Mariia Artemova

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Placement assistant: Arianne de Jong a.dejong@tinbergen.nl +31 (0)20 598 4585

EDUCATION

Vrije Universiteit Amsterdam and Tinbergen Institute   *2020 - Present*
PhD in Econometrics. Expected Completion: August 2024
Supervisors: Prof. Francisco Blasques and Prof. Siem Jan Koopman

Center for Research in Economics and Statistics, Paris, France   *Spring 2023*
Visiting scholar, Hosts: Prof. Christian Francq and Prof. Jean-Michel Zakoïan

Tinbergen Institute and University of Amsterdam   *2018–2020*
MPhil in Economics, Advanced Econometrics track, *Cum Laude*

Saint Petersburg State University   *2015 – 2019*
MSc Applied Mathematics and Computer Science, *GPA 4.85/5.0*

University of Illinois Urbana-Champaign   *Spring 2018*
Research visit

Saint Petersburg State University   *2011–2015*
BSc Applied Mathematics and Computer Science, *Cum Laude*

REFERENCES

Prof. Francisco Blasques
Vrije Universiteit Amsterdam
f.blasques@vu.nl

Prof. Siem Jan Koopman
Vrije Universiteit Amsterdam
s.j.koopman@vu.nl

Prof. Sébastien Laurent
Aix Marseille School of Economics
sebastien.laurent@univ-amu.fr

RESEARCH FIELDS

Primary Field: Econometrics
Secondary Fields: Time Series Analysis and Time-Varying Parameter Models

TEACHING EXPERIENCE

Vrije Universiteit Amsterdam and Tinbergen Institute:

2022 – Present	Introduction to Time Series and Dynamic Econometrics (BSc, Minor program)	Coordinator Lecturer
2022	Econometrics and Data Science Methods (Summer course)	TA
2020 – Present	Advanced Econometrics (MSc)	TA
2021 – Present	Thesis Supervision (BSc, MSc)	
2020 – 2022	Business Statistics (BSc)	TA
2019 – 2020	Econometrics III: Introduction to Time Series (MPhil)	TA

Academic Gymnasium at Saint Petersburg State University:

2016 – 2017	Algebra (high school)	Teacher

RESEARCH EXPERIENCE AND OTHER EMPLOYMENT

2021 – 2022	Churned AI, Research Data Scientist
2019 – 2020	Vrije Universiteit Amsterdam, Research Assistant
2018	Bank of Russia, Intern at Research and Forecasting Department
2017 – 2018	European University at Saint Petersburg, Research Assistant
2016	Corporate group 'METR', Programmer 1C
2014 – 2016	Krylov State Research University, Research Engineer

HONORS, SCHOLARSHIPS AND AWARDS

2023	Best Graduate Paper Award at the IAAE 2023 Annual Conference
	IAAE and SoFiE Travel Scholarship Awards
	Research Visit Grant, Vrije Universiteit Amsterdam
2021	Top 3 (second place) in Econometric Game
2020	Teaching Assistant of the Year, Tinbergen Institute, course Econometrics III
2018 – 2020	Full Fee Waiver Scholarship and Individual Scholarship, Tinbergen Institute
2016 – 2017	Full Fee Waiver Scholarship and Individual Scholarship, European University at Saint Petersburg
2012 – 2015	Advanced scholarship for excellent academic results and active participation in extracurricular activities, Saint Petersburg State University

PUBLICATIONS

Score-Driven Models: Methodology and Theory (with F. Blasques, J. Brummelen and S. J. Koopman), *Oxford Research Encyclopedia of Economics and Finance*, 2022.

Score-Driven Models: Methods and Applications (with F. Blasques, J. Brummelen and S. J. Koopman), *Oxford Research Encyclopedia of Economics and Finance*, 2022.

