

PAUL BALANÇA

Post-doc
Faculty of Industrial Engineering and Management
TECHNION - Israël Institute of Technology
32000 Haifa - Israël

✉ paul.balanca@gmail.com
🏠 <http://balancap.github.io>

RESEARCH INTERESTS

Probability theory • fractal geometry • local regularity • 2-microlocal - multifractal analysis • (multi)fractional processes • Lévy processes • continuous random trees • superprocesses

EDUCATION & ACADEMIC POSITIONS

- March 2014- **Post-doc in collaboration with LEONID MYTNIK**
Technion (IEM) - Fellowship of the Technion and the french embassy in Israel
SUBJECT : Geometry of continuous random trees and superprocesses
- 2010-Feb. 2014 **Ph.D. in Probability under the supervision of ERICK HERBIN**
École Centrale Paris (MAS) - Science ministry research grant
TITLE: Fine regularity of stochastic processes and 2-microlocal analysis
JURY : Antoine Ayache, Thomas Duquesne, Erick Herbin, Christian Houdré, Stéphane Jaffard et Ivan Nourdin
- Feb.-Sept. 2009 **Research internship in image processing**
University of Houston (Computational Biomedicine Lab)
SUBJECT: Automatic segmentation on CT scans
- 2009-2010 **MSc in Probability & Statistics**
Université Paris-Sud XI, Orsay
- 2007-2010 **Grande École - MSc in Applied Mathematics**
École Centrale Paris

PUBLICATIONS

JOURNALS & PREPRINTS

- [1] P. BALANÇA and E. HERBIN. 2-microlocal analysis of martingales and stochastic integrals. *Stochastic Process. Appl.* **122.6** (2012), pp. 2346–2382. DOI: [10.1016/j.spa.2012.03.011](https://doi.org/10.1016/j.spa.2012.03.011). arXiv: [1107.6016](https://arxiv.org/abs/1107.6016).
- [2] P. BALANÇA and E. HERBIN. A set-indexed Ornstein–Uhlenbeck process. *Electron. Commun. Probab.* **17.39** (2012), pp. 1–14. DOI: [10.1214/ECP.v17-1903](https://doi.org/10.1214/ECP.v17-1903). arXiv: [1203.5524](https://arxiv.org/abs/1203.5524).
- [3] P. BALANÇA. An increment type set-indexed Markov property. *J. Theoret. Probab.* (2014), pp. 1–40. DOI: [10.1007/s10959-014-0555-y](https://doi.org/10.1007/s10959-014-0555-y). arXiv: [1207.6568](https://arxiv.org/abs/1207.6568).
- [4] P. BALANÇA. Fine regularity of Lévy processes and linear (multi)fractional stable motion. *Electron. J. Probab.* **19** (2014), no. 101, 37. DOI: [10.1214/EJP.v19-3393](https://doi.org/10.1214/EJP.v19-3393). arXiv: [1302.3140](https://arxiv.org/abs/1302.3140).
- [5] P. BALANÇA. Some sample path properties of multifractional Brownian motion. *Accepted in Stochastic Process. Appl.* (2015). DOI: [10.1016/j.spa.2015.05.008](https://doi.org/10.1016/j.spa.2015.05.008). arXiv: [1408.0317](https://arxiv.org/abs/1408.0317).
- [6] P. BALANÇA and L. MYTNIK. Uniform multifractal structure of stable trees and stable super-Brownian motion. *In preparation* (2015).

MISCELLANEOUS

- [1] D. CHITTAJALLU, P. BALANÇA, and I. KAKADIARIS. **Automatic delineation of the inner thoracic region in non-contrast CT data.** *Engineering in Medicine and Biology Society (EMBC) 2009. Annual International Conference of the IEEE.* 2009, pp. 3569–3572. DOI: [10.1109/IEMBS.2009.5332585](https://doi.org/10.1109/IEMBS.2009.5332585).
- [2] R. YALAMANCHILI, D. CHITTAJALLU, P. BALANÇA, B. TAMARAPPOO, D. BERMAN, D. DEY, and I. KAKADIARIS. **Automatic segmentation of the diaphragm in non-contrast CT images.** *From Nano to Macro, 2010 IEEE International Symposium on Biomedical Imaging.* 2010, pp. 900–903. DOI: [10.1109/ISBI.2010.5490132](https://doi.org/10.1109/ISBI.2010.5490132).

CONFERENCES & SEMINARS

May 2015	<i>Probability seminar</i> , Technion.
May 2015	<i>Students Probability Day V</i> , Weizmann Institute.
Sept. 2014	<i>GDR d'analyse multifractale</i> , Domaine de Chalès - Orléans.
July 2014	<i>École d'été de Probabilités</i> , Saint Flour.
Fév. 2014	<i>Multifractal Analysis Workshop</i> , Banff International Research Station.
Oct. 2013	<i>Groupe de travail en Probabilités</i> , Université Paris Descartes.
July 2013	<i>7th International Conference on Lévy Processes</i> , Wrocław.
June 2013	<i>Journées de Probabilités</i> , Université d'Orléans.
May 2013	<i>Séminaire Cristolien d'Analyse Multifractale</i> , Université Paris-Est Créteil.
July 2012	<i>8th World Congress in Probability and Statistics</i> , Istanbul.
Oct. 2012	<i>Ph.D. Students Seminar</i> , École Centrale Paris.
June 2011	<i>Journées de Probabilités</i> , Université de Nancy.

TEACHING

2010-2013	Teaching Assistant at École Centrale Paris <ul style="list-style-type: none">• <i>Analysis</i>, 1st year students (10 hours/year);• <i>Probability</i>, 1st year students (10 hours/year);• <i>Statistics</i>, 1st year students (10 hours/year);• <i>Advanced Probability</i>, 2nd year students (18 hours/year).
2013	Teaching Assistant at ENSAE <ul style="list-style-type: none">• <i>Functional and convex analysis</i>, 1st year students (30 hours/year).
2015	Technion - Crash course on continuous Lévy trees.

SCIENTIFIC ACTIVITIES

	Reviewer for <i>Annals of Probability</i> , <i>Statistics & Probability Letters</i>
Mar. 2014	Co-organization of the <i>Conference in honour of Kenneth Falconer's 60th birthday</i> , at INRIA Saclay.
2012-2013	Organization of the Ph.D. Students Seminar at MAS laboratory, ECP.
2012-2013	Software maintainer of the Matlab toolbox <i>FracLab</i> (http://fraclab.saclay.inria.fr).
2012-2013	Member of the MAS laboratory council, ECP.

MISCELLANEOUS

LANGUAGES: French (mother tongue) • English (fluent) • German (basics)
COMPUTER SKILLS: \LaTeX • Matlab • C++