Chuan Li

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Research Profile. Computer scientist with a Ph.D. in Computer Science and several years of teaching experience in French higher education. My work lies at the intersection of data science, machine learning, spatiotemporal modelling, and large-scale heterogeneous data analysis. I develop reproducible pipelines for data integration, statistical learning, predictive modelling, and interpretable analytics, with applications to mobility, public-health, territorial risk, and decision support. My profile combines strong experience in Python-based data science, large observational datasets, and machine-learning research with hands-on teaching in programming, data analysis, and computer science fundamentals.

Research Interests: data science, machine learning, data mining, spatiotemporal modelling, statistical learning, large-scale data processing, interpretable AI, geospatial data science, decision-support systems.

Education

Sorbonne Université — Paris, France
Ph.D. in Computer Science Defense: Nov 17, 2025 — *Oct 2022 – Oct 2025*

Joint laboratories: LIPADE (Université Paris Cité) and SAMOVAR (Télécom SudParis, Institut Polytechnique de Paris).

Advisors: Pr. Hassine Moungla and Pr. Vincent Gauthier.

Thesis: *Spatio-Temporal Modeling for Public Health and Electric Mobility: From Digital Contact Tracing to Equitable EV-Charging Networks.*

Teaching Associate (C/C++/Java), Polytech Sorbonne.

INSEAD — Fontainebleau, France
Business Foundations Certificate (BFC) — Executive Education — *2025*

Sorbonne University – Polytech Sorbonne — Paris, France
M.Eng. in Electrical & Computer Science (GPA 17.83/20, Rank 2/48) — *Sept 2018 – Jul 2021*

University of Poitiers — Poitiers, France
B.Sc. (Year 2) in Electrical & Computer Engineering — *Sept 2016 – Jul 2018*

Research Experience

LIPADE (Université Paris Cité) & SAMOVAR (Télécom SudParis) — Paris/Palaiseau, France
Ph.D. Researcher — Data Science, Machine Learning, Spatiotemporal Analytics — *Oct 2022 – Nov 2025*

Developed data-science and machine-learning pipelines for large-scale spatiotemporal datasets, combining geospatial, behavioural, demographic, and infrastructure-related data.

Designed reproducible workflows for data preprocessing, feature engineering, temporal aggregation, predictive modelling, benchmarking, and sensitivity analysis under real-world data sparsity and noise.

Worked on statistical learning and interpretable modelling for decision support, risk mapping, forecasting, and territorial analysis.

Conducted research on heterogeneous data integration and graph-based modelling, with applications to mobility analysis, public-health data, and infrastructure accessibility.

Collaborated with academic and institutional partners on applied research questions involving large observational data and operational decision-making.

Télécom SudParis, Institut Polytechnique de Paris — Palaiseau, France
Research Engineer — Data Analysis and Spatiotemporal Modelling — *May 2022 – Oct 2022*

Built reproducible data-processing pipelines for large-scale mobile-network and geospatial datasets.

Implemented comparative evaluation workflows for statistical and machine-learning models on temporal and spatial data.

Supported applied research on large-scale data analysis, behavioural modelling, and territorial analytics.

Teaching Experience

Polytech Sorbonne (Sorbonne Université) Paris, France
Teaching Associate *2022 – 2025*

Taught computer architecture, Java object-oriented programming, C programming, and core computing tools to engineering students.

Served as course lead for Java OOP, including practical supervision, student support, and pedagogical coordination.

Delivered tutorials, practical sessions, and assessment-related teaching activities in the French higher-education system.

ENSTA Paris Palaiseau, France
Teaching Associate — C Programming (IN101) *2023 – 2024*

Supervised practical sessions and programming exercises for undergraduate engineering students.

ESIEE Paris Noisy-le-Grand, France
Lecturer — Deep Reinforcement Learning *2023 – 2025*

Designed and delivered lectures on machine learning and reinforcement learning topics for engineering students.

Selected Applied Research Experience

Renault Group, Alliance Engineering Dept. (DEA-TDV) Guyancourt, France
Research Engineer — Data Analysis, Predictive Modelling, Decision Support *Sept 2018 – Aug 2021*

Developed and validated data-driven models for large-scale applied engineering problems, with emphasis on reproducible experimentation and decision-support use cases.

Worked on predictive modelling, statistical evaluation, and operational interpretation of model outputs in industrial settings.

Led modelling work for city-scale environmental noise estimation, achieving RMSE = 3.8 dB(A) and correlation $\rho = 0.83$.

