

Ketsia Guichard-Sustowski

PHD CANDIDATE IN STATISTICS
IRMAR, RENNES, FRANCE

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PROFILE

I am a PhD student in statistics at IRMAR since October 2023, specializing in graph partitioning with heterogeneous attributes using optimal transport methods, with a focus on the Gromov–Wasserstein distance. My research is motivated by applications in mobility analysis on road networks, bridging methodological advances in statistics with real-world problems.

Prior to my PhD, I spent six years as a Data Scientist, acquiring comprehensive expertise in handling complex datasets and effectively communicating scientific information. My research interests include clustering, functional and graph data analysis, optimal transport, and broader statistical problems such as anomaly detection and domain adaptation, with applications in social sciences, economics, and mobility studies. I am currently seeking a postdoctoral position in applied statistics, starting Fall/Winter 2026, to further develop these research directions.

EDUCATION

University of Rennes - IRMAR

Rennes

PHD CANDIDATE IN STATISTICS

Since October 2023

Interdisciplinary statistical analysis of mobility patterns to understand needs and support transitions,

under the supervision of Loïc Le Marrec, Véronique Thelen and Ioana Gavra

ENSAI - National Engineering School of Statistics and Information Analysis

Rennes

MASTER'S DEGREE

2012 - 2015

Advanced training in statistics, probability, computer science, and economics

Lycée Michel de Montaigne

Bordeaux

LITERARY AND SCIENTIFIC PREPARATORY CLASS FOR FRENCH GRANDES ÉCOLES (B/L)

2010 - 2012

Program combining economics, social sciences, humanities, and mathematics, fostering problem-solving skills and interdisciplinarity

RESEARCH

PREPRINT

Ioana Gavra, Ketsia Guichard-Sustowski and Loïc Le Marrec. *Optimal Transport-Based Clustering of Attributed Graphs with an Application to Road Traffic Data* (December 2025) arXiv:2512.15570

TALKS

[7] 10TH VANNES STATISTICS MEETING – DATA SCIENCE, HISTORY AND TERRITORY

Vannes (FR) - November 2025

Mobility Networks as Attributed Graphs: Partitioning with Distance-Based Methods [Slides] (Invited talk)

[6] WEEKLY MIA SEMINAR

Paris-Saclay (FR) - November 2025

Attributed Graph Partitioning Using Gromov–Wasserstein–Based Methods (Invited talk)

[5] 56TH ANNUAL MEETING OF THE FRENCH STATISTICAL SOCIETY (SFDS)

Marseilles (FR) - June 2025

Attributed Graph Partitioning: Comparing K-Means and Optimal Transport in Traffic Applications [Slides] (Refereed Talk)

[4] 6TH FRANCOPHONE MEETINGS ON TRANSPORT AND MOBILITY

Brussels (BE) - June 2024

Mobility in Medium-Density Areas: A Spatio-Temporal Exploration of Citizen Science Data [Slides] (Refereed Talk)

[3] 10TH R MEETINGS

Vannes (FR) - June 2024

telraamStats package: Mobility Patterns Visualization for Researchers and Citizens [Slides] (Refereed Talk)

[2] 10TH YOUNG STATISTICIANS MEETINGS

Porquerolles (FR) - April 2024

Exploration of Citizen Mobility Data: Case Study of the City of Châteaubourg [Slides] (Refereed Talk)

[1] RENNES DOCTORAL RESEARCH DAY IN STATISTICS

Rennes (FR) - March 2024

Exploration of Citizen Mobility Data through Functional Data Analysis

SOFTWARE DEVELOPMENT

I am a primary contributor to the R package *telraamStats*, available on CRAN. The package facilitates easy retrieval of mobility sensor data from Telraam without using the API and provides tools to visualize mobility information such as speed and traffic. It is a general-purpose package designed for a wide range of users, including researchers across various disciplines (statistics, mobility, economics, geography) as well as professionals in associations, municipalities, and other organizations.

