Alexis Gomel

Personal

Nationality	Spanish	Birth Date	December 14th, 1989
Place of Residence	Geneva, Switzerland	Birth Place	Buenos Aires, Argentina.
Languages	Spanish (Native), English (C2), French (B1)		
Email	alexis.gomel@gmail.com	LinkedIn	alexis-gomel-95484278

Education

2018-before 12/2022 **PhD in Physics**, *Nonlinearities in dynamical systems*, University of Geneva.
Supervisors: Jerôme kasparian, Maura Brunetti

2008–2017 **M. Sc. Physics**, *Rogue waves en lasers modulados en fase (Rogue waves in phase modulated lasers)*, Universidad de Buenos Aires, *G.P.A: 8.89/10*
Supervisors: Jorge Tredice, Pablo Mininni

Skills

Data Science	Data Analysis, Data Storytelling, Data Visualizations, Time Series Analysis.	Math	Statistics, Mathematical Modelling, Numerical Simulations.
Physics	Non-linear dynamics, Laser physics, Fluid Mechanics, Statistical Physics	Communication	Experience as a Teacher and Expositor in diverse schools and congresses

Tech Stack

- Python, Matlab, Excel VBA, LaTeX.
- Scikit Learn, Pandas, Tensorflow, Numpy, Scipy, Plotly, Git.

Experience

May 2018 - Ongoing **Research**, *University of Geneva*, Geneva, Switzerland.

- Development of theoretical models for early warnings in dynamical systems and multi-scale expansion approximation for gravity waves; and numerical simulations of stochastic differential equations and partial differential equations to explore ideas and validate and fit experimental data. This has allowed me to have experience in the collection of data, its formatting, and its analysis and the presentation of this results and to my peers in the form of scientific papers and expositions in congresses.
  Along the PhD I've presented my work in conference talks and to my peers, giving me experience on how to make effective presentations and how to present data and the narrative I want to explore.
  It has also giving me the opportunity to collaborate with several people and keep in mind their ideas and points of view in my work, and to argue about my own ideas in productive ways.
- Main Areas: Experimental, theoretical and computational physics.

May 2018 - Ongoing **A1 Assistant**, *University of Geneva*, Geneva, Switzerland.

- Assistant for 1st year laboratory courses, and in charge of teaching and making exercises for the practical work for the nonlinear dynamics course.
- Main Areas: Explaining and developing experiments with educational purposes. Developing exercises, numerical simulations in Python and Matlab and teaching live and on-line for the nonlinear dynamics course.

February 2016 - April 2016 **Undergraduate Teaching assistant**, *University of Buenos Aires*, Buenos Aires, Argentina.

- Teaching assistant at the university for an introductory course to thermodynamics and quantum mechanics.

July 2015 - February 2016 **Math High school replacement teacher**, *Boston High School*

- Substitute math teacher at two different high schools. Where i also developed the class materials and exams.

Selected Courses, Congresses and Schools

Machine Learning

June 2022 **Introduction to Machine Learning**, University of Lausanne (UNIL)

November 2020 **Nonlinear Dynamics**, *University of Geneva*, Course on Non-linear dynamics and modulational instability.

Publications

Alexis Gomel, Amin Chabchoub, Maura Brunetti, Stefano Trillo, Jérôme Kasparian, and Andrea Armaroli. Stabilization of Unsteady Nonlinear Waves by Phase-Space Manipulation. *Physical Review Letters*, 126(17):174501, mar 2021.

Andrea Armaroli, Alexis Gomel, Amin Chabchoub, Maura Brunetti, and Jérôme Kasparian. Stabilization of uni-directional water wave trains over an uneven bottom. *Nonlinear Dynamics*, 101(2):1131–1145, jul 2020.

Debbie Eeltink, Hubert Branger, Christopher Luneau, Andrea Armaroli, Maura Brunetti, Jérôme Kasparian, and Alexis Gomel. Freezing of Unsteady NonlinearWaves over an uneven bottom by Phase-Space Manipulation.

Alexis Gomel, Jean Marc Boyer, Cyrille Metayer, and Jorge R. Tredicce. Extreme Events in Lasers with Modulation of the Field Polarization. *Advances in Condensed Matter Physics*, 2019, 2019.

Alexis Gomel, Amin Chabchoub, Maura Brunetti, Stefano Trillo, Jérôme Kasparian, and Andrea Armaroli. Stabilization of Unsteady Nonlinear Waves by Phase-Space Manipulation. *EGU General Assembly 2022, Vienna, Austria, 23–27 May 2022, EGU22-6711*.

M. Marconi, C. Métayer, A. Acquaviva, J. M. Boyer, A. Gomel, T. Quiniou, C. Masoller, M. Giudici, and J. R. Tredicce. Testing Critical Slowing down as a Bifurcation Indicator in a Low-Dissipation Dynamical System. *Physical Review Letters*, 125(13), sep 2020.

Scholarships/Recognitions

- **FNS PhD Scholarship:** PhD grant founded by the Swiss National Science Foundation (Fonds National Suisse).

Hobbies

- **Photography:** I've been taking photos for the last 6 years, mainly street photography and landscape photography. Some of my work: `https://gurushots.com/lookn_around/photos`
- **Lindy hop:** Dancing Lindy hop since 2021.
- **Drumming:** Started taking drum lessons in 2022.
- **Cooking**