Marina Gomtsyan

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CURRENT SITUATION

UMR LPSM, Sorbonne University Paris, France October 2023 – October 2025

Postdoctoral researcher in Statistics

• Modelling of intergenerational socio-geographic mobility in France

PUBLICATIONS

C. Jayet, M. Gomtsyan, A. Fischer, F. Gargiulo, M. Lenormand (2025) The geography of social class mobility in France : a multidimensional approach *Submitted*.

M. Gomtsyan, C. Lévy-Leduc, S. Ouadah, L. Sansonnet, C. Bailly, L. Rajjou (2025) Variable selection in sparse multivariate GLARMA models: Application to germination control by environment *To appear in Statistical Methods & Applications. arXiv:2208.14721.*

M. Gomtsyan, C. Lévy-Leduc, S. Ouadah, L. Sansonnet (2024) Sign-consistent estimation in a sparse Poisson model *Statistics & Probability Letters 209, 110107.*

M. Gomtsyan (2023) Variable selection in a specific regression time series of counts *Submitted. arXiv:2307.00929.*

M. Gomtsyan, C. Lévy-Leduc, S. Ouadah, L. Sansonnet, T. Blein (2022) Variable selection in sparse GLARMA models *Statistics 56(4)*, 755–784.

M. Gomtsyan, N. Mokrov, M. Panov, Y. Yanovich (2019) Geometry-Aware Maximum Likelihood Estimation of Intrinsic Dimension Proceedings of The Eleventh Asian Conference on Machine Learning, PMLR 101:1126-1141.

EDUCATION

UMR MIA Paris-Saclay, AgroParisTech,	PhD in Statistics
INRAE, University of Paris-Saclay Palaiseau, France October 2020 – September 2023 Defended on 26 September 2023	 Title: Variable selection methods in sparse GLARMA models Under supervision of Céline Lévy-Leduc, Sarah Ouadah, and Laure Sansonnet Working on statistical methods for the study of kinetics of transcriptomic data: theoretical and practical statistical modelling, motivated by the study of gene expression data of RNA-Seq. Main missions: implementation of a GLARMA model adapted to the discrete data, development of an inference method and study of its statistical properties, simulations aimed at validating the results and application to real data
University of Paris-Saclay Orsay, France September 2019 – August 2020	 Master 2 in Statistics and Machine Learning Average grade 15.15 (out of 20) High dimensional statistics, Statistical learning theory, Optimization and statistics, Optimal transport, Probabilistic graphical models, Robust Learning, Compressed sensing

National Research University Higher School of Master of Science in Statistical Learning Theory **Economics & Skolkovo Institute of Science** Cumulative GPA 8.06 (out of 10) Russian Government and Skolkovo Foundation academic scholarships and Technology Moscow, Russia Member of Structural Learning research group • September 2017 – July 2019 Research Project on Online classification of graph nodes • American University of Armenia **Bachelor of Science in Computer Science** Yerevan, Armenia Cumulative GPA 3.89 (out of 4.0) • September 2013 – May 2017 Received a full merit-based scholarship • Bachelor's Thesis on Anomaly detection in time series • **TEACHING EXPERIENCE Sciences Po Teaching assistant** Paris, France Led tutoring sessions for How AI works: Intelligence, Learning, and January - May, 2025 Society course 16 hours CentraleSupélec, ESSEC Business School **Teaching assistant** Led problem solving sessions for Integrals & Differential Calculus Gif-sur-Yvette, France • January - February, 2025 course 9 hours • **Sciences Po Teaching assistant** Led tutoring sessions for AI and Society course

Paris, France January – May, 2024

CentraleSupélec, ESSEC Business School

Gif-sur-Yvette, France February, 2024

UMR Maths, University of Paris Cité

Paris, France September – November, 2023

AgroParisTech, University of Paris-Saclay

Palaiseau, France September – December, 2022

AgroParisTech, University of Paris-Saclay

AgroParisTech/INRA MIA-Paris, University

Paris, France September – December, 2021

INTERNSHIPS

Master 2 Internship

of Paris-Saclay Paris, France April – August, 2020	•	Working on statistical methods for the study of kinetics of transcriptomic data: theoretical and practical statistical modelling Motivated by the study of gene expression data of RNA-Seq

Group-IB Moscow, Russia June – August, 2018

Picsart Incorporation, Yerevan Office

Yerevan, Armenia July - September, 2016

Machine Learning Intern

- Worked on creating automatic multiclass website classifier
- Developed NLP, classification, and topic models, worked with big data •

R&D Intern – Machine Learning Engineer

- Worked on user-to-user recommender engine for social network platform
- Developed clustering and ranking models, worked with big data