OTHER SCIENTIFIC ACTIVITIES

- Scientific Council of the Henri Lebesgue Center since 2024
- Co-organization of the IRMAR Doctoral Students' Statistics Seminar since 2024
- Co-organization of the Rennes Doctoral Students' Day in Statistics (March 2024, May 2025, April 2026)
- Scientific committee of the event "Equality and Science: The Role of Women" (March 2024)

SCIENTIFIC OUTREACH

- May 2025: Invited talk at the award ceremony of the Brittany Mathematical Rally (organized by IREM), "*The City as a Road Network: What Statistics Can Teach Us About Our Mobility*"
- March 2025: Invited talk for the "Girls, Math, Info" Day at the University of Rennes, "*When Travel Becomes a Statistical Question*"
- February 2024: Participated in the speed-meeting of the "Girls, Math, Info" Day at the University of Rennes
- October 2023: Invited talk at the National Days of APMEP (Association of French Mathematics Teachers), "*Understanding and Making Data Careers Accessible*"
- November 2022: Invited talk at the International Francophone Colloquium on the Teaching of Statistics, "*Statistics and Digital Technology in Business*"

TEACHING EXPERIENCE

University of Rennes

Rennes, France

ADJUNCT LECTURER

Since September 2023

- Teaching Assistant — Computing Tools (Algorithms) (24 hours per year, 2 years) for Mathematics and Applications students, First Year (L1)
- Teaching Assistant — Mathematical Analysis (36 hours) for first-year Computer Science students, First Year (L1)

EUR Digisport (ENSAI, Université Rennes 2, ENS Rennes)

Rennes, France

ADJUNCT LECTURER

Since September 2023

- Lecturer — Probability and Statistics (22 hours per year, 3 years), Master's level (M1)

ENSAI - National School of Statistics and Data Analysis

Rennes, France

ADJUNCT LECTURER

2022 - 2025

- Lecturer — Exploratory Statistics, Data Visualization, and Data Storytelling (24 hours per year, 2 years), Postgraduate level
- Teaching Assistant — Descriptive Statistics with SAS (30 hours), Undergraduate level (L3)
- Teaching Assistant — Introduction to Object-Oriented Programming and Code Documentation (42 hours), Undergraduate level (L3)
- Teaching Assistant — Markov Chains (18 hours), Master's level (M1)
- Project Supervisor — Statistical Projects Using Real-World Data (36 hours, 8 groups), Undergraduate level (L3)
- Jury Chair — Second-Year Statistical Project (6 groups per year, 4 years), Master's level (M1)
- Vice Chair of the Jury — Master's Thesis Defense, Master's level (M2)

University of Rennes 2

Rennes, France

ADJUNCT LECTURER

2023-2024

- Integrated Seminar — Mathematics (24 hours) for Social and Economic Administration students, First Year (L1)

PROFESSIONAL EXPERIENCE

Leboncoin

Paris

FRAUD AND MODERATION DATA SCIENTIST

2019 - 2021

- Contributed to the full project lifecycle, from business needs definition with operational teams to production deployment
- Selected projects include: automatic detection of multiple account fraud scenarios (account compromise, fake accounts) using supervised classification, recommendation of similar advertisements using Elasticsearch, detection of search trends through time-series analysis and semantic similarity

Louis Vuitton

Paris

LEAD DATA SCIENTIST

2018

- Coordinated a team of three Data Scientists
- Selected projects include: developed propensity scores and purchase prediction models using supervised classification and scoring techniques

Meetic

CONSUMER JOURNEY DATA SCIENTIST AND ANALYST

Paris

2016 - 2018

- Selected projects include: designing and continuously improving matching algorithms, and analyzing A/B test results to evaluate user experience and new product features

Jobijoba (acquired by Hellowork)

Bordeaux

DATA SCIENTIST

2015 - 2016

- Selected projects include: automatically profiling visitors based on their website navigation to improve recommendation systems, and building interactive dashboards using RShiny

SKILLS

Programming & Frameworks Python, R and R Shiny, Spark, Tensorflow, Keras

Databases SQL, NoSQL, MongoDB, BigQuery, AWS (Redshift, Athena)

Languages French (native), English (intermediate), German (reading knowledge)

REFERENCES

PHD SUPERVISORS

- Loïc Le Marrec, Professor of Mechanics, IRMAR, University of Rennes, email: loic.lemarrec@univ-rennes.fr
- Ioana Gavra, Associate Professor of Statistics, IRMAR, University of Rennes 2, email: ioana.gavra@univ-rennes2.fr
- Véronique Thelen, Associate Professor of Economics, CREM, University of Rennes, email: veronique.thelen@univ-rennes.fr

TEACHING REFERENCES

- Stéphane Balac, Associate Professor of Applied Mathematics, IRMAR, University of Rennes, email: stephane.balac@univ-rennes.fr
- Brigitte Gelein, Associate Professor of Statistics, IRMAR, ENSAI, email: brigitte.gelein@ensai.fr