Julián Szereszewski

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Education

Facultad de Ciencias Exactas y Naturales — March 2019 – December 2025
Licentiate in Physics (B.Sc. + M.Sc. equivalent), GPA 9.24 / 10. — *FCEyN — UBA*

Colegio Nacional de Buenos Aires — March 2014 – December 2018
High School diploma. — *CNBA — UBA*

Work Experience

Performance Analyst — Avature — August 2024 – Present
As a Semi-Senior Performance Analyst, I develop and apply statistical analysis tools in Python to gain insights from web server response times. — *Semi-Senior*

QA Engineer — Avature — July 2021 – August 2024
As a Semi-Senior QA Engineer, I analyzed database inconsistencies with SQL and developed automated tests using Selenium, JavaScript and PHP. — *Semi-Senior*

Science Museum Guide — Museo Participativo de Ciencias — October 2019 – December 2019
Explained physics exhibits to visitors and developed communication and group facilitation skills as a science communicator.

Research Experience

Dynamical Systems Lab (LSD) — February 2025 – Present
Currently conducting research on Kolmogorov-Arnold Networks (KANs) to analyze and model dynamical systems, as part of my thesis project. — *Advisor: Gabriel B. Mindlin*

Plasma Physics Institute (INFIP) — March 2024 – December 2024
Characterized and optimized a plasma-based reactor for water treatment, developing Python-based data analysis tools to extract and analyze current measurements. — *Advisor: Diana Grondona*

Relevant Coursework

- Statistical Mechanics
- Machine Learning
- Modeling of Complex Systems
- Statistics for Experimental Physics
- Quantum Mechanics
- Linear Algebra
- Classical Mechanics
- Differential and Integral Calculus
- Complex Analysis

Schools & Courses

Deep Learning Spring School — FCEyN — October 2025

Generative Image Models Based on Deep Neural Networks — FCEyN — August 2025

Scientific Symposium on AI and Applications — UdeSA — November 2024 & September 2025

Conference Presentations

J. Szereszewski, F. Fainstein, L. E. Fernandez, G. B. Mindlin. *Kolmogorov Arnold Networks for the reconstruction of dynamical systems from data*. Poster presented at the Scientific Artificial Intelligence and Applications Symposium (SCIAA), UdeSA (September 2025); and the Deep Learning Spring School, FCEyN (October 2025). Buenos Aires, Argentina.

J. Szereszewski, F. Otero Zappa, A. Kleiman, M. Zanini, D. Grondona. *Design and Assembly of a Scalable Plasma Reactor for Water Remediation*. Poster presented at the Annual Reunion of Argentinian Physics Asociation (RAFA), UNSL (September 2024). San Luis, Argentina.

Achievements

Best Poster Award for the poster presented at the Deep Learning School (FCEyN-UBA). October 2025, Buenos Aires, Argentina.

Finalist at the National Stage of the Argentine Mathematical Olympiad (OMA). November 2018, La Falda, Córdoba, Argentina.

Nominated for the Metropolitan Argentine Mathematical Olympiad (OMA). August 2018, Mar del Plata, Buenos Aires, Argentina.

Projects

2025 • GitHub | Simulation of how images would appear at relativistic speeds, applying Doppler shift and aberration effects to model color distortions and image warping.
2024 • GitHub & Web Page | Analytic probability model for the TEG strategy game, extending the formulations of J. A. Osborne and B. Sharon for RISK.
2024 • Github & Video | Numerical simulation of the sound (and movement) produced by a string under the damped wave equation.
2023 • Video & Web Page | Numerical simulation of damped springs, demonstrating that fitting a linear function under least squares is mathematically equivalent to finding the rest state for a system of springs.
2022 • Video | Numerical simulation in Python of the triple pendulum with its equations of motion in analytical form.
2021 • Web Page | Interactive numerical simulation in JavaScript of decoupled pendulums tracing a wave due to aliasing.

Languages

- **Spanish**: Native.
- **English**: Proficient (C1).
- **French**: Basic.