

PAUL COUSIN

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Education

International Master's Degree in Physics Of Complex Systems

SISSA & ICTP & PoliTO & Paris Cité & Sorbonne & Paris Saclay

Sep. 2023 – Ongoing

Trieste – Turin, Italy & Paris, France

International Bachelor's Degree in Physics (with Highest Honors)

Université Grenoble Alpes & University of North Carolina at Chapel Hill

Jan. 2021 – May 2023

Grenoble, France & Chapel Hill, USA

Diploma of Advanced Audiovisual Technician, Specialized in Editing

Lycée de la Communication

Sep. 2011 – May 2013

Metz, France

Training

Excellence Internship granted by the Université Grenoble Alpes

Laboratoire Jean Kuntzmann (Applied Mathematics & Informatics)

June – July 2022

Grenoble, France

Publications

P. Cousin, “Triangular Automata: The 256 Elementary Cellular Automata of the Two-Dimensional Plane,” Complex Systems, 33(3), 2024 pp. 253–276. doi.org/10.25088/ComplexSystems.33.3.253.

P. Cousin and A. Maignan, “Organic Structures Emerging From Bio-Inspired Graph-Rewriting Automata,” 2022 24th International Symposium on Symbolic and Numeric Algorithms for Scientific Computing (SYNASC), Hagenberg / Linz, Austria, 2022, pp. 293-296. doi.org/10.1109/SYNASC57785.2022.00053.

Conferences

June 20, 2025 at the **Wolfram Institute**: “Triangular Automata: The 256 Elementary Cellular Automata of the Two-Dimensional Plane”. [🔗](#)

September 12, 2022 at the **24th International Symposium on Symbolic and Numeric Algorithms for Scientific Computing**: “Organic Structures Emerging From Bio-Inspired Graph-Rewriting Automata”.

Projects

Triangular Automata

2023 – 2025

- Website [🔗](#)
- Mathematica package [🔗](#)
- OEIS entries [🔗](#)
- YouTube channel [🔗](#)

Graph-Rewriting Automata

2022

- Website [🔗](#)
- Python package [🔗](#)
- Mathematica package [🔗](#)

Coursework

Upcoming

2025

- Statistical Field Theory [🔗](#)
- Computational Science [🔗](#)
- Stochastic processes [🔗](#)
- Non-linear physics [🔗](#)

Graduate courses

2023 – 2025

- Probability and Information Theory [🔗](#)
- Quantum Theory of Condensed Matter [🔗](#)
- Statistical Physics [🔗](#)
- Algorithms for optimization, inference and learning [🔗](#)
- Advanced numerical methods [🔗](#)
- Advanced Quantum Mechanics [🔗](#)
- Biophysics [🔗](#)
- Introduction to Systems and Computational Neuroscience [🔗](#)
- Ecology and Evolution [🔗](#)

Selected undergraduate courses

2022 – 2023

- Cosmology [!\[\]\(95b42f0077faf7439a26242a54e021ec_img.jpg\)](#)
- Theory, Evidence, and Understanding in Science [!\[\]\(e097ab4c08b8186dd0908330bbc2dc28_img.jpg\)](#)

- Functions of a Complex Variable with Applications [!\[\]\(31b03e46ee8a80a1f1467b8c03bd76e8_img.jpg\)](#)
- Coherent Optics [!\[\]\(7d9665ff04f9d2270c38081c6215a724_img.jpg\)](#)

Certified Online Courses

2021 – 2024

- Computation in Complex Systems [!\[\]\(4e333a6106fc298d0ae6dff272a736ef_img.jpg\)](#)
- Foundations & Applications of Humanities Analytics [!\[\]\(97089f8e07e24e31baa67366e358a709_img.jpg\)](#)
- Fractals and Scaling [!\[\]\(9496824b8cff3a19f59b81b37b57d8b6_img.jpg\)](#)
- Game Theory I [!\[\]\(ec8d0f7e486e2280c113cd85015a8548_img.jpg\)](#) and II [!\[\]\(fad66fecb73aae330937d501057cafc9_img.jpg\)](#)
- Introduction to Agent-Based Modeling [!\[\]\(a94e0943f5ecd6c1adc5223fd7677110_img.jpg\)](#)
- Introduction to Complexity [!\[\]\(f14ef06774200ee2342297364295aa0f_img.jpg\)](#)
- Introduction to Dynamical Systems and Chaos [!\[\]\(fc5b69083c6c7efc78abd54fb1c8e530_img.jpg\)](#)
- Introduction to Mathematical Thinking [!\[\]\(44329a5be70d7da178c176f4dc400266_img.jpg\)](#)

- Learn JavaScript [!\[\]\(c6a8736a601a632e2c96605cf66055ed_img.jpg\)](#)
- Learn Python 3 [!\[\]\(64ef2b19d70b31fbbfce0e0e2aa3d7b4_img.jpg\)](#)
- Machine Learning [!\[\]\(9ba1c633ca37327550476fd7d0d00348_img.jpg\)](#)
- Nonlinear Dynamics: Mathematical and Computational Approaches [!\[\]\(9123a11efb62a56709757215846100c3_img.jpg\)](#)
- Origins of Life [!\[\]\(81ed9b526bb4d794d4b41c492b59462a_img.jpg\)](#)
- Skepticism [!\[\]\(73ff443d232f42a7f7c62fc0b625b197_img.jpg\)](#)
- The Git & Github Bootcamp [!\[\]\(1875783f027eea357c44cf6b28874dc9_img.jpg\)](#)

Self-studied textbooks

- Spacetime and Geometry, by Sean Carroll [!\[\]\(e27c4336460e9e6729a19580c0456728_img.jpg\)](#)

Skills

Programming: Mathematica, Python, L^AT_EX, HTML/CSS, JavaScript, NetLogo, VS Code, GitHub

Arts: Music [!\[\]\(9c2e8d1b5bd77cb5c9f83b7a9cff79fd_img.jpg\)](#), Video Production [!\[\]\(f822cba4d3f2ea10b4ad95c475f0f631_img.jpg\)](#)

Languages: French, English, Italian, Esperanto, Toki Pona, Spanish
native *fluent* *intermediate* *elementary*

Work Experience

Nurseryman

2017 – 2020

Creation of a professional activity in agriculture

Verrue, France

Founder & President

2016 – 2018

Association invested in circular economy for ecology and social fairness

Loudun, France

Logistics Coordinator

Aug. 2015 – July 2016

Agricultural training organization promoting sustainable practices

Grasse, France