# LYUBOV DOROSHENKO

## Personale


**Indirizzo**
Roma

**Numero di telefono**

**E-mail**


## Lingue

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|---|---|
| Italiano | ●●●●● |
| Inglese | ●●●●● |
| Francese | ●●●●● |
| Spagnolo | ●●●●○ |
| Russo | ●●●●● |
| Ucraino | ●●●●● |

## Educazione e Qualifiche

**Finanza e Assicurazioni** set 2015 - ott 2017
Università di Roma La Sapienza, Roma

Ho conseguito la Laurea Magistrale in Finanza e Assicurazioni (classe LM-16) presso l'Università di Roma La Sapienza, con una tesi dal titolo *"Approcci alla misurazione del Value at Risk"*, sotto la supervisione del professore Brunero Liseo e della co-relatrice Professoressa Serena Arima. Ho concluso il percorso con la votazione di 110 e lode su 110.

**Dottorato** ott 2017 - ott 2021
Università di Roma La Sapienza, Roma

Ho conseguito il dottorato di ricerca in Economia e Finanza presso l'Università di Roma La Sapienza, sotto la supervisione del professore Brunero Liseo. La mia tesi, dal titolo *"Contributions to Bayesian inference for economic and financial applications"*, è stata discussa davanti a una commissione composta da Marilena Barbieri, Serena Arima e Alessandro Olper.

## Esperienza professionale

**post-doctoral scholar** dic 2024 - feb 2026
presso Università Roma Tre, Roma

Svolgo attività di ricerca post-dottorato presso il Dipartimento di Economia dell'Università Roma Tre, sotto la supervisione del professore Pierangelo Di Sanzo. Il mio lavoro si concentra sul progetto *"Taming Heterogeneous Complexity with Full-Stack Governance of Domain-Specific Languages"*.

**post-doctoral scholar** nov 2021 - giu 2024
presso l'Université Laval, Québec, Canada

Ho svolto attività di ricerca post-dottorato presso il Dipartimento di Finanza, Assicurazioni e Immobiliare dell'Université Laval, sotto la supervisione dei professori Marzia Cremona e Federico Severino. La mia ricerca era basata sull'analisi dei dati funzionali (*Functional Data Analysis*) e sulla scoperta di motivi funzionali (*Functional Motif Discovery*) applicate ai dati economici e finanziari.

**Instructor (full course responsibility)** gen 2023 - mag 2024
presso l'Université Laval, Québec, Canada

Ho svolto il ruolo di **docente con responsabilità completa del corso** di *International Financial Management* presso l'Université Laval. Il corso, interamente in **lingua inglese**, era rivolto a studenti dei programmi di laurea magistrale in business e studi internazionali, nell'ambito dell'MBA generale e dell'MBA in international management.
Le mie principali responsabilità comprendevano la preparazione dei materiali didattici, l'insegnamento delle lezioni, la strutturazione e la valutazione di esami e lavori assegnati, nonché l'organizzazione delle sessioni di ricevimento studenti.

**Teacher Assistant** set 2020 - set 2021
presso LUISS, Roma

Ho svolto il ruolo di **assistente alla didattica** per il corso di *Mathematics I* nel programma di laurea triennale in Economia e Management presso la LUISS Guido Carli. Il corso si è svolto in **lingua inglese**. Le mie principali attività includevano la conduzione delle esercitazioni, l'organizzazione del ricevimento studenti, la preparazione e la correzione delle prove scritte e orali.

## Competenze

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|---|---|
| R | ●●●●● |
| Python | ●●●●○ |
| Excel | ●●●●● |

# Lyubov Doroshenko

## Personal information

Mail:

Mobile:

## Introduction

I am a data-driven analyst and researcher with a strong interdisciplinary background in finance, economics, and statistics. My expertise includes financial econometrics, machine learning, time series analysis, functional data analysis, and Bayesian modeling, with applications spanning financial markets, economic indicators, and public health data. Through postdoctoral research, teaching, and applied statistical work, I have developed robust skills in data analysis, machine learning, and quantitative modeling. I am proficient in R and Python, and I bring a deep understanding of complex data structures and domain-specific challenges. I am now seeking opportunities to contribute my analytical and research skills to projects at the intersection of data science, economics, and policy.

## Research interests

*Financial Econometrics, Functional data analysis, Bayesian statistics, Mixture models, Machine Learning, Time Series, Rank Likelihood, Long memory, Deep Learning, Wavelets Analysis, Domain specific languages for Economics and Finance.*
I am strongly interested in statistical and mathematical modeling for relevant applications in the fields of economics, finance, social sciences, business analytics and not only.