- **Teaching assistant**
 - Led practical sessions for *Data science: statistical learning* course •
 - 23 hours

Teaching assistant

- Led practical sessions for *Data science: statistical learning* course
- 15 hours

6 hours

16 hours

Teaching assistant

- Led practical sessions for *Statistical learning* course •
- 30 hours

Teaching assistant

•

Led problem solving sessions for Integrals & Differential Calculus • course

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CONFERENCE AND WORKSHOP PRESENTATIONS

Parisian Statistics Seminar Villetaneuse, France January 15, 2022

Seminar LAGA Villetaneuse, France December 15, 2022

Statistics days (JDS) 2023 Brussels, Belgium July 3–6, 2023

Statistical Methods in Post Genomic Data Ghent, Belgium February 2-3, 2023

Seminar MIA Paris-Saclay Palaiseau, France December 15, 2022

Workshop for State of the R group Palaiseau, France November 25, 2022

Young Statisticians Meeting (RJS) Porquerolles, France April 3-7, 2022

Statistical Methods in Post Genomic Data Nantes, France (remote) January 20-21, 2022

Seminar in Cité internationale universitaire de Paris Paris, France

April 9, 2021

Variable selection in sparse GLARMA models

• Oral presentation

Variable selection in sparse GLARMA models

• Oral presentation

Variable selection in sparse multivariate GLARMA models: Application to germination control by environment

• Oral presentation

Variable selection in sparse multivariate GLARMA models: Application to germination control by environment

Oral presentation

Variable selection in sparse GLARMA models

• Oral presentation

Manipulating Git with RStudio

• Led a practical session

Variable selection in sparse GLARMA models

• Oral presentation

Variable selection in sparse GLARMA models

Oral presentation

Artificial Intelligence: Introduction and applications

• Oral presentation for general public

SELECTED COURSES, EVENTS, and SUMMER & WINTER SCHOOLS

Women in Quant finance London, UK September 4–5, 2022

Finist'R 2022 Paimpont, France August 22–26, 2022

Statistics days (JDS) 2022 Lyon, France

June 13–17, 2022

New Frontier in High-Dimensional Probability and Statistics Winter School Moscow, Russia February 22–23, 2019

Partial Differential Equations Summer School at Instituto Superior Técnico

Lisbon, Portugal July 4–9, 2016

- Invited to participate to the event organised by G-Research
- Presentations about finance industry
- Participated in quant challenge
- R bootcamp organised by *State of the R* group
- Explored different R packages and tools
- Prepared an introductory guide to Quarto
- Attended presentations recent research results in different domains of Statistics
- Lectures in Markov Chain Monte-Carlo, High dimensional principal component analysis, Manifold Learning, and Optimal Transport
- Lectures in Mathematical Modeling in Hydrodynamics, Systems of Conservation Laws, and Elliptic and Parabolic PDEs
- Participated in mathematics conference of undergraduate research program

Machine Learning Training at Picsart Inc. Yerevan, Armenia April – June 2016

Data Mining Training at American University of Armenia Yerevan, Armenia February – April 2016

Course in Neural Networks at Yerevan State University Yerevan, Armenia September – December 2015

Mathematics and Application Summer School Tsaghkadzor, Armenia July 2-9, 2105

- Lectures including topics in linear algebra, probability, statistics, optimization, and machine learning
- Worked on mini-projects
- Lectures in Data Mining
- Finished in top 15% among 2926 teams in a Kaggle competition organised by BNP Paribas Cardiff
- Deep Learning for Natural Language Processing
- Implementation of Word2vec on Armenian Wikipedia
- Lectures in statistics, optimization, financial mathematics, algorithmic algebra, and Fourier analysis used in number theory
- Participated in mathematical competition

R PACKAGES

M. Gomtsyan (2023) NBtsVarSel: Variable Selection in a Specific Regression Time Series of Counts

M. Gomtsyan (2022) MultiGlarmaVarSel: Variable selection in sparse multivariate GLARMA models

M. Gomtsyan, C. Lévy-Leduc, S. Ouadah, L. Sansonnet (2021) GlarmaVarSel: Variable selection in sparse GLARMA models

COMPUTER SKILLS

• R •	LaTex • git
• Python •	MATLAB • C++
ORGANISATION	
Forum Entreprises & Mathématiques Paris France, October 7, 2024	• Volunteer
Forum Entreprises & Mathématiques Paris France, October 10, 2023	• Volunteer
Cité internationale universitaire de Paris – House of Armenian students Paris, France October 2020 – July 2023	 Member of the resident council Treasurer
LANGUAGES	

- Armenian (native language)
- English (proficient user)

- French (proficient user)
- Russian (proficient user)