Curriculum Vitae

Khalifa ES-SEBAIY

Address:
National School of Applied Sciences - Marrakesh,
Cadi Ayyad University, Avenue Abdelkarim Khattabi,
Marrakesh, Morocco
Phone: 00212 670 012 297
Email: k.essebaiy@uca.ma
https://sites.google.com/a/uca.ma/khalifa-es-sebaiy/

Date of birth : 11th December 1977
Nationality : Moroccan

Research interest:

Fractional Brownian motion, Bifractional Brownian motion, Lévy processes

Malliavin calculus on Gaussian and Poisson spaces

Limit theorems, Almost sure central limit theorems

Parameter estimation for Gaussian processes

Parameter estimation for stochastic differential equations driven by fractional processes

Applications in Statistics and Finance.

Present position:

Since December 16, 2010 : Assistant Professor at National School of Applied Sciences - Marrakesh, *Cadi Ayyad University, Marakesh, Morocco.*

Professional experience

January-July-2014 : Post doctoral position at Department of Statistics, Purdue University, USA,
✓ *Parameter estimation for stochastic differential equations driven by fractional processes. Supported by Fulbright Scholar Program.*

2010-2011 : Post doctoral position at Institut Mathématiques de Bourgogne, Université de Bourgogne, Dijon, France, under the direction of Pr. Peggy Cénac :
✓ *Stochastic algorithms applied to continuous time processes prediction.*

2009-2010 :
- Second semester: Instructor (Attaché temporaire d'enseignement et de recherche) University Paris 1 Panthéon-Sorbonne, Paris, France.
- First semester: Research assistant at Universidad Autnoma de Barcelona, Imageen project.

2008-2009 :
- Second semester: Instructor (Attaché temporaire d'enseignement et de recherche) University Paris 1 Panthéon-Sorbonne, Paris, France.
- First semester: Research assistant at Universidad Autnoma de Barcelona, Imageen project.

Academic degrees

2005-2009 : PhD thesis under the direction of Prof. Youssef Ouknine (Cadi Ayyad University, Marrakesh, Morocco) and Prof. Ciprian Tudor (University Paris 1 Pantheon-Sorbonne, Paris, France).

defended on the 25th of April 2009 at Marrakech under the title

"Contributions to the study of Lévy processes and Fractional processes via the Malliavin calculus and Applications in statistics"

Composition of the jury :

President :	Annie MILLET, University Paris 1 Pantheon-Sorbonne, Paris, France
Referees :	M. Mohamed ERRAOUI, Cadi Ayyad University, Marrakesh, Morocco
	M. Ivan NOURDIN, University Paris VI, France
	M. Josep Lluis SOLÉ, Universidad Autnoma de Barcelona, Spain
Inspectors :	M. M'hamed EDDAHBI, Cadi Ayyad University, Marrakesh, Morocco
Advisors :	M. Youssef OUKNINE, Cadi Ayyad University, Marrakesh, Morocco
	M. Ciprian TUDOR, University Paris 1 Pantheon-Sorbonne, Paris, France

Support framework :
Convention thesis jointly supervised between University Paris 1 et Cadi Ayyad University, funded by Action intégrée Maroc-France A.I. n MA/06/142 and Projet IMAGEEN (International Maghreb-Europe Education Netwok) in collaboration with Universidad Autnoma de Barcelona, Spain.

2002-2004 : DESA in Analysis and Probability, Cadi Ayyad University, Marrakech, Maroc.

Research visits:
-Research visit (May 21 to 24, 2013, and October 16 to 27, 2014), at University of Freiburg, Mathematical Institute, Department for Mathematical Stochastics (supported by the program Hochschuldialog mit der islamischen Welt which is financed by the DAAD).
-Research visit (1 month, July, 2013), at the University of Lille - France (supported by EMA2 LOT FATIMA AL FIHRI lot 1).
-Research visit (2 weeks, 1-15 February, 2015), at The faculty of sciences and techniques, Dakar, Sngal.

Publications

16. Khalifa Es-Sebaiy and Ciprian Tudor. **Fractional Ornstein-Uhlenbeck processes mixed with a Gamma distribution.** (2015). Accepted under revision to the Fractals.

