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Lucas Gautheron

Education

2022-2025 **PhD student**, *University of Wuppertal*, Wuppertal (Allemagne), Dynamics of a research program in high-energy physics: the case of supersymmetry (Research Training Group 2696, "Transformations of science and technology since 1800: topics, processes, institutions ") [*on-going*]

2021-2022 **M.A**, *Université de Paris*, Paris, History and Philosophy of Science [Class rank: 1st]
Thesis : "Too beautiful to be false, or too beautiful to be true? Searching supersymmetry at the *Large Hadron Collider*". Supervisors: Olivier Darrigol, Elisa Omodei.

2014-2018 **Master 1**, *Ecole Normale Supérieure de Cachan*, Cachan, Fundamental Physics
Full scholarship. Experimental and theoretical physics, mathematics. Options: Symmetries and path integrals; Astrophyics and Cosmology.

2012-2014 **PCSI/PC***, *Lycée Berthollet*, Annecy
"Classe préparatoire aux grandes écoles"

Research

September 2020 to November 2021 **Engineer**, *Laboratoire de Sciences Cognitives et Psycholinguistique (LSCP - DEC - École Normale Supérieure)*, Paris
Study of language acquisition across cultures through naturalistic long-form audio recordings. Supervised by Alejandrina Cristia.
- Creation of a python package for the management, storage and analysis of large datasets ($\mathcal{O}(10^4)$ hours of audio)
- Signal processing on long-form audio
- Statistical analysis (bayesian inference)
- CNRS Training "Basics of Machine Learning and Deep Learning" (28h)

October 2016 – January 2017 **Research Internship**, *Laboratoire Univers et Théories (LUTH - INSU - CNRS)*, Paris Meudon
Influence of the nuclei distribution on the electron capture rates and neutrino scattering in core-collapse supernovae. Supervised by Micaela Oertel.
- Implementation of electron capture rates and neutrino scattering cross-sections calculations in a core-collapse supernova simulation code (Fortran, C++).

May 2016 – July 2016 **Research Internship**, *Laboratoire de Physique Nucléaire et des Hautes Énergies (LPNHE - IN2P3 - CNRS)*, Paris
Diphoton analysis and phenomenology for the ATLAS experiment. Supervised by Lydia Roos.
- New parameterization of the diphoton invariant mass distribution for a spin-2 decaying particle signal (Pythia, ROOT, RooFit, C++, Python, FeynRules, CalcHEP)
- NLO corrections for the spin-2 signal (MadGraph5_aMC_atNLO)
- Signal-background interferences

October 2015 – January 2016 **Research Internship**, *Laboratoire d'Annecy-Le-Vieux de Physique Théorique (LAPth - IN2P3 - CNRS)*, Annecy-Le-Vieux
Cosmology. Supervised par Richard Taillet.
- Creation of an Internet website for students about the history of modern cosmology (http://cosmology.education/)
- Development of several simulations in C++ to illustrate the website.

May 2015 – July 2015 **Research Internship**, *Laboratoire d'Annecy-Le-Vieux des Particules (LAPP - IN2P3 - CNRS)*, Annecy-Le-Vieux

Particle physics for the ATLAS experiment. Supervised by Stéphane Jézéquel.

- Diphoton events analysis and local/global significance calculations with ROOT.
- Analysis of the performance of a new tracker prototype for HL-LHC, using MC simulations
- Development of a simulation to assess the impact of thermal radiation over the temperature of parts of the tracker, as part of the design of a cooling system upgrade
- Development of a simulation to calculate the intersections of charged particles with the sensors of a tracker prototype

Journalism

December 2019 to November 2020 **President**, *Société de Production Le Média*, Montreuil

Management of a production company with more than 12 full-time equivalent workers. Publication Manager. Marketing procedures optimization, development of revenue forecasting models and audience data analysis.

Septemter 2018 to September 2020 **Journalist**, *Le Média*, Montreuil

Specializing in data journalism and book reviews `https://www.lemediatv.fr/auteurs/lucas-gautheron-9DAnWoo5Tlav1trWgg_Qlw/articles`.

Development

Juillet 2013 **Developer**, *Électricité réseau Distribution de France (ErDF)*, Annecy

- Design of an archive database and search system (PHP/MySQL)
- Automated retrieval of large amounts of data from other company-wide applications.

Mars 2011 à 2014 **Developer**, *AssaultCube*

Development of a C++ 3D video game as part of an international team of volunteers

Skills

Computer

Programming	Python, C, C++, Fortran
Scientific software	numpy, scipy, scikit-learn, MadGraph5_aMC_@NLO, Pythia, ROOT/RooFit, stan
Data	Pandas, MySQL, HDF
Web	PHP, HTML, JS, CSS
Video	Adobe Premiere Pro

Languages

English	Toefl IBT: 104
French	Native
Spanish	Beginner