RESEARCH PAPERS

- *An Order-Invariant Score-Driven Dynamic Factor Model* (**Job Market Paper**)
  Abstract: This paper introduces a novel score-driven dynamic factor model designed for filtering cross-sectional co-movements in panels of time series. The model is formulated using elliptical distribution for the noise terms, thus allowing the update of the time-varying parameter to be potentially nonlinear and robust to outliers. We derive stochastic properties of the time series generated by the model, such as stationarity and ergodicity, and establish the invertibility of the filter. We prove that the identification of the factors and loadings is achieved by incorporating an orthogonality constraint on the loadings which is invariant to the order of the series in the panel. Given the nonlinearity of the constraint, we propose to exploit a maximum likelihood estimation on the Stiefel manifolds, which ensure that the identification constraint is satisfied numerically, hence allowing a joint estimation of the static and time-varying parameters. Furthermore, the asymptotic properties of the constrained estimator are derived. In a series of Monte Carlo experiments, we find evidence of appropriate finite sample properties of the estimator and resulting score filter for the time-varying parameters. We reveal the empirical usefulness of our factor model for constructing indices of economic activity from a set of macroeconomic and financial variables during the period 1981–2022. An empirical application highlights the importance of the robust update for the time-varying parameters in the presence of V-shaped recessions such as the COVID-19 recession.

WORKING PAPERS

A Multilevel Factor Model for Economic Activity with Observation-Driven Dynamic Factors (with F. Blasques and S. J. Koopman), *Tinbergen Institute Discussion Paper*, 2023-021/III.

Forecasting in a Changing World: from the Great Recession to the COVID-19 Pandemic (with F. Blasques, S. J. Koopman and Z. Zhang), *Tinbergen Institute Discussion Paper*, 2021-006/III.

RESEARCH IN PROGRESS

Time-Varying Error-Correction Model (with Francisco Blasques and Sébastien Laurent)

PUBLICATIONS (PRE-GRADUATE)

Financial Cycles in the Eurasian Economic Union (with Yu. Vymyatnina). *Finance and Business*, 2019-4, p. 40-80.

Regional Heterogeneity of Household Lending based on the Findings of the Household Finance Survey: Regional Features and Potential Risks (with M. Mamedli and A. Sinyakov), *Analytical Note by the Research and Forecasting Department of the Bank of Russia*, 2018.

Mathematical Model of Osteosynthesis of Cortical Bone Fractures (with D. Morshchinina), *The XLVI Annual International Conference on Control Processes and Stability*, 2015, p. 264-269, (*in Russian*).

ADDITIONAL EDUCATION

2022	TI Summer School 'Deep learning', QFFE Spring School 'Large dimensional network models', 'Estimation of covariances and correlations in finance'
2021	SoFiE Summer School 'Machine Learning in Finance', EABCN Training School 'Recent Developments in Forecasting'
2020	VU Teaching Course (Didactical Knowledge and Skills, Thesis supervision)
2019	Tinbergen Institute Summer School 'Econometric Methods for Forecasting and Data Science with Applications in Finance, Economics and Business'
2016 – 2017	MA-1 Economics, European University at Saint Petersburg, (GPA 4.8/5.0)
2017	Bank of Russia Summer Macroeconomic School

CONFERENCES AND SEMINARS

2023	Tinbergen Institute PhD Seminar, Saint Petersburg Economic Seminar, 5th International Workshop in Financial Econometrics, EEA-ESEM Annual Meeting, IAAE Annual Conference, Exploring the Frontiers of Financial Econometrics in the Big Data Era (KAIR), 15th Annual SoFiE (Pre-)Conference, QFFE Conference at Aix-Marseille School of Economics, Financial Econometrics Conference at Tolouse School of Economics, Financial Econometrics Seminar at CREST
2022	33rd (EC)^2 Conference, Econometrics PhD Conference at Erasmus University Rotterdam VU Econometrics Seminar, NBER-NSF Time Series Conference
2021	Seminar at Center for Econometrics and Business Analytics, iCEBA Conference at Saint-Petersburg, IAAE Annual Conference
2020	Saint Petersburg Economic Seminar, VU Econometrics Seminar
2017	Student Economic Seminar at British Consulate General
2015	XLVI Annual International Conference on Control Processes, seminar 'Computer Methods in Continuum Mechanics'

MISCELLANEOUS

2012 – 2016	Chair of the Student Council, Chair of the Student Research Society
	Saint Petersburg State University
2013 – 2015	Main organizer of the university events
	Saint Petersburg State University
2011 – 2015	Cohort representative
	Saint Petersburg State University
Computer Skills	Python, LaTeX, Matlab, R, Eviews
Languages	Russian (native), English (fluent), Dutch (pre-intermediate)
Hobbies	Traveling, climbing