## Job-related skills

- *Degrees in Business Administration and Quantitative Finance; PhD in Economics and Finance; Experience of teaching International Financial Management; Post-doc in functional motif discovery for financial applications; Post-doc in Domain Specific Languages for Economics and Finance.*
- *Native proficiency in Italian; Professional Proficiency in French; Good knowledge of Spanish.*
- *Robust understanding and experience of statistical data modeling.*
- *Strong mathematical and statistical skills, advanced knowledge of machine learning, probability and stochastic processes. Basic knowledge of deep learning.*
- *Rich experience of working with time series and cross-sectional data.*
- *Coding in R (advanced user), including Python interfaces of keras and tensorflow, RMarkdown; LaTeX; advanced knowledge of Excel.*
- *Coding in Python.*

- *Eclipse IDE, xtext and java for creating Domain Specific Languages.*
- *Bash scripting to interact with the system, execute programs, load modules, and manage computing resources.*
- *HTML (basic knowledge).*
- *Microsoft SQL (basic knowledge).*

## Language skills

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|---|---|
| Native languages | Ukrainian, Russian |
| Other languages | Italian (Native Proficiency), English (Full Professional Proficiency), |
| | French (Advanced Professional Proficiency), Spanish (Limited Working Proficiency) |

## Publications

**Geopolitical Risks Implications on Critical Materials: Insights from Wavelet Analysis**, L. Doroshenko, A. Mazzoccoli, I. De Crescenzo, L. Mastroeni.

**Wavelet and Deep Learning Framework for Predicting Commodity Prices under Economic and Financial Uncertainty**, (2025), Lyubov Doroshenko, Loretta Mastroeni, Alessandro Mazzoccoli. *Mathematics*.

**Generalized Linear Mixed Model with Bayesian Rank Likelihood** (2022), L.Doroshenko, B.Liseo. *Statistical Methods and Applications*.

**Unsupervised learning methods for proximal geographic clustering of dual-domain data with applications to county-level colorectal cancer incidence in California**, (2022), M.E. McMahon, L. Doroshenko, J.Roostaei, H.Cho, M.A.Haider. *Health Care Management Science*.

## Working papers

**Functional motif discovery in stock market prices**, M. Cremona, L. Doroshenko, F. Severino (read it here).

**Energy, Uncertainty, and Geopolitics: A SHAP-Based Tail Analysis of Uranium Price Drivers**, L. Doroshenko, A. Mazzoccoli, I. De Crescenzo, L. Mastroeni

## Work in progress

**Bayesian marginal likelihood for long-range dependence estimation in implied volatility**, L. Doroshenko, B. Liseo.

**Domain specific Language for Econometrics**, L. Doroshenko, P. Di Sanzo.

## Most recent position

1.12.2024 - Present **Università Roma Tre, Roma, Italia**
Postdoctoral scholar in Department of Economics.
Advisors: Pierangelo Di Sanzo.
Taming Heterogeneous Complexity with Full-Stack Governance of Domain-Specific Languages.

1.11.2021 - 30.06.2024 **Université Laval, Quebec, Canada**
Postdoctoral scholar in Department of Finance, Insurance and Real Estate.
Advisors: Marzia Cremona and Federico Severino.
The center of gravity of my research is based on the Functional Data Analysis and Functional Motif Discovery for economic and financial data.

## Academic experience

1.09.2022 - 3.12.2022 **Eberly College of Science, Pennsylvania State University, USA**
Visiting scholar.

2.05.2019 - 27.11.2019 **Statistical and Applied Mathematical Sciences Institute, Research Triangle Center, North Carolina, USA**
Visiting Ph.D. student.
Member of the SAMSI working group "Machine Learning & Games, Decisions, Risk and Reliability".

## Teaching experience

1.01.2023 - 30.06.2024 **Université Laval, Québec, Canada**
Instructor (full course responsibility) of the course of International Financial Management.
The course is designed for graduate students in business and international studies. It is part of the general MBA and international management MBA programs.
Main duties: Preparing the course materials and teaching the lectures, structuring and grading the exams and assignments, organizing the office hours sessions.

14.09.2020 - 14.09.2021 **LUISS, Rome, Italy**
Teacher Assistant of the course of Mathematics I in the undergraduate program in Economics and Business.
Main duties: Exercise sessions, office hours, preparing and grading the writing and oral exams.

## Education

26.10.2017 - 07.10.2021 **La Sapienza University of Rome, Italy**
Ph.D. in Economics and Finance.
Ph.D. Advisor: Brunero Liseo.
Dissertation title: Contributions to Bayesian inference for economic and financial applications.
Ph.D. Committee: Marilena Barbieri, Serena Arima, Alessandro Olper.

26.09.2015 - 26.10.2017 **La Sapienza University of Rome, Italy**
Master in Finance and Insurance (LM-16).
Dissertation Advisor: Brunero Liseo.
Dissertation Co-Advisor: Serena Arima.
Dissertation title: Approaches to Value at Risk.
Final grade: 110 cum laude/110.

