# Kassimou Abdoul Haki MAOUDE

316 – 2830 Rue Goyer, Montréal (QC),
H3S 1H4, CANADA
✆ +1 (438) 922-9194

E-mail: abdoulmaoude@gmail.com
Website: abdoulmaoude.github.io


## General Informations

| | |
|---|---|
| Current Position | Postdoctoral position at Concordia University, Department of Mathematics & Statistics |
| Research Interests | Statistics (computational statistics; statistical modelling; frequentist and Bayesian inference, Monte-Carlo Methods, and Simulations)<br>Finance (actuarial finance; stochastic volatility; hidden Markov chains; Hedging and portfolio optimization)<br>Machine Learning (reinforcement learning, autoencoders). |
| Affiliations | Quantact actuarial and financial mathematics laboratory. |
| Languages | English (fluent), French (native). |
| IT Abilities | Python, R, C++, SAS, MATLAB, SPSS, SQL, VBA, Stata, Latex. |

## Education

**2016 - 2022** | Université de Montréal, Montreal, Quebec:
**Ph.D. Candidate in Statistics**,
- Dissertation: «Modelling Financial Volatility with High Dimensional Hidden Markov Models».
- Supervisor: Maciej AUGUSTYNIAK, co- Supervisor: Mylène BÉDARD.
- Cumulative Score: 3.96/4.30.

**2013 - 2016** | École Nationale de Statistique et d'Analyse Economique (ENSAE), Dakar, Senegal.
**M Sc (with honor) in Applied Statistics and Economy.**

**2010 - 2013** | École Nationale d'Économie Appliquée et de Management (ENEAM), Cotonou, Benin.
**B Sc (with honor) in Applied Statistics**.

## Teaching and Research Experience

**Since Sep 2022** | Postdoctoral Researcher: "Portfolio risk attribution through non-linear factor analysis: A machine learning approach", Department of Mathematics & Statistics, Concordia University

**May 2021 – Aug 2021 and Jan 2022 – Aug 2022** | Lecturer of the course : " Forecasting Methods ", Département de Mathématiques et de Statistique (DMS), Université de Montréal, Montreal, Quebec
- Econometrics models (SARIMA, Box & Jenkins methods, etc.) for forecasting.
- Models' diagnostics (Heteroskedasticity, Auto-correlation, residuals tests, etc.);

**Mar 2021** | Development of an R Package named "MDSV"
- for modelling high dimensional Hidden Markov Models;
- available on GitHub: https://github.com/Abdoulhaki/MDSV .

**Jan 2017 – Dec 2021** | Teaching assistant in several courses (face-to-face and online), Département de Mathématiques et de Statistique (DMS), Université de Montréal, Montreal, Quebec
- Survival analysis, Stochastic process, financial mathematics, Linear algebra, Introduction to statistics, Experimental specifications and biostatistics, Differential calculus, Integral calculus.

**Jul 2015 – Jan 2016** | Research internship, École Nationale de Statistique et d'Analyse Economique (ENSAE), Dakar, Senegal
- Dissertation: "Impact of Climate-Income on Life Expectancy in Northern Benin";
- In collaboration with the WASCAL research center and the University of Bonn, Germany.

## Work Experience

**Since Jun 2022** | Quant Researcher, Quantolio,
- Production of a constrained portfolio hedging algorithm
- Data mining and analysis
- Algorithm of data importation to reduce storage space and execution time

| | |
|---|---|
| | - Optimization of algorithms to reduce execution time.<br>- Management of three interns |
| Apr 2019 – Jul 2019 | Internship MITACS, Caisse de Dépôt et de Placement du Québec (CDPQ),<br>- Development of tools for estimating and visualizing the regime change models. |
| Sep 2016 – Apr 2018 | Volunteering: Graduate Student Association of DMS, Université de Montréal,<br>- Secretary of the mathematics and statistics graduate student association (AECSMS) |
| Feb 2015 – Jun 2016 | Volunteering: global platform for young people to explore and develop their leadership potential (AIESEC), Senegal |
| Jan 2015 – Apr 2015 | Consultant at Agence Nationale de la Statistique et de la Démographie (ANSD), Senegal |
| Nov 2014 - Jul 2015 | Volunteering: Student and Interns Association of ENSAE (AES – ENSAE)<br>- Secretary General of AES-ENSAE;<br>- Director of the Junior Enterprise of ENSAE;<br>- Survey carried out: Analysis of the fuel consumption behavior of public transport drivers. |
| Jun - Sep 2013 | Internship at Direction Générale des Affaires Economique (DGAE) in Benin<br>- Dissertation: "Estimation and forecasting of the evolution of producer prices of food products in Benin: Analysis from a synthetic index". |

## Scholarships, Awards and Distinctions

| | |
|---|---|
| 2020 | Serge Tardif Fellowship (awarding the best graduate student in statistics at DMS) |
| 2019 | MITACS Fellowship. |
| 2018 - 2021 | Scholarships of Fonds de Recherche du Québec – *Nature et Technologie.* |
| 2017 - 2018 | ISM Fellowships (Institut des Sciences Mathématiques). |
| 2016 - 2017 | Doctoral Fellowship of excellence of DMS, Université de Montréal. |
| 2015 | WASCAL Master-Thesis Fellowship. |
| 2010 - 2013 | Scholarship of excellence for B.Sc, Université d'Abomey Calavi, Benin. |
| 2010 | Distinction JDP: Jour Des Premiers (awarded to the 100 best students in Benin for the French baccalaureate exam). |

## Work in Progress

- " Green portfolio optimization under GARCH framework using Reinforcement Learning", with *Frédéric Godin* and *Zaniar Ahmadi*
- "Inference for Two-Stage Extremum Estimators", with *Aristide Houndetoungan*
- "Multifractal discrete stochastic volatility (MDSV)", with *Maciej Augustyniak* and *Arnaud Dufays;*
- "Infinite factorial hidden Markov volatility (iFHMV)"*;*
- "Lockdowns lifting: Thanks to governments COVID-19 measures or to good weather? What do data say?", with *Chaffa Odjouwoni Lucien Chaffa* and *Idossou Marius Adom.*

## Invited talks, Conferences and Workshops

| | |
|---|---|
| 2021 | - Statistical Society of Canada (SSC) annual meeting, Virtual sessions. |
| 2020 | - 9th workshop for graduate students in actuarial and financial mathematics<br>- Montreal Industrial Problem-Solving Workshop, CRM. |
| 2019 | - Symposium Annuel de Mathématiques pour un Avenir en Recherche et en Industrie (SAMARI), Montreal (Canada),<br>- Sommet étudiant de la statistique à Montréal (SÉSAM), UQAM, Montreal (Canada),<br>- Workshop (SEME) at Orsay (France), CRM funding. |