15. Khalifa Es-Sebaiy and Djibril Ndiaye. **On drift estimation for non-ergodic fractional Ornstein-Uhlenbeck process with discrete observations.** Afr. Stat. 9 (2014), 615-625.

14. Peggy Cénac and Khalifa Es-Sebaiy. **Almost sure central limit theorems for random ratios and applications to LSE for fractional Ornstein-Uhlenbeck processes.** (2015), Accepted under revision to the Probability and Mathematical Statistics.

13. Soufiane Aazizi and Khalifa Es-Sebaiy. **Berry-Essen bounds and almost sure CLT for the quadratic variation of the bifractional Brownian motion.** (2015), Accepted to the Random Operators and Stochastic Equations.

12. Khalifa Es-Sebaiy. **Berry-Essen bounds for the least squares estimator for discretely observed fractional Ornstein-Uhlenbeck processes.** (2013), Statistics and Probability Letters, Volume 83, Issue 11, Pages 2524-2525.

11. Rachid Belfadli, Khalifa Es-Sebaiy and Youssef Ouknine. **Parameter estimation for fractional Ornstein-Uhlenbeck processes : Non-ergodic case.** (2011), Frontiers in Science and Engineering (An International Journal Edited by Hassan II Academy of Science and Technology), Volume:N 1/2.

10. Khalifa Es-Sebaiy, Ivan Nourdin. **Parameter estimation for α-fractional bridges.** (2013), F. Viens et al (eds), Malliavin Calculus and Stochastic Analysis: A Festschrift in Honor of David Nualart, Springer Proceedings in Mathematics and Statistics 34, 385-412.

9. Xavier Bardina, Khalifa Es-Sebaiy. **An extension of bifractional Brownian motion.** Communications on Stochastic Analysis, Vol. 5, No. 2 (2011) 333-340.

8. Xavier Bardina, Khalifa Es-Sebaiy and Ciprian A. Tudor. **Approximation of the finite dimensional distributions of multiple fractional integrals.** Journal of Mathematical Analysis and Applications Volume 369, Issue 2, 2010, Pages 694-711.

7. Khalifa Es-Sebaiy and Ciprian A. Tudor. **Non-central limit theorem for the cubic variation of a class of selfsimilar stochastic processes.** Theory of Probability and its Applications, (55), 3 (2010), 507-529.

6. Khalifa Es-Sebaiy and Youssef Ouknine. **Mutual Information for Stochastic Differential Equations Driven by Fractional Brownian Motion.** Random Operators / Stochastic Eqs. 18, 2010, 1-9.

5. Khalifa Es-Sebaiy, David Nualart, Youssef Ouknine and Ciprian A. Tudor. **Occupation densities for certain processes related to fractional Brownian motion.** Stochastics, 2010, 1-15.

4. Khalifa Es-Sebaiy, Idir Ouassou and Youssef Ouknine. **Estimation of the drift of fractional Brownian motion.** Statistics and Probability Letters 79, 2009, 1647-1653.

3. Khalifa Es-Sebaiy and Youssef Ouknine. **How rich is the class of processes which are infinitely divisible with respect to time?.** Statistics and Probability Letters. Vol. 78, 2008, pp. 537-547.

2. Khalifa Es-Sebaiy and Ciprian A. Tudor. **Lévy processes and Itô-Skorohod integrals.** Theory of Stochastic Processes, Vol. 14 (30), no. 2, 2008, pp. 10-18.

1. Khalifa Es-Sebaiy and Ciprian A. Tudor. **Mutidimentional bifractional Brownian motion : Itô and Tanaka formulas.** Stochastics and Dynamics, Vol. 7 (3), 2007 pp. 365-388.

Submitted papers

2. Brahim El Onsy, Khalifa Es-Sebaiy and Ciprian Tudor. Statistical analysis of the non-ergodic fractional Ornstein-Uhlenbeck process of the second kind (2014). Preprint.

1. Brahim El Onsy, Khalifa Es-Sebaiy, Frederi Viens. Parameter Estimation for a partially observed Ornstein-Uhlenbeck process with long-memory noise (2014). Preprint.