Selected Publications

Data Science, Spatiotemporal Modelling, and Machine Learning

Li, C., Gauthier, V., Nunez del Prado Cortez, M., Alatrista-Salas, H., & Moungla, H. "Assessing the Usefulness of Digital Contact Tracing Using Real-World Contact Data." *Scientific Reports, Nature Portfolio.*

Li, C., Gauthier, V., Nunez del Prado Cortez, M., Alatrista-Salas, H., & Moungla, H. "On the Utility of Digital Contact Tracing on Empirical Contact Networks." *NetMob 2025.* Paris, France (Oral Presentation; Top-3 Best Papers).

Li, C., You, J., Gauthier, V., Nunez del Prado Cortez, M., Alatrista-Salas, H., & Moungla, H. "Enhancing Spatio-Temporal Forecasting with Spatial Neighbourhood Fusion: A Case Study on COVID-19 Mobility in Peru." *IEEE ICASSP 2026.* Barcelona, Spain (Oral Presentation)

Hu, Z., **Li, C.**, Gauthier, V., Nunez del Prado Cortez, M., & Moungla, H. "Spatio-Temporal Analysis of Mobile Service Consumption for Social-Signature Clustering." *NetMob 2023.* Madrid, Spain

Geospatial Analytics and Large-Scale Optimisation

Li, C., Zhao, S., Gauthier, V., & Moungla, H. "Large-Scale Optimisation of Electric-Vehicle Charging Infrastructure." *Proc. ACM SIGSPATIAL 2024.* Atlanta, GA, USA (Oral Presentation; ACM GISCUP Best Papers Award)

Li, C., Yang, R., Gauthier, V., & Moungla, H. "Automated Ensemble Learning for Proactive Groundwater Management: Early Warning and Allocation." *ACM SIGSPATIAL 2025 GeoAI Workshop.* Minneapolis, MN, USA (Oral Presentation)

Hu, Z., **Li, C.**, Gauthier, V., & Moungla, H. "Fine-Grained Urban-Grid Clustering of Mobile-Phone Metadata with Deep Spatio-Temporal Clustering." *IEEE IJCNN 2025.* Rome, Italy (Oral Presentation)

Ongoing Work

Li, C., Gauthier, V., Nunez del Prado Cortez, M., Alatrista-Salas, H., & Moungla, H. "Belief Propagation for Digital Contact Tracing: Infection-Time Inference and Risk Forecasting: A Case Study on Real-World Data from Peru."

Li, C., Gauthier, V., Nunez del Prado Cortez, M., Alatrista-Salas, H., & Moungla, H. "Nation-Scale Risk Mapping from Human Mobility Data Using Time-Decayed Line Graphs."

Li, C., Zhao, S., Li, X., Geng, W., Li, M., Gauthier, V., & Moungla, H. "Realistic Road-Network Accessibility of Electric Vehicle Charging Infrastructure in the United States."

Selected Awards

NETMOB 2025 – Top-3 Best Paper Paris, France

Public-health related work on empirical contact networks and digital contact tracing.

ACM SIGSPATIAL GIS Cup 2024 – 1st Place Atlanta, USA

Large-scale geospatial optimisation for equitable EV-charging accessibility.

Datathon Sécurité Ferroviaire 2025 – 3rd Place Paris, France

Predictive modelling for territorial risk assessment and maintenance prioritisation.

Methods & Tools

Programming: Python, R, SQL, C/C++, Java, MATLAB, Scala.

Data Science: data preprocessing, feature engineering, statistical learning, predictive modelling, benchmarking, sensitivity analysis, interpretable machine learning.

Data Management: structured and heterogeneous data integration, database querying, large-scale observational data processing, reproducible pipelines.

Visualization & Reporting: exploratory data analysis, reporting, visual analytics, scientific communication of quantitative results.

Modelling: machine learning, spatiotemporal modelling, forecasting, graph-based methods, risk mapping, decision-support analytics.

Geospatial Data Science: QGIS, spatial analytics on grids and graphs, territorial indicators, spatial data integration.

Languages: Chinese (native), French (fluent), English (professional).

Academic Service: Peer Reviewer (ACM KDD, ACM WWW, ACM SIGSPATIAL, ECML-PKDD).

Teaching & Pedagogical Highlights

Several years of teaching experience in French higher education across engineering and computer-science curricula.

Experience with lectures, tutorials, practical sessions, course coordination, and student supervision.

Strong interest in teaching data science, programming, machine learning, and newly introduced AI-related topics.