

Lucas Gautheron

Computational Models of Human & Social Behavior

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Areas of Specialization collective cognition, computational social science

Education

- May 2022** **Ph.D. candidate, Computational Sociology**, *Interdisciplinary Centre for Science and Technology Studies, Wuppertal*, Germany.
Aug 2025 “Social dilemmas in high-energy physics: a computational approach”. Supervisors: Thomas Heinze & Radin Dardashti. 3^{1/2}-year contract.
- 2021-2022 **M.A., History and Philosophy of Science**, *Université Paris-Cité*, [Class rank: 1st].
Thesis : “Too Beautiful to be False, or Too Beautiful to be True? Searching for supersymmetry at the *Large Hadron Collider*”. Supervisors: Olivier Darrigol & Elisa Omodei.
- 2014-2018 **Master 1, Theoretical and Experimental Physics**, *Ecole Normale Supérieure Paris-Saclay*.
Écoles Normales Supérieures are highly competitive research oriented higher education institutions. Students benefit from a comfortable wage.

Research

- Mar 2023 (on-going)** **Research Assistant (linguistics, part time)**, *Laboratoire de Sciences Cognitives et Psycholinguistique, Department of Cognitive Studies, École Normale Supérieure, Paris*.
Investigating correlations between speech heard and produced by young infants, as part of a project I initiated.
- Feb 2023** **Visiting PhD student**, *Medialab, Sciences Po Paris*.
Aug 2023
- Sep 2020** **Engineer (linguistics)**, *Laboratoire de Sciences Cognitives et Psycholinguistique, Department of Cognitive Studies, École Normale Supérieure, Paris*.
Nov 2021 Language acquisition across cultures through naturalistic long-form audio recordings.
- Oct 2016** **Research Internship (astrophysics)**, *Laboratoire Univers et Théories, CNRS, Paris Meudon*.
Jan 2017 Influence of the nuclei distribution on weak interactions’ rates in core-collapse supernovae.
- May 2016** **Research Internship (particle physics)**, *Laboratoire de Physique Nucléaire et des Hautes Énergies, CNRS, Paris*.
Jul 2016 Diphoton analysis and phenomenology for the ATLAS experiment.
- May 2015** **Research Internship (particle physics)**, *Laboratoire d’Annecy-Le-Vieux des Particules, CNRS, France*.
Jul 2015 Particle physics for the ATLAS experiment.

Preprints

- [A1] **L. Gautheron**. “Balancing Specialization and Adaptation in a Transforming Scientific Landscape”. [under review after minor revisions]. Sept. 2024.

Peer-Reviewed Publications

- [A2] A. Cristia, **L. Gautheron**, Z. Zhang, B. Schuller, C. Scaff, C. Rowland, O. Räsänen, L. Peurey, M. Lavechin, W. Havard, C. Fausey, M. Cychosz, E. Bergelson, H. Anderson, N. Al Futaisi, and M. Soderstrom. “Establishing the reliability of metrics extracted from long-form recordings using LENA and the ACLEW pipeline”. In: *Behavior Research Methods* (Sept. 2024).
- [A3] **L. Gautheron** and E. Omodei. “How research programs come apart: The example of supersymmetry and the disunity of physics”. In: *Quantitative Science Studies* 4.3 (Dec. 2023).
- [A4] A. Cristia, **L. Gautheron**, and H. Colleran. “Vocal input and output among infants in a multilingual context: Evidence from long-form recordings in Vanuatu”. In: *Developmental Science* 26.4 (Feb. 2023).
- [A5] **L. Gautheron**, N. Rochat, and A. Cristia. “Managing, storing, and sharing long-form recordings and their annotations”. In: *Language Resources and Evaluation* 57 (Feb. 2022).
- [A6] M. Lavechin, M. de Seyssel, **L. Gautheron**, E. Dupoux, and A. Cristia. “Reverse Engineering Language Acquisition with Child-Centered Long-Form Recordings”. In: *Annual Review of Linguistics* 8.1 (Jan. 2022).

Invited Talks

- [T1] **L. Gautheron.** ““When her family finds you are using the wrong metric...”: dilemmas and trade-offs in the diffusion of scientific conventions”. London School of Economics, Department of Philosophy, Logic and Scientific Method, United Kingdom. Dec. 2024.
- [T2] **L. Gautheron.** “Correlational analyses of the effects of caregivers’ speech behaviour on children’s speech production”. Department of Linguistics, UCLA, Los Angeles, CA, United States. June 2024.
- [T3] **L. Gautheron.** “Algorithmic bias in correlational analyses of the effects of caregivers’ speech behaviour on children’s speech production”. Daylong Audio Recordings of Children’s Linguistic Environments (DARCLE), online. May 2024.
- [T4] **L. Gautheron.** “Balancing Specialization and Adaptation in a Transforming Scientific Landscape: Modelling scientists’ behavior with Natural Language Processing”. NLP Seminar, LATTICE, Montrouge, France. Nov. 2023.
- [T5] **L. Gautheron.** “Too beautiful to be false, or too beautiful to be true: supersymmetry and the future of high-energy physics”. 2JM seminar, Sciences Po, Paris, France. May 2023.
- [T6] **L. Gautheron** and A. Cristia. “A python package for long-form recordings and their annotations”. Bergelson Lab, Duke University, NC, United States [online]. June 2021.