References

1. Professor Ivan Nourdin, Facult des Sciences, de la Technologie et de la Communication, Universit du Luxembourg 6, rue Richard Coudenhove-Kalergi L-1359 Luxembourg Campus Office G 216, Luxembourg, Phone: (+352) 46 66 44 6380, Fax: (+352) 46 66 44 36380, Email: ivan.nourdin@uni.lu

2. Professor Youssef Ouknine, National School of Applied Sciences - Marrakesh, Cadi Ayyad University, Av. Abdelkarim Khattabi, Gueliz, Marrakesh, Morocco. Phone: (+212) 0524434745 - (+212) 0524434746, Fax: (+212) 0524434740, Email: ouknine@uca.ma

3. Professor Ciprian Tudor, Universit de Lille 1, Laboratoire Paul Painlev, Villeneuve d'Ascq 59655 Cedex, Lille, FRANCE, Phone: (+33) 320436778, Email: Ciprian.Tudor@math.univ-lille1.fr

4. Professor Frederi G. Viens, Department of Statistics Purdue University 150 N. University St. West Lafayette, USA, IN 47907-2067 Office: MATH 200, Phone: (765)494-6035, Fax: (765)494-0558, Email: viens@stat.purdue.edu

Communications :

conference talks

10. Drift parameter estimation for SDEs related to stationary Gaussian processes. 8-12 dcembre 2014, Colloque international du laboratoire Euro-Maghrbin de mathmatiques et leurs interactions, marseille, France. http://lem2i-2014.sciencesconf.org/resource/page/i

9. Parameter estimation for fractional Ornstein-Uhlenbeck processes : from weak convergence to almost sure central limit theorems. Conference CIMPA: Lévy Processes and Selfsimilarity Hammamet, Tunis, November 04-09, 2013. http://levy-autosimilarity-tunis2013.math.cnrs.fr/Programme/prg.php

8. Almost sure central limit theorems for random ratios and applications to LSE for fractional Ornstein-Uhlenbeck processes. Congrs International du LIEM2I, du 12 au 15 fvrier 2013, Rabat.
http://lem2i.cnrs.fr/spip.php?rubrique93

7. Almost sure central limit theorems for random ratios and applications to LSE for fractional Ornstein-Uhlenbeck processes. Workshop de Probabilits et Statistique la mmoire du professeur SEID BAHLALI qui a eu lieu l'Universit Mohamed Khider Biskra (Algrie), du 29 au 30 Janvier 2013.

6. Berry-Esséen bounds for the least squares estimator for discretely observed fractional Ornstein-Uhlenbeck processes. Journées Internationales Analyse statistique: Théorie et Applications du 04 au 06 juin 2012, Oujda, Maroc. http://sciences1.univ-oujda.ac.ma/JIASTA2012/index.php

5. Parameter Estimation for some solutions of fractional differential equations. Contrôle, Imagerie et Probabilités en Mditerranée. Université de Nice Sophia Antipolis, du 24 au 28 octobre 2011, France.
http://math.unice.fr/CIPM2011/programme.php

4. Parameter estimation for α-fractional bridges, International Conference on Malliavin Calculus and Stochastic Analysis. March 19-21, 2011, University of Kansas, Lawrence, Kansas, USA.
http://www.math.ku.edu/conferences/2011Malliavin/

3. Occupation densities for certain processes related to fractional Brownian motion, Journées " Techniques Fractales ". Orléans 22 et 23 mai 2008, France.

2. Existence of the occupation density of perturbed gaussian process which has a covariance measure, Journées de probabilités 9-14 septembre 2007, La Londe (France). http://proba2007.univ-tln.fr/

1. How rich is the class of processes which are infinitely divisible with respect to time?, Journées de probabilités 18-22 septembre 2006, CIRM, Marseille (France).

<u>seminar talks</u>

10. Parameter estimation for SDEs related to stationary Gaussian processes. Seminar of Statistics and Probability Marrakesh Group, January 21, 2015.
https://sites.google.com/a/uca.ma/statistics-and-probability-seminar-marrakesh-group/seminar

9. Parameter Estimation for a partially observed Ornstein-Uhlenbeck process with long-memory noise. Seminar of Statistics and Probability Marrakesh Group, October 15, 2014.
https://sites.google.com/a/uca.ma/statistics-and-probability-seminar-marrakesh-group/seminar

8. Purdue University Probability Seminar, April 24, 2014.
http://www.math.purdue.edu/ peterson/probsem/Spring2014/index.html

7. Parameter estimation for fractional Ornstein-Uhlenbeck processes: non-ergodic case. IMB Dijon, 4 avril 2011.

6. Contributions to the study of Lévy processes and Fractional processes via the Malliavin calculus and Applications in statistics. september 15th, 2010. Seminar "Statistique, Probabilités et Applications" IMB Dijon.

