

Haotian Xu

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Education	Ph.D in Statistics , University of Geneva, Switzerland • Thesis: Contributions to time series analysis • Advisor: Prof. Maria-Pia Victoria-Feser, Prof. Stéphane Guerrier	08/2015-07/2021
	M.Sc in Statistics , University of Illinois at Urbana-Champaign, USA	01/2014-05/2015
	M.Sc in Applied Statistics , Dongbei University of Finance and Economics, China • Thesis: Bayesian analysis for ordinal categorical data	09/2011-07/2013
	Bachelor in Statistics , Anhui University of Finance and Economics, China • Thesis: Optimization of hospital beds arrangement based on Poisson Process	09/2007-07/2011
Academic Position	Assistant Professor (Harrison Early Career) , University of Warwick, UK	09/2023-
	Postdoctoral Researcher , The Pennsylvania State University, USA • SNSF Postdoc.Mobility Fellowship • Advisor: Prof. Runze Li	10/2022-08/2023
	Postdoctoral Researcher , Université Catholique de Louvain, Belgium • SNSF Postdoc.Mobility Fellowship • Advisor: Prof. Johan Segers	06/2022-09/2022
	Postdoctoral Researcher , University of Warwick, UK • Advisor: Prof. Yi Yu	08/2021-05/2022
Research interests	Time series, change-point problems, high-dimensional statistics, robust statistics.	
Publications	Yu, Y., Chatterjee S., & Xu, H. , “ <i>Localising change points in piecewise polynomials of general degrees</i> ”, Electronic Journal of Statistics, 16(1), 1855-1890, 2022.	
	Guerrier, S., Molinari, R., Victoria-Feser, M. P., & Xu, H. , “ <i>Robust two-step wavelet-based inference for time series models</i> ”, Journal of the American Statistical Association, 2021. (alphabetical order)	
	Guerrier, S., Jurado, J., Khaghani, M., Bakalli, G., Karemera, M., Molinari, R., Orso, S., Raquet, J., Kabban, C.M.S., Skaloud, J., Xu, H. , & Zhang, Y., “ <i>Wavelet-based moment-matching techniques for inertial sensor calibration</i> ”, IEEE Transactions on Instrumentation and Measurement, 69(10), 7542-7551, 2020.	
	Xu, H. , Guerrier, S., Molinari, R., & Karemera, M., “ <i>Multivariate signal modeling with applications to inertial sensor calibration</i> ”, IEEE Transactions on Signal Processing, 67(19), 5143-5152, 2019.	
	Branca, M., Orso, S., Molinari, R., Xu, H. , Guerrier, S., Zhang, Y., & Mili, N., “ <i>Is nonmetastatic cutaneous melanoma predictable through genomic biomarkers?</i> ”, Melanoma Research, 28(1), 21-29, 2018.	
	Xu, H. , Guerrier, S., Molinari, R., & Zhang, Y., “ <i>A study of the Allan variance for constant-mean non-stationary processes</i> ”, IEEE Signal Processing Letters, 24(8), 1257-1260, 2017.	

Preprints

Padilla, C.M.M., **Xu, H.**, Wang, D., Padilla, O.H.M., & Yu, Y., “*Change point detection and inference in multivariable nonparametric models under mixing conditions*” (2023) arXiv preprint. (submitted)

Xu, H., Wang, D., Zhao, Z., & Yu, Y., “*Change point inference in high-dimensional regression models under temporal dependence*”. (2022) arXiv preprint. (submitted to Annals of Statistics)

Dubey, P., **Xu, H.**, & Yu, Y., “*Online network change point detection with missing values*”. (2021) arXiv preprint. (preparing for submission)

Xu, H., Guerrier, S., Li, R., & Ke, Y., “*Nonasymptotic theories for tail-robust autocovariance matrix estimation methods*”. (preparing for submission)

Xu, H., Xiao, D., & Ke, Y., “*Multiple change points detection problems for high-dimensional time series*”. (preparing for submission)

Proceedings

Zhang, Y., **Xu, H.**, Radi, A., Molinari, R., Guerrier, S., Karemera, M., & El-Sheimy, N., “*An optimal virtual inertial sensor framework using wavelet cross covariance*”, In 2018 IEEE/ION Position, Location and Navigation Symposium (PLANS) (1342-1350).

Ebooks

Guerrier, S., Molinari, R., **Xu, H.** & Zhang, Y., “*Applied Time Series Analysis with R*”, full text: <https://smac-group.github.io/ts/>.

Statistical Softwares

“**changepoints**” - **R package**: performs a series of offline and/or online change-point detection algorithms for numerous settings. Available on CRAN. <https://github.com/HaotianXu/changepoints>.

“**rcov**” - **R package**: collection of tools for estimating robust autocovariance matrix for high-dimensional time series. <https://github.com/HaotianXu/rcov>.

“**avar**” - **R package**: implements the allan variance and allan variance linear regression estimator for time series models. Available on CRAN. <https://github.com/SMAC-Group/avar>.

Grant & Award

Swiss National Science Foundation (SNSF) Postdoc.Mobility Fellowship (CHF 98,600, 24-month)

Financial support for conference, Société Académique de Genève (CHF 1200)

First Prize of China Undergraduate Mathematical Contest in Modeling, 2010

Invited Talks

“*Online network change point detection with missing values*”, StatScale Seminar, online, 02/2023.

“*Change point localisation and inference in high-dimensional regression models under dependence*”, Statistics Seminar, University of Notre Dame, USA, 11/2022.

“*Change point localisation and inference in high-dimensional regression models under dependence*”, ICMS workshop: Structural Breaks and Shape Constraints, Edinburgh, 05/2022.

“*Robust Estimation of Large Autocovariance Matrices*”, 2021 ICSA Applied Statistics Symposium, online, 09/2021.

“*Robust Estimation of Large Autocovariance Matrices*”, Statistics seminar, Université catholique de Louvain, 05/2021.

“*Long-run Covariance Matrix Estimator for High-dimensional Time Series*”, The 3rd International Conference on Econometrics and Statistics, National Chung Hsing University, Taiwan, 06/2019.

“A GMWM-based Inference for Correlated Latent Processes”, 2017 IMS-China International Conference on Statistics and Probability, Guangxi University For Nationalities, China, 06/2017.

Referee Experience Biometrika; Stat; Statistica Sinica; Journal of Statistical Software; AISTATS

Academic Visits Visiting student at University of Illinois at Urbana-Champaign, Feb–Jun 2016, Feb-May 2017
Visiting student at Penn State University, Feb–Jun 2018

Teaching experience **Instructor:**

- Elementary Mathematical Statistics (undergraduate), Penn State University, Spring 2023

Teaching Assistant: responsible for giving weekly recitation lectures/office hours, exam preparation and grading.

- Statistical Modeling (undergraduate), University of Geneva, Fall 2015-2020

- Business Analytics (undergraduate), University of Geneva, Fall 2016-2017

- Numerical Methods (undergraduate), University of Geneva, Fall 2020

- Statistics I (undergraduate), University of Geneva, Fall 2015-2020

- Mixed Linear Models (graduate), University of Geneva, Fall 2016-2019

Skills **Languages:** Chinese (native); English (fluent); French (elementary).

Computer Programming and Statistical Software: C++, R, SAS, Matlab, Python

Professional Experience **Statistician**, IMS Health, Beijing, China, 10/2013–01/2014: Design statistical methods to investigate the causes of changes in trend of Rx data in mail order, retail order and longtime-care order. Programmed SAS, SQL and JCL code to manipulate Rx data and generate reproducible report.

References

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Prof. Yuan Ke

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