


LmB, Université de Franche-Comté
16 route de Gray, 25030 Besançon CEDEX

email: jean-jil.duchamps@normalesup.org
web: <http://www.normalesup.org/~duchamps>
 orcid: 0000-0002-3823-1686

Since September 2020, I am a *maître de conférences* (lecturer) in the Probability and Statistics team in LmB, in Université de Franche-Comté at Besançon.

Main research interests : random trees, stochastic processes that generates them and applications to evolutionary biology.

Education

- 2019 **PhD in Mathematics. Thesis: “Random structured phylogenies”**.
Advisor: Amaury Lambert. *Sorbonne Université (ex UPMC, Paris 6)*.
- 2016 **Master 2 (MS) in Mathematics**. Specialty: Probability, Stochastic Processes.
UPMC Univ. Paris 6.
- 2014 **Licence (BS) in Mathematics**. *UPMC Univ. Paris 6*
- 2013 **Admission into École Normale Supérieure, Paris**, in the Mathematics Department.

Publications

- F. BIENVENU, J.-J. DUCHAMPS, and F. FOUTEL-RODIER. The Moran Forest. *Random Structures & Algorithms*, (2021). DOI: [10.1002/rsa.20997](https://doi.org/10.1002/rsa.20997)
- J.-J. DUCHAMPS. Trees within Trees II: Nested Fragmentations. *Ann. Inst. H. Poincaré Probab. Statist.*, 56.2 (2020), pp. 1203–1229. DOI: [10.1214/19-AIHP999](https://doi.org/10.1214/19-AIHP999)
- A. BLANCAS, J.-J. DUCHAMPS, A. LAMBERT, and A. SIRI-JÉGOUSSE. Trees within Trees: Simple Nested Coalescents. *Electron. J. Probab.*, 23.0 (2018). DOI: [10.1214/18-EJP219](https://doi.org/10.1214/18-EJP219)
- J.-J. DUCHAMPS and A. LAMBERT. Mutations on a Random Binary Tree with Measured Boundary. *Ann. Appl. Probab.*, 28.4 (2018), pp. 2141–2187. DOI: [10.1214/17-AAP1353](https://doi.org/10.1214/17-AAP1353)
- J.-J. DUCHAMPS, J. PITMAN, and W. TANG. Renewal Sequences and Record Chains Related to Multiple Zeta Sums. *Trans. Amer. Math. Soc.*, (2018). DOI: [10.1090/tran/7516](https://doi.org/10.1090/tran/7516)

Preprints

- J.-J. DUCHAMPS, F. FOUTEL-RODIER, and E. SCHERTZER. General Epidemiological Models: Law of Large Numbers and Contact Tracing (2021). arXiv: [2106.13135](https://arxiv.org/abs/2106.13135)
- C. DOMBRY and J.-J. DUCHAMPS. Infinitesimal Gradient Boosting (2021). arXiv: [2104.13208](https://arxiv.org/abs/2104.13208)
- F. FOUTEL-RODIER et al. From Individual-Based Epidemic Models to McKendrick-von Foerster PDEs: A Guide to Modeling and Inferring COVID-19 Dynamics (2020). arXiv: [2007.09622](https://arxiv.org/abs/2007.09622)
- J.-J. DUCHAMPS. Fragmentations with Self-Similar Branching Speeds. *Advances in Applied Probability*, 53.4 (2021). to appear. arXiv: [1907.04712](https://arxiv.org/abs/1907.04712)

Mémoires (in French)

- Introduction au domaine de recherche (2016). *Processus de fragmentation, arbres branchants Markoviens*.
- Mémoire de M2, sous la direction d'Amaury Lambert (2016). *Mutations sur un arbre aléatoire binaire mesuré*.
- Mémoire de première année de l'ENS, réalisé avec Paul Thévenin sous la direction de Bastien Mallein (2014). *Généalogie du modèle du voteur*.

Teaching

- 2020–2021 In Université de Franche-Comté:
Statistics for engineers (ISIFC)
Object-oriented programming – C++ project supervision (M1)
Initiation to modeling with Scilab – practical classes (prép'agrég)
- 2017–2020 Teaching assistant in Sorbonne Université:
Integration (L3, 2017-2019)
Power series, integrals depending on a parameter (L2, 2017–2018)
Functional analysis (L3, 2018–2019)
Python programming for mathematics (L3, 2019–2020)

Work experience

- March – Research internship at *University of California, Berkeley* on several problems
June, 2017 about random discrete trees, regenerative permutations. Advising professors:
David Aldous, Jim Pitman.
- 2016 – 2017 Research internship on random tree models in the SMILE group at *Collège de France (Paris)*, supervised by *Amaury Lambert*. Title of the written dissertation: *Mutations on a Random Binary Tree with a Measured Boundary*.
- February – Internship in R&D at *Criteo (Paris)*. Study and practical testing of a machine
July, 2015 learning algorithm.

Other information

French: mother tongue.

English: very good level.

Spanish: good level.

Computer science and programming: \LaTeX , good knowledge in algorithmics and in the languages OCaml, Python and C/C++.