Juan Kuntz Nussio

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https://juankuntz.github.io/

Work Experience

Research Fellow *Department of Statistics, University of Warwick*, UK. Apr 2020 – today
Research Associate *Department of Bioengineering, Imperial College London*, UK. Apr 2018 – June 2019
Research Assistant *Department of Bioengineering, Imperial College London*, UK. Feb 2018 – Apr 2018
Research Assistant *Department of Bioengineering, Imperial College London*, UK. Mar 2017 – Aug 2017
Research Assistant *Department of Chemistry, Imperial College London*, UK. Oct 2016 – Mar 2017
Research Assistant *Department of Mathematics, Imperial College London*, UK. Jan 2015 – Jun 2015

Education

Ph.D. in Bioengineering. Oct 2012 – Feb 2018
Imperial College London, UK. Funded by a BBSRC Studentship.
Thesis: "Deterministic approximation schemes with computable errors for the distributions of Markov chains".
Advisors: Prof. Mauricio Barahona (Mathematics), Prof. Guy-Bart Stan (Bioengineering).

M.Eng. in Biomedical Engineering. Oct 2008 – Jul 2012
Imperial College London, UK.
Graduated with First Class Honours (ranked second in year group).

Languages

Bilingual in **Spanish** and **English**, proficient in **French**.

'Languages'

Python, MATLAB, LaTeX, Git, JAX.

Publications

Total citations 126, h-index 7, as indicated by Google Scholar in March 2022.

Journal articles

[1] **J. Kuntz**, F. R. Crucinio, and A. M. Johansen. "Product-form estimators: exploiting independence to scale up Monte Carlo". *Statistics and Computing* 32.12 (2022). DOI: 10.1007/s11222-021-10069-9.

[2] **J. Kuntz**, P. Thomas, G.-B. Stan, and M. Barahona. "Approximations of countably-infinite linear programs over bounded measure spaces". *SIAM Journal on Optimization* 31.1 (2021), pp. 604–625. DOI: 10.1137/19M1268847.

[3] **J. Kuntz**, P. Thomas, G.-B. Stan, and M. Barahona. "Stationary distributions of continuous-time Markov chains: a review of theory and truncation-based approximations". *SIAM Review* 63.1 (2021), pp. 3–64. DOI: 10.1137/19M1289625.

[4] **J. Kuntz**, M. Ottobre, and A. M. Stuart. "Diffusion limit for the random walk Metropolis algorithm out of stationarity". *Annales de l'Institut Henri Poincaré, Probabilités et Statistiques* 55.3 (2019), pp. 1599–1648. DOI: 10.1214/18-AIHP929.

[5] **J. Kuntz**, P. Thomas, G.-B. Stan, and M. Barahona. "The exit time finite state projection scheme: bounding exit distributions and occupation measures of continuous-time Markov chains". *SIAM Journal on Scientific Computing* 41.2 (2019), A748–A769. DOI: 10.1137/18M1168261.

[6] **J. Kuntz**, P. Thomas, G.-B. Stan, and M. Barahona. "Bounding the stationary distributions of the chemical master equation via mathematical programming". *The Journal of Chemical Physics* 151.3 (2019), p. 034109. DOI: 10.1063/1.5100670.

[7] **J. Kuntz**, M. Ottobre, and A. M. Stuart. "Non-stationary phase of the MALA algorithm". *Stochastics and partial differential equations: analysis and computations* 6.3 (2018), pp. 446–499. DOI: 10.1007/s40072-018-0113-1.

[8] **J. Kuntz**, M. Ottobre, G.-B. Stan, and M. Barahona. "Bounding stationary averages of polynomial diffusions via semidefinite programming". *SIAM Journal on Scientific Computing* 38.6 (2016), A3891–A3920. DOI: 10.1137/16M107801X.

Under review

[9] **J. Kuntz** and A. M. Johansen. *Scalable particle-based alternatives to EM.* Advances in Neural Information Processing Systems (under review). 2022.

[10] **J. Kuntz**, F. R. Crucinio, and A. M. Johansen. *The divide-and-conquer sequential Monte Carlo algorithm: theoretical properties and limit theorems.* Annals of Applied Probability (under review). 2021. URL: https://arxiv.org/abs/2110.15782.

Books

[11] **J. Kuntz**. *Markov chains revisited.* 2020. URL: https://arxiv.org/abs/2001.02183.

Book chapters

[12] **J. Kuntz**, D. A. Oyarzún, and G.-B. Stan. "Model reduction of genetic-metabolic networks via time scale separation". In: *A systems theoretic approach to systems and synthetic biology I: models and system characterizations.* Ed. by V. V. Kulkarni, G.-B. Stan, and K. Raman. Springer, 2014, pp. 181–210. DOI: 10.1007/978-94-017-9041-3_7.