Massat Benjamin

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Personal Profile

I am a motivated PhD candidate specializing in Probability Theory, particularly interested in Hawkes processes and their real-world applications. With a strong foundation in mathematical modeling and analysis, I am dedicated to advancing knowledge in stochastic processes and collaborating effectively in academic and research settings.

Education_

PhD in Probability	Toulouse, FR
Institut de Mathématiques de Toulouse	Sept 2023 - Current
 Title: Quantitative limit theorems for Hawkes functionals and their applications in Finance and Insurance. Supervisor: L. Coutin and A. Réveillac Key words: Hawkes processes, Stein's method, Malliavin calculus, Modele of Cramèr-Lundberg Funding: "Ecole Universitaire de Recherche" MINT (Mathematics and INteractions in Toulouse) 	
Master Research Innovation of Applied and Pure Mathematics	Toulouse, FR
University of Toulouse III	2022-2023
Master Fellowships : EUR MINT	
Agrégation de Mathématiques	Toulouse, FR
University of Toulouse III	2020-2022
Ranking: 208	
Bachelor in Applied Mathematics	Orleans, FR
University of Orleans	2019-2020
Ranking : 2^{nd} and 1^{st}	
CPGE MP/MPSI	Orleans, FR
Highschool "Sainte-Croix Saint-Euverte"	2017-2019
Baccalaureate	Orleans, FR
Highschool "Maurice Genevoix"	2017
Scientific baccalaureate - option : SVT	

Work Experience

PhD Teaching Assistant	Toulouse, FR
INSA Toulouse	Sept 2023 – Present
Lecturing and leading tutorials in EnglishExam preparation	
Jury Member at TFJM	Toulouse, FR
Lycée Bellevue	Sept 2023
Evaluation of written and oral presentations	
Private Tutor	Orléans, FR

Private tutoring

• Tutoring for a student in CPGE ECG

• Tutoring for a final-year high school student

University Projects

Master Project / Internship

University of Toulouse

- Title : Quantification of limit theorem for nearly unstable Hawkes processes
- Supervisor : L. Coutin and A. Réveillac
- Introduction to the Hawkes processes, to the Stein's method and to the Malliavin calculus

Toulouse, FR 2023

Sept 2019 – March 2020

 University of Toulouse Title : Classical linear multistep formulas Supervisor : J-F Coulombel Study of different classical linear multistep formulas, study of the order, stability and convergence Bachelor Project University of Orleans 	2021 Orleans, FR 2020
 Title: Classical linear multistep formulas Supervisor: J-F Coulombel Study of different classical linear multistep formulas, study of the order, stability and convergence Bachelor Project University of Orleans 	Orleans, FR 2020
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Bachelor Project University of Orleans	Orleans, FR 2020
University of Orleans	2020
Title : Disease transmission and asymptotic result on binary trees	
Supervisors : P. Debs and T. Haberkorn	
 Study of a paper written by I. Benjamini and Y. Lima. Extension of some results 	
Publications	
L. Coutin. B. Massat and A. Réveillac	Xiv preprint arXiv:2503.21273
Quantification of limit theorems for Hawkes processes.	Mar 2025
L. Coutin, B. Massat and A. Réveillac	Xiv preprint arXiv:2407.19806
Normal Approximation of Functionals of Point Processes: Application to Hawkes Processes.	Aug 2024
Presentations	
New Advances on Hawkes Processes for a Better Risk Quantification (Invited talk)	Padova, IT
University of Padova, Department of Mathematics "Tullio Levi-Civita"	Jan, 2025
Normal Approximation of Functionals of Point Processes: Application to Hawkes Processes.	
Stochastic control and Games for Risk and Regulation (Contributed talk)	Hammamet, TN
Golden Tulip Taj Sultan Hammamet	Oct, 2024
Normal Approximation of Functionals of Point Processes: Application to Hawkes Processes.	
Journée de rentrée du GMM (Invited talk)	Toulouse, FR
INSA de Toulouse	Oct, 2024
Normal Approximation of Functionals of Point Processes: Application to Hawkes Processes.	
Journée des Probabilités (Contributed talk)	Toulouse, FR
INSA de Toulouse	Oct, 2024
Normal Approximation of Functionals of Point Processes: Application to Hawkes Processes.	
Stochastic Process Under Constrains (Contributed talk)	Bielefeld, DE
Universität Bielefeld	Aug, 2024
Normal Approximation of Functionals of Point Processes: Application to Hawkes Processes.	
France-Berkeley Conference on Cyber Risk (Invited talk)	Berkeley, USA
Berkeley University of California	Jun, 2024
Normal Approximation of Functionals of Point Processes: Application to Hawkes Processes.	
Student Seminar	Toulouse, FR
University of Toulouse	Dec, 2023
Title : How much Christmas chocolate should you eat to end up with the best?	

Skills_____

LanguageEnglish - Professional proficiencyProgrammingPython, ETEX, Microsoft OfficeSoft SkillsTime Management, Teamwork, Documentation.

References available upon request.