PHILIPPE MARCHAND

Professional Summary

An applied statistician and data scientist with over 15 years of research experience designing experiments, analysis plans, and custom models in collaboration with specialists in various disciplines (physics, ecology, genetics, economics), with a special expertise on Bayesian analysis as a tool to combine mechanistic and empirical models, as well as to integrate evidence from disparate sources of data.

Contact Information

📞 650-609-6436 🌐 San Francisco, CA ✉️ marchand.philippe@gmail.com
LinkedIn: https://www.linkedin.com/in/philippemarchand1
Portfolio: https://pmarchand1.github.io/
Google Scholar: https://scholar.google.com/citations?user=aR6bdCoAAAAJ&hl

Skills

- Statistical analysis: multivariate statistics, Bayesian networks, spatial and temporal models, Monte Carlo simulation, integration of mechanistic and correlative models.
- Programming: R (advanced), Python (intermediate), SQL (intermediate).
- Design of experiments and computer experiments.
- Design of courses, workshops, presentations for technical and non-technical audiences.

Work Experience

UNIVERSITY OF QUEBEC IN ABITIBI-TEMISCAMINGUE, Remote | Adjunct Professor | 06/2022 - 05/2025

UNIVERSITY OF QUEBEC IN ABITIBI-TEMISCAMINGUE, Rouyn-Noranda, Canada | Assistant Professor in Ecology and Biostatistics | 01/2018 - 05/2022

- Developed and taught two graduate-level courses in statistical methods for ecology.
- Supervised four PhD dissertations and four MSc theses.

NATERA, San Carlos, California | Senior Data Scientist | 11/2016 - 11/2017

- Developed algorithms for Natera's genetic screening products.
- Designed experiment plans, analyzed data for research experiments and clinical trials.
- Developed quality control criteria for the clinical laboratory.

NATIONAL SOCIO-ENVIRONMENTAL SYNTHESIS CENTER, Annapolis, Maryland | Data Scientist | 05/2015 - 10/2016

- In-house statistical expert supporting the work of 10 postdoctoral fellows and 15 international, interdisciplinary working groups funded by SESYNC.
- Collaborated as co-author on specific projects requiring large-scale data analysis.
- Developed and taught workshops on data processing, analysis and visualization, using R, SQL, Python.

Education

PhD in Environmental Science, Policy and Management | 2013
University of California, Berkeley
Dissertation: Statistical methods for the detection and space-time monitoring of DNA markers in the pollen cloud

MSc in Physics | 2008
University of Ottawa, Ottawa, Canada

BSc in Physics-Mathematics | 2006
University of Ottawa, Ottawa, Canada

Research Grants

Natural Sciences and Engineering Research Council of Canada | Discovery Grant | 2021 - 2026

- Topic: Bridging the gap from individual-based processes to joint species distributions in a forest landscape. (Principal Investigator)

Natural Sciences and Engineering Research Council of Canada | Alliance Grant | 2021 - 2024

- Topic: Forecasting spruce budworm activity in a climate change context. (Principal Investigator)

Selected Publications

Marchand, P., Comita, L. S., Wright, S. J., Condit, R., Hubbell, S. P., & Beckman, N. G. (2020). Seed‐to‐seedling transitions exhibit distance‐dependent mortality but no strong spacing effects in a Neotropical forest. *Ecology*, *101*(2), e02926.

Yeager, L.A., Marchand, P., Gill, D.A., Baum, J.K., and McPherson, J.M. (2017) Queryable global layers of environmental and anthropogenic variables for marine ecosystem studies. *Ecology 98(7)*, 1976.

Marchand, P., Boenke, M., & Green, D. M. (2017). A stochastic movement model reproduces patterns of site fidelity and long-distance dispersal in a population of Fowler's toads (Anaxyrus fowleri). *Ecological Modelling*, *360*, 63-69.

Marchand, P., Carr, J. A., Dell'Angelo, J., Fader, M., Gephart, J. A., Kummu, M., ... & D'Odorico, P. (2016). Reserves and trade jointly determine exposure to food supply shocks. *Environmental Research Letters*, *11*(9), 095009.

Marchand, P., Harmon-Threatt, A. N., & Chapela, I. (2015). Testing models of bee foraging behavior through the analysis of pollen loads and floral density data. *Ecological Modelling*, *313*, 41-49.