Durand Guillermo

PhD Student

Laboratoire de Probabilités, Statistique et Modélisation (LPSM), Équipe Statistique, données, algorithmes
Sorbonne Université, CNRS UMR 8001
Campus Pierre et Marie Curie
Boite courrier 158
4, place Jussieu
75252 PARIS CEDEX 05
FRANCE
guillermo.durand@upmc.fr
My personal page

Born 1993
French and Chilean citizenships

Research interests

- Multiple testing: theory and application to genomic data
- p-value weighting and power optimality
- Discrete multiple testing
- Selective inference, post hoc inference

Professional experience

2015	Internship as research engineer in bio-informatics at Sanofi, Chilly-Mazarin, under the supervision of Franck Augé
2014	Internship as research assistant in population genetics, Université de Montréal, under the supervision of Sabin Lessard
2013	Internship as development engineer at Empresas Lipigas, Santiago de Chile, under the supervision of Camilo Muñoz

Education

since 2015	PhD in Applied Mathematics, Sorbonne Université "Contributions to optimal weighting, discrete tests and post hoc bounds" Advisors: Etienne Roquain, LPSM, and Pierre Neuvial, Institut de Mathématiques de Toulouse (IMT)
2014-2015	M. S. in Mathematics for life sciences, Université Paris-Sud, Orsay
2011-2015	École polytechnique, Palaiseau
2009-2011	*Classe préparatoire aux grandes écoles*, Lycée Henri IV, Paris

Teaching

2017	Introduction to probabilities, 8h, Polytech Paris UPMC, Paris
2015-2016	Measure theory, integration, probabilities, 90h/year, ISUP, Paris

Participation to research grants

- 2017-2021: ANR BASICS: "BAyeSian nonparametrics, uncertainty quantifICation and random Structures" (67 K€). Project coordinator: Ismael Castillo, LPSM.
- 2016-2019: ANR SansSouci: "Post-hoc approaches for large scale multiple testing" (193 K€). Project coordinator: Pierre Neuvial.
- 2015-2016: PEPS FaSciDo CNRS INSMI/INS2I (Fondements et Applications de la Science des Données): "Approches post-hoc pour les tests multiples à grande échelle" (12 K€ in 2015 + 5 K€ in 2016). Project coordinator: Pierre Neuvial.

Reviewer activities

- Electronic Journal of Statistics (2016, 2017)

Other activities

- 2017: Workgroup "Post-selection inference" at IMT. Coordinators: François Bachoc, Pierre Neuvial.
- 2016: Workgroup "Selective inference" at Institut national de la recherche agronomique (INRA), Jouy-en-Josas. Coordinator: Sylvie Huet.

Publications

In revision

[Rev1] G. Durand. *Adaptive p-value weighting with power optimality*. 2017.

Journal papers

[J1] S. Döhler, G. Durand, and E. Roquain. "New FDR bounds for discrete and heterogeneous tests". *Electron. J. Statist.* 12.1 (2018), pp. 1867–1900. ISSN: 1935-7524.

[J2] C. Chatelain et al. "Performance of epistasis detection methods in semi-simulated GWAS". *BMC Bioinformatics* 19.1 (June 2018), p. 231. ISSN: 1471-2105.

[J3] G. Durand and S. Lessard. "Fixation probability in a two-locus intersexual selection model". *Theoretical population biology* 109 (June 2016), pp. 75–87.

Invited talks

[IT1] *BH procedure using data-driven optimal weights for grouped hypotheses*. CMStatistics 2016, University of Seville, Spain. Dec. 2016.

[IT2] *An extension of the Benjamini and Hochberg procedure using data-driven optimal weights with grouped hypothesis*. Journées MAS 2016, Université Grenoble Alpes, France. Aug. 2016.

Contributed talks

[CT1] *Adaptive data-driven optimal weighting*. Statistique Mathématique et Applications 2017, Fréjus, France. Sept. 2017.

[CT2] *Step-up procedure with data-driven optimal weights for grouped hypotheses*. Multiple Comparison Procedures 2017, University of California, Riverside, USA. June 2017.

Seminars

[Sem1] *Tests multiples : généralités, problème du weighting optimal*. Journée des thésards ESP, Toulouse, France. Oct. 2017.

Posters

[P1] *Optimal data-driven weighting procedure with grouped hypotheses and π_0-adaptation*. Workshop: Post-selection Inference and Multiple Testing, Toulouse, France. Feb. 2018.