

Current position

- Dec. 2022 – **Research Director**, *Institute for Research on Sustainable Development, PRODIG*, Campus Condorcet, France.
- Dec. 2022 – **Affiliated Researcher**, *ISI Foundation*, Italy.

Research experience

- Apr. 2015 – **Senior Research Scientist**, *Institute for Scientific Interchange, Data Science for Social Impact and Sustainability*, Turin, Italy.
Nov. 2022
- Nov. 2013 – **Visiting Scientist**, *Institut rhône-alpin des systèmes complexes, IXXI, École Normale Supérieure*, Lyon, Collaboration with Márton Karsai, Laboratoire de l'informatique du parallélisme.
- Nov. 2011 – **Junior Researcher**, *Institute for Scientific Interchange, Data Science LAB*, Turin, Italy.
March 2015
- Oct. 2010 – **Post-doctoral researcher**
Aug. 2011
Institute Physics Department, *École Normale Supérieure*, Paris
Project Urban Collective Dynamics: Individual and Spatial Heterogeneities, ANR (ANR-08-SYSC-008)
- Oct. 2007 – **PhD**
Oct. 2010
Laboratoire de Physique Statistique, **École Normale Supérieure**, Paris, France
Title Modeling of socio-economic systems with statistical physics tools
presented on October, 22nd 2010
Advisors J.-P. Nadal and J. Vannimenus
Fellowship from the French Ministère de l'Enseignement Supérieur et de la Recherche, allocated by the Ecole doctorale de Physique de l'UPMC ED 389
Jury Alain Barrat, CPT, Marseille
Leticia Cugliandolo, LPTHE, Paris
Silvio Franz, LPhTMS, Orsay
Alan Kirman, GREQAM, Marseille
Matteo Marsili ICTP, Trieste
Jean-Pierre Nadal, ENS - CAMS, Paris

Teaching experience

- 2014-2022 Lesson in the course Data Mining, Statistical Modeling and Machine Learning, Master 1 / Master 2, Università degli Studi di Torino
- 2020 Lecture on Data Mining and Modelling of Social Systems, SSST, Università degli Studi di Torino
- 2013-2017 Teaching **network science** in the program Big Dive (<http://www.bigdive.eu/>)
- January 2016 Teaching **Data Mining : Statistical Modeling and Learning from Data** in the Computer Science Department Computer Science Department of ENS Lyon, France
- 2008 – 2010 Teaching assistant for undergraduate students, Université Pierre et Marie Curie, *Paris*.
 - **General mathematics for scientists**
 - **Calculus and statistics**

Supervision

- 2022-2023 (Co-)Supervisor of Ilaria Stanzani, Junior researcher. Project: Urban election dynamics
- 2021-2022 (Co-)Supervisor of Pietro Folco, Junior researcher. Project: Soft mobility infrastructure for a sustainable city: a model for cycling paths
- 2021-2022 (Co-)Supervisor of Federico Delussu, Junior researcher. Project: Mobility during the second wave of COVID-19
- 2021-2022 (Co-)Supervisor of Daniele Sartirano, Junior researcher. Project: Digital data for humanitarian decision-making in Indonesia, collaboration with UNICEF
- 2019-2020 (Co-)Supervisor of Lorenzo Betti, Junior researcher. Project: Automatic identification of constructs related to vaccine hesitancy
- 2019-2020 (Co-)Supervisor of Marina Klanjčić, Junior researcher. Project: Identifying the determinants of road safety in European cities
- 2019-2020 (Co-)Supervisor of Emanuele Pepe, Junior researcher. Project: Measuring changes in human mobility with anonymized location data
- 2021 Supervisor of Giorgio Mazzanti, Master student, Università degli Studi di Torino, research training on COVID-19 pandemic containment policies: an evaluation of changes of the public transportation networks of 5 medium size European cities
- 2020 Supervisor of Konstantina Dakou, Master student, Università degli Studi di Torino, research training on the COVID-19 lockdown effects on public transportation systems in European cities
- 2019 Supervisor of Lorenzo Betti, Master student, Università degli Studi di Torino, research training on spread of misinformation through embedding
- 2017 - 2021 Supervisor of Maddalena Torricelli, PhD student, Università di Bologna, Data Science and Computation. (Co-supervisors : Ciro Cattuto, Laura Sartori).
- 2015 -2019 Supervisor of Denise Maffione, PhD student, Università degli Studi di Torino, Advanced analytical methodologies for high-dimensional, low-cardinality data in System Vaccinology. (Co-supervisor : Emilio Siena).
- 2018 Supervisor of Martino Olivieri, Master student, Università degli Studi di Torino, 6-months research training on wearable sensors in a hospital. (Co-supervisor : Laura Ozella).