5. Approximation of the finite dimensional distributions of multiple fractional integrals, Seminaire d'initiation au calcul stochastique. Universit Cadi Ayyad. Octobre 2009.

4. Occupation densities for certain processes related to fractional Brownian motion. Seminari de Probabilitats de Barcelona, Universitat de Barcelona-Universitat Autonoma de Barcelona. 21 Janvier 2009.

3. Approximation of the finite dimensional distributions of multiple fractional integrals, Seminaire d'initiation au calcul stochastique. Université Cadi Ayyad. Octobre 2009.

2. Occupation densities for certain processes related to fractional Brownian motion, Le séminaire du SAMOS Probabilités, Statistique et Réseaux de Neurones et le séminaire Mathématiques des systèmes complexes. 11 Avril 2008.

1. Formules d'Itô et Tanaka pour le mouvement brownien sous-fractionnaire, Groupe de Travail "Aspects fractals" Paris (Chevaleret), Avril 2007, France.

Member of organising committees :

7. Coordinator of "Ecole Mathmatique Africaine sous le thme": Thorie gnrale des processus stochastiques et Introduction au calcul de Malliavin . october 12-23, 2015.http://ema2015.uca.ma/

6. Member of organising committee of the International meeting on Probability and Statistics: "Marrakesh International Conference on Probability and Statistics (MICPS-2013)" 17-20 December 2013. ENSA, Cadi Ayyad University, Marrakesh, Morocco. http://www.ensa.ac.ma/micps2013/

5. Member of organising committee of Ecole de recherche CIMPA-UNESCO-MESR-MINECO-MAROC Mthodes Statistiques et Applications en Actuariat et Finance Marrakech (8-13 avril 2013) et El Kelaa Mgouna (15-20 avril 2013). http://cimpa2013.uca.ma/

4. Probability and Statistics Day, February 27th 2013. https://sites.google.com/a/uca.ma/statistics-and-probability-seminar-marrakesh-group/events/probability-and-statistics-day

3. "Journées de probabilités et statistique". 15-17 December 2011. ENSA, Cadi Ayyad University, Marrakesh, Morocco. http://www.ensa.ac.ma/jpsm2011/

2. Organizer of Half-Day Meeting on Probability and Statistics. June 21, 2012. ENSA, Cadi Ayyad University, Marrakesh, Morocco.

1. Organizer of the seminar of Statistics and Probability Group in Marrakesh. https://sites.google.com/a/uca.ma/statistics- and-probability-seminar-marrakesh-group/

Co-advisors for Ph.D. Students.

Brahim El Onsy (FTSG, Marrakech), 2 articles submitted.

Editorial Board for Austin Statistics (since 2014).
http://austinpublishinggroup.com/statistics/editorialBoard.php

Referee for :

Stochastics and Dynamic; Communications of the Korean Mathematical Society; Proceedings in Mathematics Series, Springer; Statistics and Probability Letters.

Awards and Honors :

Laureate of the best thesis in Mathematics at Cadi Ayyad University, Year 2009.

Teaching

2014-2015: ENSA-Marrakech, Cadi Ayyad University, Marrakesh, Morocco :
- Analysis (CP2).

2014-2015: FSSM, Cadi Ayyad University, Marrakesh, Morocco :
- "Statistique des Processus", Master M2PA in second semester S2

2012-2014: ENSA-Marrakech, Cadi Ayyad University, Marrakesh, Morocco :
- Analysis (CP2), Probability and Statistics (CI1).

2011-2012: ENSA-Marrakech, Cadi Ayyad University, Marrakesh, Morocco :

- Algebra (CP1) and Probability and Statistics (CI1).

2008-2010: Pantheon Sorbonne University Paris 1, Paris, France :
- Probability and Statistics.