Lionel Voirol

Contact Information

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Education

Ph.D. in Statistics — February 2020 - Present
University of Geneva, Geneva, Switzerland
Thesis co-advisors:
Prof. Maria-Pia Victoria-Feser & Prof. Stéphane Guerrier

M.Sc. in Business Analytics — 2017 - 2019
University of Geneva, Geneva, Switzerland
Master's overall average: 5.44/6
Thesis: "*Implementing an Analytics Strategy in a SME: A call for Data Quality and Change Management*". Thesis grade: 6/6
Thesis supervisor: Prof. Diego Kuonen

B.Sc. in Economics & Management — 2014 - 2017
University of Geneva, Geneva, Switzerland

Diploma of College Studies in Sociology & Administration — 2012 - 2014
CEGEP Ahuntsic, Montreal, Canada

High School Diploma — 2007 - 2012
Collège Regina Assumpta, Montreal, Canada

Academic positions

Ph.D. Candidate and Research & Teaching Assistant — February 2020 - Present
Geneva School of Economics and Management,
University of Geneva, Geneva, Switzerland
Co-advisors: Prof. Maria-Pia Victoria-Feser & Prof. Stéphane Guerrier

Teaching Assistant — July 2019 - July 2020
Geneva School of Economics and Management,
University of Geneva, Geneva, Switzerland
Principal Assistant for the Master in Business Analytics

Research Assistant — 2015 - 2016
Faculty of Medicine, UIGP
University of Geneva, Geneva, Switzerland

Research Assistant — 2013
Faculty of Medicine,
University of Montreal, Montreal, Canada

Other profesionnal experiences

Personal Tutor in Mathematics, Statistics & Econometrics — 2016 - 2022
Platform Apprentus & Personal canvassing

Principal Cook & Replacement Cook — 2014 - 2018
Bull's Pub & Fishermen's Pub, Gland & Nyon, Switzerland

Assistant Muay Thai Coach & Strength and Conditioning Coach — 2012 - 2014
APEX Martial Arts, Montreal, Canada

Replacement Cook — 2013
La Gascogne, Montreal, Canada

Replacement Cook — 2011 - 2013
Fou d'ici, Montreal, Canada

ARTICLES UNDER REVIEW	1. Balbinot, F., **Voirol, L.**, Karemera, M., Feser, R., Gerbase, M., Guerrier S. & Baroffio A., "*Unveiling empathy determinants across borders: a comparative analysis of medical students from two geo-sociocultural backgrounds*".

PUBLICATIONS

7. Karemera, M., **Voirol, L.**, Cucci, D. A., Chu, W., Molinari, R. & Guerrier, S., "*Accounting for Vibration Noise in Stochastic Measurement Errors of Inertial Sensors*", IEEE Transactions on Signal Processing 72, (2024).
doi: https://doi.org/10.1109/TSP.2024.3387313.

6. Wehrli, L., Galdadas, I., **Voirol, L.**, Cambet, Y., Guerrier, S., Smiesko, M., Gervasio, F., Nef, S. & Rahban, R., "*The action of physiological and synthetic steroids on the calcium channel CatSper in human sperm*", Frontiers in Cell and Developmental Biology 11, (2023).
doi: https://doi.org/10.3389/fcell.2023.1221578.

5. Cucci, D. A., **Voirol, L.**, Khaghani, M. & Guerrier S., "*On Performance Evaluation of Inertial Navigation Systems: the Case of Stochastic Calibration*", IEEE Transactions on Instrumentation & Measurement 72, (2023).
doi: https://doi.org/10.1109/TIM.2023.3267360.

4. Ramzy, G., Norkin, M., Koessler, T., **Voirol, L.**, Tihy M., McKee, T., Ris, F., Buchs, N., Delucinge-Vivier, C., Docquier, M., Rubbia-Brandt, L., Bakalli, G., Guerrier, S., Huelsken, J. & Nowak-Sliwinska, P., "*Platform combining statistical modeling and patient-derived organoids to facilitate personalized treatment of colorectal cancer*", Journal of Experimental & Clinical Cancer Research 42, 79 (2023).
doi: https://doi.org/10.1186/s13046-023-02650-z.