- 2018 Supervisor of Emma Krebs, Master student, ENS Lyon, 2-months research training on temporal networks.
- 2018 Supervisor of Carlo Fiscaro, Master student, Università degli Studi di Torino, 6-months research training on Part of Speech tagging Hidden Markov Models vs Recurrent Neural Networks. (Co-supervisor : CELI (tech company)).
- 2016-2017 Supervisor of Francesco Parino, Master student, Università degli Studi di Torino, 6-months research training on the analysis of the Bitcoin blockchain.
- 2014-2017 Supervisor of Anna Sapienza, PhD student, Politecnico di Torino, Tensor Decomposition Techniques for analysing Time-varying Networks. (Co-supervisors : Ciro Cattuto, Lamberto Rondoni).
- 2015 Supervisor of Iacopo Iacopini, Master student, Università degli Studi di Torino, 6-months research training on traffic data. (Co-supervisor : Giovanni Petri).
- 2014 Supervisor of Laura Alessandretti, Master student, École Normale Supérieure de Lyon, one year research training on transportation networks. (Co-supervisor : Márton Karsai).
- 2013 Supervisor of Andrea Martini, Master student, Università degli Studi di Torino, 6-months research training on community detection on temporal networks. (Co-supervisor : Ciro Cattuto).

Education

- 2006 – 2007 Preparation to physics agregation University of Provence, Marseille, France.
- 2005 – 2006 Master's degree in physics , speciality : theoretical, mathematical and particle physics, with honors. **Centre de Physique Théorique, Marseille**, France.
- 2004 – 2005 Master 1 in fundamental physics with ERASMUS program, with high honors, **Imperial College**, London, United Kingdom.
Imperial College International Diploma
- 2003 – 2004 Licence-Magistère in fundamental physics with honors; **Université Paris XI**, Orsay, France.
- 2000 – 2003 Preparatory classes (MPSI, MP), Lycée Jacques Amyot, Melun, France.

Responsibilities

Program Comittee Member

- ACM Web Science Conference 2014
- Computational Social Science, LC2S2 2015
- Complex Networks: from theory to interdisciplinary applications, 2016
- DELVE: Digital epidemiology and surveillance, 2016
- Data Science for Human Performance in Social Networks (ACUMEN) at ICDM 2017
- 1st Workshop on Trusted Smart Contracts again associated to Financial Cryptography 2017
- 2nd Workshop on Trusted Smart Contracts again associated to Financial Cryptography 2018

Reviewer

- Physica A
- Advances in Complex Systems
- EPJ Data Science
- JSTAT
- Nature Scientific Reports
- PloS one
- Physical Review E
- Interface
- Scientific Reports
- Science Advances
- ICWSM
- npj Urban Sustainability
- Transport Policies

Organizer

- Track on AI and behavioral data in response to the COVID-19 pandemic at Applied Machine Learning Days 2021

Skills

Computer skills

| | |
|-----------------------|-----------------------|
| Systems | Windows, Linux |
| Programming languages | C/C++, Matlab, PYTHON |

Languages

| | |
|---------|---------------------------------------|
| French | native language |
| English | understood, spoken and written |
| German | basic knowledge |
| Italian | understood, spoken and written |

Publications

Journal Articles

- [1] M. Klanjčić, L. Gauvin, M. Tizzoni, M. Szell, *Identifying urban features for vulnerable road user safety in Europe*, EPJ Data Science 11 (1), 27 6 2022
- [2] F. Delussu, M. Tizzoni, L. Gauvin, *Evidence of pandemic fatigue associated with stricter tiered COVID-19 restrictions*, PLOS Digital Health 1 (5), e0000035 2 2022
- [3] M. Tizzoni, E.O. Nsoesie, L. Gauvin, M. Karsai, N. Perra, S. Bansal, *Addressing the socioeconomic divide in computational modeling for infectious diseases* Nature Communications 13 (1), 1-7 1 2022

