Paul Cousin

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Education

International Master's Degree in Physics Of Complex Systems **Sep. 2023 – Ongoing**
SISSA & ICTP & PoliTO & Paris Cité & Sorbonne & Paris Saclay *Trieste – Turin, Italy & Paris, France*

International Bachelor's Degree in Physics (with Highest Honors) **Jan. 2021 – May 2023**
Université Grenoble Alpes & University of North Carolina at Chapel Hill *Grenoble, France & Chapel Hill, USA*

Diploma of Advanced Audiovisual Technician, Specialized in Editing **Sep. 2011 – May 2013**
Lycée de la Communication *Metz, France*

Training

Excellence Internship granted by the Université Grenoble Alpes **June – July 2022**
Laboratoire Jean Kuntzmann (Applied Mathematics & Informatics) *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
- Theory, Evidence, and Understanding in Science
- Functions of a Complex Variable with Applications
- Coherent Optics

Certified Online Courses **2021 – 2024**

- Computation in Complex Systems
- Foundations & Applications of Humanities Analytics
- Fractals and Scaling
- Game Theory I and II
- Introduction to Agent-Based Modeling
- Introduction to Complexity
- Introduction to Dynamical Systems and Chaos
- Introduction to Mathematical Thinking
- Learn JavaScript
- Learn Python 3
- Machine Learning
- Nonlinear Dynamics: Mathematical and Computational Approaches
- Origins of Life
- Skepticism
- The Git & Github Bootcamp

Self-studied textbooks

- Spacetime and Geometry, by Sean Carroll

Skills

Programming: Mathematica, Python, LaTeX, HTML/CSS, JavaScript, NetLogo, VS Code, GitHub

Arts: Music, Video Production

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