3. Cucci, D. A., **Voirol, L.**, Kermarrec, G., Montillet, J.-P. & Guerrier, S., "*The Generalized Method of Wavelet Moments with eXogenous inputs: a fast approach for the analysis of GNSS position time series*", Journal of Geodesy 97, 14 (2023).
doi: https://doi.org/10.1007/s00190-023-01702-8.

2. Pfarrwaller, E., **Voirol, L.**, Karemera, M., Guerrier, S. & Baroffio, A., "*Dynamics of career intentions in a medical student cohort: a four-year longitudinal study*". BMC Medical Education 23, 131 (2023).
doi: https://doi.org/10.1186/s12909-023-04102-w.

1. Pfarrwaller, E., **Voirol, L.**, Piumatti, G., Karemera, M., Sommer, J., Gerbase, M., Guerrier, S. & Baroffio, A. "*Students' intentions to practice primary care are associated with their motives to become doctors: a longitudinal study*". BMC Medical Education 22, 30 (2022).
doi: https://doi.org/10.1186/s12909-021-03091-y.

CONFERENCE PROCEEDINGS

1. **Voirol, L.**, Guerrier, S., Zhang Y., Karemera, M. & Radi A., "*Optimally Weighted Wavelet Variance-based Estimation for Inertial Sensor Stochastic Calibration*", in 12th International Conference on Electrical Engineering, Cairo, Egypt, (2020).
doi: https://doi.org/10.1109/ICEENG45378.2020.9171715.

WORKING PAPERS (SELECTED)

4. Zhang, Y., **Voirol, L.**, Emile-Geay, J., & Guerrier, S., "*Uncertainty Quantification of Spectral Estimates in the presence of Uneven Sampling*".

3. **Voirol, L.**, Victoria-Feser, M.-P. & Guerrier, S., "*Modelling Geophysical Processes with Complex Time dependence and Exogeneous Inputs: An Outlier-Robust and Computationally Fast Approach*".

2. Guerrier, S., Heritier S., Victoria-Feser, M.-P. & **Voirol, L.**, "*Exact inference for studies with a small number of clusters*".

1. Mili, N., Guerrier, S. & **Voirol, L.** "*Does extreme down-regulation of the Y chromosome play a role in the gender difference in liver cancer? A critical assessment.*".

GRANTS

Funding obtained from the Academic Society of Geneva to support a conference presentation at the Joint Statistical Meeting 2023, (granted ammount: 1300 CHF).

TALKS	"*The Generalized Method of Wavelet Moments with eXogenous Inputs*", in Joint Statistical Meeting 2023, Session "Theory and methods for parameter estimation", Toronto, Canada, (2023).

TEACHING ACTIVITIES	TEACHING MATERIALS (WEBSITE WITH INTERACTIVE MATERIALS)

Skaloud, J., Guerrier, S., & **Voirol, L.** "*Inference for Large-Scale Time Series with Application to Sensor Fusion*". More information: `https://gmwm.netlify.app/`.

Guerrier, S., **Voirol, L.** & Zhang, Y., "*Introduction to Data Science with R*". More information: `https://intro-to-ds.netlify.app/`.

Guerrier, S., **Voirol, L.** & Zhang, Y., "*Data Analytics for Pharmaceutical Sciences*". More information: `https://intro-data-analytics.netlify.app/`.

SUMMARY PER COURSE AS T.A. (UNIVERSITY OF GENEVA)

"Introduction to Statistics"	Spring 2024, Spring 2021
"Modelling and Data Analysis for Pharmaceutical Science"	Spring 2024, Spring 2023, Spring 2022
"Mathematics I"	Fall 2023
"Introduction to Data Science"	Spring 2023, Spring 2022, Spring 2021, Spring 2020
"Introduction to Computational Statistics"	Spring 2022
"Business Analytics"	Fall 2020
"Forecasting with Applications in Business"	Fall 2019
"Data Quality and Data Collection Strategies"	Fall 2019
"Creating Value Through Data Mining"	Fall 2019

PEDAGOGICAL CERTIFICATION

Workshop in University Pedagogy	January 2021

University of Geneva, Switzerland
Teaching and learning support centre (Pôle SEA)
Interactive training combining learning activities, micro-teaching and peer feedback on pedagogical topics such as oral communication, constructive feedback, pedagogical planning, interactive teaching methods and evaluation methods - Equivalent to 45 hours of university training

TEACHING RECOGNITION

Educational Innovations at University of Geneva awarded for the project "Web Application" for the class *Introduction to Data Science*, joint work with Guerrier, S. & Yuming, Z. More information here.