- [4] L. Gauvin, M. Génois, M. Karsai, M. Kivelä, T. Takaguchi, E. Valdano, C. Vestergaard, *Randomized Reference Models for Temporal Networks*. Accepted for publication in *SIAM Review*, 2022
- [5] L. Gauvin, P. Bajardi, E. Pepe, B. Lake, F. Privitera, M. Tizzoni, *Socio-Economic Determinants of Mobility Responses during the First Wave of COVID-19 in Italy: From Provinces to Neighbourhoods*. *Journal of The Royal Society Interface* 2021, 18 (181), 20210092.
- [6] . R. Woskie, J. Hennessy, V. Espinosa, T. C. Tsai, S. Vispute, B.H. Jacobson, C. Cattuto, L. Gauvin, M. Tizzoni, A. Fabrikant, et al.. *Early Social Distancing Policies in Europe, Changes in Mobility and COVID-19 Case Trajectories: Insights from Spring 2020*. *Plos one* 2021, 16 (6), e0253071. <https://doi.org/10.1371/journal.pone.0253071>.
- [7] M. Mazzoli, E. Pepe, et al. "Interplay between mobility, multi-seeding and lockdowns shapes COVID-19 local impact." *PLoS computational biology* 17.10 (2021): e1009326.
- [8] H. R. Fielding, M. J. Silk, et al. "Spatial and temporal variation in proximity networks of commercial dairy cattle in Great Britain." *Preventive veterinary medicine* 194 (2021): 105443.
- [9] L. Gauvin, P. Bajardi, et al. "Socio-economic determinants of mobility responses during the first wave of COVID-19 in Italy: from provinces to neighbourhoods." *Journal of The Royal Society Interface* 18.181 (2021): 20210092.
- [10] L. R. Woskie, J. Hennessy, et al. "Early social distancing policies in Europe, changes in mobility & COVID-19 case trajectories: Insights from Spring 2020." *PLoS One* 16.6 (2021): e0253071.
- [11] L. Betti, G. De Francisci Morales, et al. Detecting adherence to the recommended childhood vaccination schedule from user-generated content in a US parenting forum. *PLoS computational biology*, 17(4), e1008919 (2021).
- [12] E. Pepe, P. Bajardi, L. Gauvin, F. Privitera, B. Lake, C. Cattuto, and M. Tizzoni. COVID-19 outbreak response, a dataset to assess mobility changes in Italy following national lockdown. *Scientific data*, 7(1), 1-7 (2020).
- [13] L. Gauvin, M. Tizzoni, S. Piaggese, A. Young, N. Adler, S. Verhulst, L. Ferres, C. Cattuto. Gender gaps in urban mobility. *Humanit Soc Sci Commun* 7, 11 (2020).
- [14] M. Torricelli, M. Karsai, L. Gauvin, *weg2vec: Event embedding for temporal networks*. *Scientific Reports*, 10(1), 1-11,(2020).
- [15] L. Ozella, J. Langford, L. Gauvin, E. Price, C. Cattuto, D. P. Croft, *The effect of age, environment and management on social contact patterns in sheep*, *Applied Animal Behaviour Science*, 104964, (2020)
- [16] L. Ozella, L. Gauvin, L. Careno, M. Quaggiotto, et al., *Wearable proximity sensors for monitoring a mass casualty incident exercise: a feasibility study*, *JMIR*, (2019).
- [17] T. P., Peixoto, and Laetitia Gauvin *Change points, memory and epidemic spreading in temporal networks*, *Scientific reports* 8.1 (2018)
- [18] F. Parino, M. G. Beiró, L. Gauvin, *Analysis of the Bitcoin blockchain: socio-economic factors behind the adoption*, *EPJ Data Science*, 7(1), 38 (2018).

- [19] A. Sapienza, A. Barrat, C. Cattuto, L. Gauvin, *Estimating the outcome of spreading processes on networks with incomplete information: A dimensionality reduction approach*, Physical Review E, 98(1), 012317 (2018).
- [20] L.M. Alessandretti, M. Karsai, L. Gauvin, *User-based representation of time-resolved multimodal public transportation networks*, R. Soc. open sci. 3 160156 (2016)
- [21] L. Gauvin, A. Panisson, C. Cattuto, *Detecting the community structure and activity patterns of temporal networks: a non-negative tensor factorization approach*, PLoS ONE 9(1): e86028 (2014)
- [22] L. Gauvin, A. Panisson, A. Barrat, C. Cattuto, *Activity clocks: spreading dynamics in empirical temporal networks of human contacts*, Scientific Reports 3, (2013)
- [23] L. Gauvin, A. Vignes and J.-P. Nadal, *Modeling urban housing market dynamics: can the socio-spatial segregation preserve some social diversity?*, Journal of Economic Dynamics and Control 37, 1300–1321, (2013)
- [24] L. Gauvin, J.-P. Nadal, J. Vannimenus, *Schelling segregation in an open city: a kinetically constrained Blume-Emery-Griffiths spin-1 system*, Phys. Rev. E 81, 066120 (2010)
- [25] L. Gauvin, J. Vannimenus, J.-P. Nadal, *Phase diagram of a Schelling segregation model*, Eur. Phys. J. B - Condensed Matter and Complex Systems 70, 293- 304 (2009)