Selected Contributed Talks

- [T7] **L. Gautheron.** “Social dilemmas in high-energy physics”. Workshop “Methodological Transformations in Fundamental Physics”, Wuppertal, Germany. Sept. 2024.
- [T8] **L. Gautheron.** “A dialogue between philosophy of science and computational studies of science illuminates the crisis of fundamental physics”. Workshop “Philosophy of Science meets Quantitative Science Studies”, Turin, Italy. May 2024.
- [T9] **L. Gautheron.** “Probing Socio-Epistemic Dynamics in High-Energy Physics Using the Inspire HEP Database”. Conference “Big Data & History and Philosophy of Science”. May 2023.
- [T10] **L. Gautheron.** “The many faces of supersymmetry: Supersymmetry across subcultures of High-Energy Physics, 1971–2019”. 2022 History of Science Society Annual Meeting, Chicago, IL, United States. Nov. 2022.
- [T11] **L. Gautheron.** “Who trusts supersymmetry? Probing quantitative methods for investigating research orientations in High-Energy Physics”. 4th International Spring School of the Epistemology of the Large Hadron Collider: The History, Philosophy and Sociology of Large Scale Experiments, Wuppertal, Germany. Mar. 2022.
- [T12] **L. Gautheron,** M. Lavechin, R. Riad, C. Scaff, and A. Cristia. “Longform recordings : Opportunities and challenges”. In: *LIFT 2020 - 2èmes journées scientifiques du Groupement de Recherche “Linguistique informatique, formelle et de terrain”*. Ed. by T. Poibeau, Y. Parmentier, and E. Schang. Montrouge / Virtual, France: CNRS, Dec. 2020.

Poster presentations

- [P1] **L. Gautheron.** “Balancing Specialization and Adaptation in a Transforming Scientific Landscape”. 10th International Conference on Computational Social Science (IC2S2), Philadelphia, PA, United States. July 2024.

Teaching, training, and learning material

- Jan. 24th 2024 **(Scheduled) Guest Lecturer in Philosophy**, “Inverse problems for philosophers: Bridging the gap between agent-based models and behavioral data” [*slides*], Ruhr University Bochum, Germany. Primary instructor: Dunja Šešelja
- Jun. 17th 2024 **Tutorial for Language Acquisition researchers**, “LongFoRMer: A software for managing and exploiting longform recordings and their annotations”, UCLA, Department of Linguistics, Los Angeles, CA, United States.
- [B1] S. Pisani, L. Gautheron, and A. Cristia. *Long-form recordings: From A to Z*. 2021.
- 2015 **cosmology.education**, Pedagogical website on the history of modern cosmology & science communication (7 500 users/year).
- 2012 **Orbit**, A C++ software for solving N-body problems, visualizing planetary motion, and predicting transits and eclipses., <https://orbit.sciencetechniques.fr/>.

Service

- 2024 **Workshop “Methodological Transformations in Fundamental Physics”** (September 16th-18th), *Co-organizer*, Wuppertal, Germany.

Graduate Workshops and Summer Schools attended

- 2024 **Santa Fe Institute Graduate Workshop in Computational Social Science Modeling and Complexity**, Santa Fe, NM, United States.
- 2023 **Summer school “Collaboration and Interdisciplinarity in Science and Technology”**, Interdisciplinary Summer School Series in Higher Education Research and Science Studies, Wuppertal, Germany.
- 2022 **Spring school “The History, Philosophy and Sociology of Large Scale Experiments”**, 4th *International Spring School of the Epistemology of the Large Hadron Collider*, Wuppertal, Germany.

Grants

- 2023 **G-Research**, *Grants for PhD students and postdocs in quantitative fields*; £1 000.

Journalism

- Dec 2019 **President & Publication Director**, *Société de Production Le Média*, Montreuil.
- Nov 2020 Head of a production company with 12+ full-time workers, a 1M€ annual budget, and 12 000 paid subscribers. Legal matters, revenue forecasts, audience data analysis, targeted marketing.
- Sep 2018 **Journalist**, *Le Média*, Montreuil.
- Sep 2020 **Data journalism and book reviews, text & video** (articles cited in research papers and books, and in an appeal to the French constitutional court).

Selected press articles

- [M1] **L. Gautheron** and C. Gence. “[DATA] Les morts invisibles du coronavirus : la vérité derrière les chiffres officiels (The Hidden Toll of Coronavirus: Revealing the Truth Beyond Official Numbers)”. In: *Le Média* (Apr. 4, 2020).
- [M2] **L. Gautheron** and C. Gence. “[DATA] Lutte contre le COVID-19 : oui, la lenteur de l’État français a tué (Fatal Sluggishness: How France’s COVID-19 Response Cost Lives)”. In: *Le Média* (Apr. 23, 2020).
- [M3] **L. Gautheron**. “Référendum ADP : les médias au service du pouvoir (Silencing Democracy: Media Blackout on the ADP Privatization Referendum)”. In: *Le Média* (Aug. 1, 2019).
- [M4] T. Kouamouo and **L. Gautheron**. “Élections européennes : un vote de classe avant tout (European Elections: It’s Always About Class!)” In: *Le Média* (June 4, 2019).
- [M5] **L. Gautheron**. “Des chiffres pour appréhender l’anti-Mélenchonisme de la presse”. In: *Marianne* (Dec. 1, 2017).

Programming

- 2020 **LongFoRMeR**, *A python package for managing and exploiting longform recordings and their annotations*, <https://github.com/LAAC-LSCP/ChildProject>.
- On-going
- Jul 2013 **Back-end developer**, *Électricité réseau Distribution de France (ErDF)*, Annecy. Automated retrieval of large amounts of data from other company-wide applications.
- 2011 **Volunteer**, *AssaultCube*.
- 2014 Development of a C++ 3D video game as part of an international team of volunteers.

Skills & interests

- Programming Python (expert), and C, C++, Fortran & Arduino (proficient); stan, sklearn, graph-tools, networkx, bertopic, pytorch; pandas, SQL; PHP, HTML, JS
- Languages French (native), English (fluent/C2); Spanish (beginner)
- Interests Energy transition; climate change and the polycrisis; microcontroller programming

References

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