Educational Innovations at University of Geneva awarded for the project "Interactive teaching" for the class *Modelling and Data Analysis for Pharmaceutical Science*, joint work with Guerrier, S., Gervasio, F. L., Galdadas, I., Insolia, L. & Yuming, Z. More information here.

STUDENTS MENTORING	Youssef Hellioui, M.Sc. in Pharmacy, *"Study of the link between diet and disease based on a statistical analysis of biomarkers"*. University of Geneva, 2021.

Thi Huong Quynh Nguyen, M.Sc. in Pharmacy, *"Study of the impact of hormones from the hypothalamic-pituitary-adrenal axis and of testosterone on the regulation of inflammation based on a statistical analysis of biomarkers"*. University of Geneva, 2022.

CONTRIBUTIONS TO STATISTICAL SOFTWARE

1. **"gmwmx" - R package**: Implement the Generalized Method of Wavelet Moments with Exogenous Inputs estimator (GMWMX) and provides functions to estimate times series models that can be expressed as linear models with correlated residuals such as those used to model Global Navigation Satellite System (GNSS) observations.
   More information: https://github.com/SMAC-Group/gmwmx.

2. **"navigation" - R package**: Allows the analysis of the impact of sensor error modeling on performance of integrated navigation (sensor fusion) based on IMU, GPS and barometer data.
   More information: https://github.com/SMAC-Group/navigation.

3. **"simts" - R package**: Contains various tools for time series analysis. Indeed, this R package provides a series of tools to simulate, plot, estimate, select and forecast different time series models. It is originally conceived as a support to the online textbook "*Applied Time Series Analysis with R*". Available on CRAN, downloads $\approx$ 6K/year. More information: https://github.com/SMAC-Group/simts.

4. **"avar" - R package**: Implements the allan variance and allan variance linear regression estimator for time series models. Available on CRAN, downloads $\approx$ 6K/year.
   More information: https://github.com/SMAC-Group/avar.

5. **"gmwm" - R package**: Provides a computationally efficient implementation of the estimators introduced in Guerrier et al. (2013). Downloads $\approx$ 5K/year.
   More information: https://github.com/SMAC-Group/gmwm.

REFERENCES

Letter of Recommendation Available upon Request

Prof. Maria-Pia Victoria-Feser, Full Professor of Statistics, Geneva School of Economics and Management, University of Geneva, Switzerland, Maria-Pia.VictoriaFeser@unige.ch.

Prof. Stéphane Guerrier, Assistant Professor of Statistics, Geneva School of Economics and Management, University of Geneva, Switzerland, Stephane.Guerrier@unige.ch.

Prof. Roberto Molinari, Assistant Professor of Statistics,
Auburn University, United States, robmolinari@auburn.edu.

Prof. Diego Kuonen, Adjunct Professor of Statistics, Geneva School of Economics and Management, University of Geneva, Switzerland, Diego.Kuonen@unige.ch.

COMMUNITY INVOLVEMENT

Trinity International Residential School   Summer 2012
Construction volunteer
Tirunelveli, India

CLSC de Bordeaux-Cartierville   Summer 2011
Animator for elderly - 90 hours of attested community involvement
Montreal, Canada

Accueil Bonneau   2010 - 2011
Cook and handy man - More than 120 hours of attested community involvement
Montreal, Canada

PERSONAL SKILLS

Language
French: Mother tongue
English: Fluent

Computer Skills

Extensive experience with R, Python, Bash, Git, LaTeX
Good Experience with C++, SQL, Matlab, PowerBI, FileMaker, Statistica

COMPETITIVE SPORT ACHIEVEMENTS

Thaï boxing: Competed at a semi-professional and professional level around Europe and did multiple training camps in Thailand. 3$^{\text{rd}}$ place at ICO World championship in Stuttgart (2015), winner of the European WFC title in Milan (2016), winner of the WMO professional title in Bangkok (2017), last fight in November 2022 at the Memorial Jorge Martins 16, Martigny, Switzerland (win by decision).

DATE

April 29, 2024