Conference Proceedings

- [26] S. Piaggese, L. Gauvin, M. Tizzoni, C. Cattuto, N. Adler, S. Verhulst, A. Young, and R. Price, L. Ferres, A. Panisson, *Predicting City Poverty Using Satellite Imagery*. In Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition Workshops (pp. 90-96) (2019)
- [27] A. Sapienza, A. Panisson, J. Wu, L. Gauvin, C. Cattuto *Anomaly Detection in Temporal Graph Data: An Iterative Tensor Decomposition and Masking Approach*, Proceedings of AALTD. Portugal (2015): 117
- [28] A. Sapienza, A. Panisson, J. Wu, L. Gauvin, C. Cattuto *Detecting anomalies in time-varying networks using tensor decomposition*, Proc. 5th IEEE ICDM Workshop on Data Mining in Networks 2015
- [29] A. Panisson, L. Gauvin, M. Quaggiotto, C. Cattuto, *Mining Time-resolved Topical Activity in Microblog Streams*, Making Sense of Microposts (Best paper award), World Wide Web Conference 2014
- [30] A. Panisson, L. Gauvin, A. Barrat, C. Cattuto, *Fingerprinting temporal networks of close-range human proximity*, Workshop Permoby in international conference on Pervasive Computing and Communications 2013
- [31] L. Gauvin, A. Vignes and J. -P. Nadal, *Modeling urban housing market dynamics: can the socio-spatial segregation preserve some social diversity?*, (version courte du papier JEDC) in International Conference on Complex Systems 2011
- [32] L. Gauvin, J.-P. Nadal, J. Vannimenus, *Schelling's segregation model for an open city : emergence of physical frontiers from a socio-spatial dynamics*, in European Conference on Complex Systems 2010

- [33] L. Gauvin, J. Vannimenus, J.-P. Nadal, *Phase diagram of a Schelling segregation model*, in European Conference on Complex Systems 2009

Thesis

L. Gauvin, *Modélisation de systèmes socio-économiques à l'aide des outils de physique statistique*, PhD Thesis, Université Pierre et Marie Curie, Paris

Science popularization

L. Gauvin, J.-P. Nadal *Modéliser, comprendre et combattre la ségrégation sociale*, blog Mathématiques de la planète Terre, <http://mpt2013.fr/modeliser-comprendre-et-combattre-la-segregation-sociale/>

Talks

As an invited speaker

- June 2022 *French Conference on Complex Systems, Paris*
- June 2022 *Towards greener and sustainable cities The Alan Turing Institute - Exeter*
- December 2021 *Expert panel: Spatial analytics + Data panel, December 2021*
- October 2021 *ATI/UAP-ITINERANT workshop on Mobility Data in Urban Science, Alan Turing Institute, London about Inequalities in human mobility*
- May 2021 *Scuola di Politiche, Corso Impact*
- May 2021 *Data Science Institute, Facultad de Ingeniería, Universidad del Desarrollo*
- September 2020 *Higher-Order models in Network Science satellite at CCS 2020*
- December 2019 *Workshop on Using Mobile Telephony Data for Societal Insight, Complex Systems Hub, Vienna.*
- September 2019 *Workshop on Higher-Order Interactions, University of Oxford.*
- June 2019 *Engineering Workshop in Network Science, EPFL, Lausanne.*
- May 2019 *Critical and Collective Effects in Graphs and Networks, Les Houches school of Physics, France.*
- September 2018 *Extracting and analysing networks from spatio-temporal data satellite at CCS'18 , Urban Mobility from a Gendered Perspective through Mobile Phone Data, Thessaloniki.*
- September 2018 *Tensors workshop, Tensor-based method for temporal networks. Turin*
- June 2018 *BlockNet 2018, NetSci satellite, , Analysis of the Bitcoin blockchain: Socio-economic factors behind the adoption, Paris.*
- June 2018 *RESCOM summer school on Data science, Network Science and Machine Learning , Network Science introduction, Porquerolles.*
- November 2017 *IMERA lecture , data science for network analysis, Marseille.*
- June 2017 *Machine learning in network science, Indianapolis.*
- July 2016 *Symposium Cities as complex systems, Hanover*

