

Postdoctoral position

Quasi-Gaussian Likelihood Estimation of General Fractional Time Series

Location

Le Mans University, Laboratoire Manceau de Mathématiques (LMM), Le Mans, France.

Duration

1.5 years, starting as soon as possible from June 2025.

Funding

Postdoctoral contract funded by the Pays de la Loire Region, as part of the "Étoiles Montantes en Pays de la Loire" project led by Dr. Youssef ESSTAFA.

Context and Objectives

This postdoctoral position is part of an innovative research project aimed at developing advanced estimation and prediction methods for fractional, non-stationary, and non-Gaussian time series models. These models are particularly important for analyzing complex data, such as those observed in economics, finance, and climatology, where long-term dependencies and nonlinear behaviors are frequently encountered.

The main objective of the project is to develop and improve quasi-Gaussian likelihood estimation techniques for these complex models while addressing the challenges associated with prediction in non-stationary and non-Gaussian contexts. Specifically, the research will focus on:

- Developing quasi-Gaussian likelihood estimation methods adapted for fractional, non-stationary, and non-Gaussian models.
- Improving prediction algorithms in settings where stationarity and normality assumptions are invalid.
- Theoretical and empirical analysis of the properties of these estimators in real-world contexts.
- Applying the developed techniques to time series data from economics, finance, or environmental fields.

The selected candidate will have the opportunity to work on cutting-edge problems in econometrics and statistics while collaborating with internationally recognized researchers in a stimulating environment.

Responsibilities

The postdoctoral fellow will be expected to:

- Develop quasi-Gaussian likelihood estimation methods for fractional, non-stationary, and non-Gaussian time series models.
- Improve prediction algorithms for non-stationary and non-Gaussian time series.
- Conduct theoretical analysis of estimator properties, focusing on asymptotic behavior and consistency.
- Apply the developed techniques to real-world data, including economic, financial, and environmental time series.
- Publish research findings in peer-reviewed journals and present results at international conferences.

Profile

We are looking for a highly motivated postdoctoral researcher with:

- A Ph.D. in applied mathematics, statistics, econometrics, or a related field, with a strong focus on time series analysis.
- Extensive experience with fractional, non-stationary, and non-Gaussian time series models.
- A solid understanding of quasi-Gaussian likelihood estimation and prediction algorithms in complex settings.
- Strong programming skills in languages such as R and Python.
- Excellent ability to work independently and as part of a collaborative research team.
- Strong communication skills, with experience in publishing and presenting research results.

Application

Interested candidates should send their CV, a cover letter, and a list of publications to Youssef.Esstafa@univ-lemans.fr by May 31, 2025.