

# Élise Kardoncuff

## Education and Professional Experience

- 2022-current **Postdoc**, Moorjani Lab at University of California, Berkeley, USA. Study of South Asian population evolutionary history and development of local ancestry inference methods.
- 2017-2021 **PhD**, *Detection of Recent Decline in Population by a Genomic Approach*, Stochastic Models for the Inference of Life Evolution group (CIRB, Collège de France) and Atelier de Bio-Informatique group (Muséum National d'Histoire Naturelle - MNHN). Supervised by Guillaume Achaz and Amaury Lambert, Sorbonne University.
- 2015-2017 **Master**, Ecology, Biodiversity, Evolution, speciality: evolutionary ecology, Sorbonne University.
- 2014-2015 **Exchange**, 3<sup>rd</sup> year of bachelor at the National University of Singapore, Singapore.
- 2012-2015 **Bachelor**, Bi-disciplinary licence of biology and mathematics, Sorbonne University at the Roscoff Marine Station, France.

## Teaching Experience

- 2022 *University of California, Berkeley*, Quantitative Biology Bootcamp, teaching assistant (15h).
- 2018-2019 *Sorbonne Université*, Python, teaching assistant (40h).
- 2017-2018 *IUT de Vélizy*, C Language, class and tutorials (45h).

## Publications, Preprints

- Kardoncuff, E.**, Skov L., Patterson N., Zhao W., Lueng Y.K., Schellenberg G.D., Smith J., Ganna A., Dey AB., Kardian S., Lee J., Moorjani P. 50,000 years of Evolutionary History of India: Insights from 2,700 Whole Genome Sequences. *bioRxiv preprint* doi.org/10.1101/2024.02.15.580575 (EK and LS contributed equally to this work)
- Kardoncuff, E.**, Lambert, A., Achaz, G. How demography shapes linkage disequilibrium with or without recombination. *bioRxiv preprint* doi.org/10.1101/2023.12.13.571342
- Freund, F., **Kardoncuff, E.**, Matuszewski, S., Lapierre, M., Hildebrandt, M., Jensen, J. D., Ferretti, L., Lambert, A., Sackton, T. B., Achaz, G. Interpreting the pervasive observation of U-shaped Site Frequency Spectra. (2023) *PLOS Genetics* doi.org/10.1371/journal.pgen.1010677 (FF and EK contributed equally to this work)
- Foutel-Rodier, F., Blanquart, F., Courau, P., Czuppon, P., Duchamps, J., Gamblin, J., **Kardoncuff, E.**, Kulathinal, R., Régner, L., Vuduc, L., Lambert, A., Schertzer, E. From individual-based epidemic model to McKendrick-von Foerster PDEs: a guide to modeling and inferring COVID-19 dynamics. (2022) *Journal of Mathematical Biology* doi.org/10.1007/s00285-022-01794-4
- Kardoncuff, E.**, Lambert, A., Achaz, G. Testing for population decline using maximal linkage disequilibrium blocks. (2020) *Theoretical Population Biology*. [www.sciencedirect.com/science/article/pii/S0040580920300289](http://www.sciencedirect.com/science/article/pii/S0040580920300289)
- Ribardière, A., Centanni, J., Dano, A., Coudret, J., Daguin-Thiébaud, C., Houbin, C., **Kardoncuff, E.**, Jambut, S., Cordaux, R., Broquet, T. Female-biased sex ratios unrelated to *Wolbachia* infection in European species of the *Jaera albifrons* complex (marine isopods). (2018) *Journal of Experimental Marine Biology and Ecology* (509), 91-98. [www.sciencedirect.com/science/article/pii/S0022098118301850](http://www.sciencedirect.com/science/article/pii/S0022098118301850)

## Presentations

### Invited

- *Workshop : Evolutionary genomics and life history traits*, 16 october 2019, Montpellier, France.
- *Séminaire du CESCO*, 24 june 2019, MNHN, Paris, France.

### Contributed talks

- *New Frontiers in Reconstructing Human Evolution History*, May 29-June 1 2023, Hannover, Germany.
- *Bay Area Population Genomics*, 15 october 2022, Berkeley, USA.
- *Popgroup53*, 5-8 january 2020 , Leicester, Royaume-Uni.
- *GDR Approches Interdisciplinaires en Evolution Moléculaire (AIEM)*, 6-8 november 2019 , Toulouse, France.
- *Colloque annuel Society for Molecular Biology and Evolution (SMBE), Symposium: The Coalescent in the Era of Population-Scale Genomics*, 21-25 july 2019, Manchester, Royaume-Uni.
- *Mathematical and Computational Evolutionary Biology (MCEB)*, 26-29 may 2019, Porquerolles, France.
- *Séminaire de l'ISYEB*, 14 may 2019, MNHN, Paris, France.
- *CIRB seminar*, 8 february 2019, Collège de France, Paris, France.
- *Popgroup52*, 3-6 january 2019, Oxford, Royaume-Uni.

### Poster

- *Population, Evolutionary, and Quantitative Genetics Conference*, 7-10 june 2022, Asilomar, CA, USA.
- *Probabilistic Modelling in Genomics*, 6-9 october 2019, Aussois, France.
- *GDR AIEM*, 21-23 november 2018, Lille, France.
- *MCEB*, 25-29 june 2018, Saint-Martin-de-Londres, France.
- *GDR AIEM*, 8-10 november 2017, Lyon, France.

## Supervision

- 2021 - 6 Pierre Imbert, M2 Bio-Informatique Paris Diderot, Benchmark of inference methods: a focus on months population decline.
- 2019 - 3 Ludovic Fourteau, M1 Bio-Informatique Paris Diderot, Effect of a single recombination event on the months diversity in a population.
- 2018 - 3 Rebecca Clodion, M1 Bio-Informatique Paris Diderot, The mysterious U spectrum: a population analysis of the genetic diversity.

## Computer skills

Languages C, PYTHON  
Familiar with the usage of a computer cluster

## Grants/Scholarship

- 2023 Keystone Symposia Future of Science Fund scholarship (Travel grant 1,200\$).
- 2020-2021 ATER Collège de France grant for a fourth year of PhD (>20,000 €).
- 2017-2020 Interfaces pour le vivant (IPV) doctoral school grant for a three year PhD (>50,000 €).

## Refereeing service

*European journal of human genetics*

## Others

**Symposium organiser:** *Haplotype-based methods and frameworks for inference of evolutionary history*. SMBE 2024, Puerto Vallarta, Mexico.

**Student representative of the ISYEB:** Organisation of monthly seminars and yearly Young Research day.

**Jury:** Best poster and best presentation of the symposium 'Evolutionary Ecology' of the 6th Young Natural History Scientists' Meeting, 12-16 mars 2019, MNHN, Paris, France.

**Volunteer at conferences:** Evolution 2018, Montpellier, France.