- June 2015 "Analysis of networks for social sciences day" in the context of the *EHESS 40th anniversary*
- May 2015 Colloquium *Mathematical Sciences to the proof of Human & Social Sciences* - Université Paris Panthéon-Sorbonne
- May 2015 Urban economics *LIEPP Sciences Po*, Paris, France
- 6 July 2013 Colloquium *Understanding Urban Conflicts*, Université de Paris Panthéon-Sorbonne, France
- 30 – 31 May 2011 Colloquium *Mathematical Sciences to the proof of Human & Social Sciences* - Université Paris Panthéon-Sorbonne
- 1 - 3 Sep. 2010 *Optimal transport and Kinetics Applied to Socio-Economics conference*- Université Toulouse 1, Toulouse

Contributed talks at conferences

- Sep. 2017 Talk at *Conference on Complex Systems*, Cancun, Mexico
- Sep. 2016 Talk at *Conference on Complex Systems*, Amsterdam, Netherlands
- June 2016 Talk at *NetSci*, Seoul, Korea
- Sep. 2015 Talk at *Conference on Complex Systems*, Phoenix, USA
- June 2015 Talk at *NetSci*, Zaragoza, Spain
- June 2015 Talk at *International Conference on Computational Social Science*, Helsinki, Finland
- Jan. 2015 Talk at *NetSci-X*, Rio, Brasil
- Sep. 2014 Talk at *European Conference on Complex Systems*, Lucca, Italy
- June 2014 Talk in the *International School and Conference on Network Science (NetSci)*, Berkeley, USA
- Sep. 2013 Talk in the Social Systems, Economics and Finance track, *European Conference on Complex Systems*, Barcelona, Spain
- Sep. 2013 Talk in the satellite Temporal Networks in Human Dynamics , *European Conference on Complex Systems*, Barcelona, Spain
- Sep. 2013 Talk in the satellite Dynamics On and Of Complex Networks, *European Conference on Complex Systems*, Barcelona, Spain
- June 2013 Talk in the symposium *Complexity in social systems: from data to models*, Université de Cergy-Pontoise, France
- June 2013 Talk in the *International School and Conference on Network Science (NetSci)*, Copenhagen, Denmark
- Sep. 2012 Talk in the *European Conference on Complex Systems* - Université Libre de Bruxelles, Belgique
- Sep. 2011 Talk in the *European Conference on Complex Systems* - University of Vienna, Autriche
- July 2011 Talk in the *International Conference on Complex Systems* - Boston, USA
- Sep. 2010 Talk in the *European Conference on Complex Systems* - ISCTE – Lisbon University Institute, Portugal
- Sep. 2009 Talk in the *European Conference on Complex Systems* - University of Warwick, Royaume-Uni

Invited talks at working groups

- Feb. 2015 Seminar at *University of Tokyo*, Japan
- Jan. 2015 Seminar at *IMERA*, Marseille, France
- May 2014 Seminar at *IXXI* (Institut des Systèmes Complexes de la région Rhône-Alpes)
- Déc. 2013 Seminar in the team *Statistique, Analyse, Modélisation Multidisciplinaire* - Université Paris 1 Panthéon-Sorbonne, Paris
- May 2013 Seminar at *IXXI* (Institut des Systèmes Complexes de la région Rhône-Alpes)
- March 2013 Seminar in the team *Statistique, Analyse, Modélisation Multidisciplinaire* - Université Paris 1 Panthéon-Sorbonne, Paris
- Sep. 2011 Seminar at the *Centre de Physique Théorique* - Université Aix-Marseille II, Marseille
- May 2011 Seminar at *Institute for Scientific Interchange* - Turin, Italie
- Feb. 2011 Seminar at *ERMES, Equipe de Recherche sur les Marchés, l'Emploi et la Simulation* - Université Panthéon-Assas, Paris
- Apr. 2010 Seminar at the *Laboratoire Mathématiques et Applications, Physique Mathématique* - Université d'Orléans
- Jan. 2010 Seminar at the *Journées de Physique Statistique* - ESPCI, Paris
- Jan. 2010 Seminar at the *Laboratoire de Physique Théorique* - University Paris XI, Orsay

Attendance of Workshop and Summer school

- July 2016 *Complex Networks: from theory to interdisciplinary applications*, Marseille, France
- Feb. 2016 NII Shonan Meeting on *Analytics on complex networks: scalable solutions for empirical questions*, Japan
- April 2014 *World Wide Web Conference 2014*, Seoul, Korea
- 21 Nov. 2013 Colloque La Politique des Données Personnelles : Big Data ou Contrôle Individuel à l'ENS Lyon
- 27 Sep. 2013 Workshop Tensor Methods for Machine Learning lors de l'*European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases*, Prague