parlitz and A. Gholami.
- 2016 **Introduction to the Physics of Complex Systems**, *University of Göttingen*.  
Tutoring for the course (total amount of around 48 hours) with lecturers R. Fleischmann, U. Parlitz and K. Alim.
- 4-6/2014 **Chaos in 1D and 2D Maps**, *University of Athens*.  
Total of 9 hours lecture for the course called "Non-linear dynamical systems". The units I taught undergraduate students were 1D Chaotic Maps, 2D Hamiltonian Maps, Lyapunov exponents and Invariant measures.

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## Event Organizing

- 2018 - 2019 Göttingen Debate club.
- 2018 Bi-annual retreat of the PhD school for the Physics of Biological and Complex Systems.

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## Invited Talks

- 2019 **Fresh approach to dynamical systems software**, *8<sup>th</sup> Recurrence Plot Symposium - Zhenjiang, China*, invited by Norbert Marwan.
- 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.
- 2019 **Spatiotemporal Timeseries prediction using locally reconstructed states**, *Potsdam Institute for Climate Impact Research*, invited by Norbert Marwan.

- 2018 **Fresh approach to dynamical systems software**, *TU Munich*, invited by Oliver Junge.
- 2018 **Nonlinear Resonances and phase-space volume conservation lead to robust ballistic transport in antidot superlattices**, *Uni. Regensburg*, invited by Jonathan Eroms.

### Conference Contributions

9 talks and 2 posters in various conferences.

## Languages

Mothertongue **Greek**

Expert **English**

*Proficiency degree from the University of Michigan*

Intermediate **Spanish**

*B2 National degree*

## Arts

Music **Professional Drummer.** Graduated from Philippos Nakas school of music in association with Berklee college of music with diploma grade: "Very Good". During the 10+ years of playing drums I have been leading numerous groups of amateur and professional musicians, obtaining skills in leadership, distributing work and coordinating groups of individuals.  
The diploma in modern drumset and theory of jazz music was awarded to me in July 2015.

Painting **Spray Paint Artist.** During my time spray-painting I have hosted numerous exhibitions, including one at a municipal art-gallery. I also run a free art workshop, where I voluntarily teach other people the art of spray painting.