18.09.2012 - 15.07.2015 **La Sapienza University of Rome, Italy**
Bachelor in Business Administration (L-18).
Dissertation Advisor: Pasquale De Luca.
Dissertation title: Firm's Performance Measuring Systems.
Final grade: 110 cum laude/110.

## Referees

**Brunero Liseo**, who was supervising me during my PhD career, is a full professor in the Department of Methods and Models for Economics, Territory and Finance at Sapienza University of Rome.
**E-mail**: brunero.liseo@uniroma1.it
**Tel**: (+39)0649766973

**Marzia Cremona and Federico Severino**, who are my current post-doctoral advisors, are an associate professor in the Department of Operations and Decision Systems and an associate professor in the Department of Finance, Insurance and Real Estate, respectively, at Université Laval.
**E-mail**: marzia.cremona@fsa.ulaval.ca; federico.severino@fsa.ulaval.ca
**Tel**: 418/6562131; 418/6562131

**Mansoor Haider**, who was my collaborator, coauthor and supervisor of the SAMSI working group, is a professor in the Department of Mathematics at North Carolina State University.
**E-mail**: mahaider@ncsu.edu
**Tel**: 9195153100

**Marco Dall'Aglio**, who is an associate professor of Mathematics in the Department of Economics and Finance at LUISS University of Rome. He is available to address my teaching expertise.
**E-mail**: mdallaglio@luiss.it

## Presentations

7.06.20242024 Africa Meeting of the Econometric Society
**Functional motif discovery in stock market prices**, L.Doroshenko, M.Cremona, F.Severino.

10.04.2024 Université Laval, Seminar Talk in the Department of Finance, Insurance and Real Estate
**Functional motif discovery in stock market prices**, in French. L.Doroshenko, M.Cremona, F.Severino.

4.04.2024 Le Havre, MAF2024 - Mathematical and Statistical Methods for Actuarial Sciences and Finance.
**Contributed conference talk: Functional motif discovery in stock market prices**, L.Doroshenko, M.Cremona, F.Severino.

14.09.2023 Échanges Éclair 180 at Université Laval.
**Functional motif discovery in stock market prices**, in French, L.Doroshenko, M.Cremona, F.Severino.

07.08.2023 Joint Statistical Meetigs in Toronto, the session “Recent Advances in Time Series Forecasting, Aggregation and Business Analytics” .
**Contributed conference talk: Functional motif discovery in stock market prices**, L.Doroshenko, M.Cremona, F.Severino.

06.04.2023 Les séminaires de Centre de recherche facultaire en statistique et science des données STATQAM; Université du Québec à Montréal (UQAM).
**Functional motif discovery in stock market prices**, L.Doroshenko, M.Cremona, F.Severino.

02.12.2022 Stochastic Modeling and Computational Statistics talk; Pennsylvania State University, Eberly College of Science, Deparment of Statistics.
**Functional motif discovery in stock market prices**, L.Doroshenko, M.Cremona, F.Severino.

01.06.2022 Statistical Society of Canada Annual Meeting 2022.
**Conference Contributed Talk: Generalized Linear Mixed Effects Models with Bayesian Likelihood**, L.Doroshenko, B.Liseo.

02.05.2022 University of Buffalo, UP-STAT 2022 Hybrid Conference.
**Conference Contributed Talk: A Mixture of Heterogeneous Models with Dirichlet Time-Varying Weights**, L.Doroshenko, B.Liseo, C.Macaro.

20.04.2022 University of Salerno, MAF2022 - Mathematical and Statistical Methods for Actuarial Sciences and Finance.
**Conference Invited Talk: Generalized Linear Mixed Model with Bayesian Rank Likelihood**, L.Doroshenko, B.Liseo.

25.01.2022 Laval Université, Institute Intelligence et Données, Québec.
**Seminar Talk: Contributions to Bayesian Inference for Economic and Financial Applications.**

6.11.2019 Statistical and Applied Mathematical Sciences Institute, North Carolina, USA.
**Special Research Lecture: A Mixture of Heterogeneous Models with Time Dependent Weights.**

## Awards and funding

MITACS, Globalink Research Award, 2022, Application Ref. IT29252.

Research project funding by Sapienza Università di Roma "Progetti per Avvio alla Ricerca - Tipo 1", 2019 n. AR11916B4E96D3CA.

Research project funding by Sapienza Università di Roma "Progetti per Avvio alla Ricerca - Tipo 1", 2018 n. AR11816427928734.

Ph.D. scholarship in Economics and Finance, 2017-2021.

## Academic Service

Manuscript reviewer, **Mathematics for Applications**.

Manuscript reviewer, **Physica A: Statistical Mechanics and its Applications**.

Manuscript reviewer, **PLOS ONE**.

Manuscript reviewer, **Chaos, Solitons and Fractals**.

Manuscript reviewer, **Energy Economics**.

Manuscript reviewer, **Statistics and Public Policy**.

## Memberships in professional societies and networks

ASA American Statistical Association

Statistical Society of Canada

Econometric Society