OLIVIER MISSA, PhD

Statistician and data analyst | R (20+ years) | 17 publications, 1,600+ citations, h-index 11

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PROFILE

Statistician and data analyst with more than 25 years of designing studies, modelling complex data and turning results into decisions. Expert in R and experienced in C++ simulation on parallel computer clusters. Did the statistical analysis for, and co-authored, a *Science* paper (2012) cited more than 800 times, and published first-author papers on sampling design and stochastic models of biodiversity. Since 2018 I have applied statistics and data systems to agriculture, rural finance and development in Papua New Guinea: farmer data and credit scoring with GSMA and MiBank, farm mapping for EU Deforestation Regulation compliance, and vanilla standards for UNCTAD. Twelve years teaching statistics at universities, and regularly invited to review the statistics of journal papers. I work in English, French and Tok Pisin.

STATISTICAL AND TECHNICAL SKILLS

- **Statistical modelling (R, expert):** linear models, GLMs, mixed-effects models, GAMs, distribution fitting, power analysis, parametric and non-parametric tests.
- **Multivariate analysis and machine learning:** PCA, correspondence analysis, LDA, CCA, classification, cluster analysis and data mining.
- **Time series, spatial analysis and simulation:** stochastic and individual-based models written in C++ and run on parallel clusters and supercomputers; very large model outputs analysed in R.
- **Study and sampling design:** sampling methods, power analysis, monitoring programmes, outcome measurement and intervention evaluation.
- **Data systems:** designing data collection, cleaning, validation and integration, from field apps to bank systems; building and managing large databases.
- **Communication:** reports and visualisations for journals, UN policy documents, donors and field teams; teaching statistics to non-specialists.

EXPERIENCE

Director and Consultant, Amaterra Ltd (UK), working in Papua New Guinea — **Jan 2019 – present**

- **Farm mapping and EUDR compliance:** mapping smallholder farms to establish where farmers are and whether farms comply with the EU Deforestation Regulation, first as a university project, then with Field Buzz, Kamapim and Koltiva, and for NuraTerra Inc (director since 2025).
- **UNCTAD (United Nations), 2023:** co-wrote *A Voluntary Sustainability Standards Guidebook for Vanilla in Papua New Guinea* and the *Papua New Guinea Vanilla Export Guide*, later adopted as national standards.
- **EU-funded FFCCB programme:** helped implement a food-access intervention and measure food, nutrition and health outcomes, and reported clearly when the intervention did not improve them.
- **IT Manager, Kamapim Ltd (Apr 2024 – Jun 2025):** designed and maintained traceability, staff-activity and training-outcome datasets, and analysed them for donor reporting.

Senior Lecturer II, Divine Word University, Papua New Guinea — **Jun 2021 – Apr 2023**

- Taught first-year medical students biostatistics and data analysis in R, alongside biology, biochemistry, chemistry, maths, physics and academic writing. Supervised a final-year project on sharing traceability data with consumers by QR code without exposing farmers' data.

Capacity Building Specialist, Kamapim Ltd, Papua New Guinea — **Oct 2018 – May 2021**

- **Rural Loan (GSMA AgriTech pilot with DFAT, MiBank and Field Buzz):** data design and integration lead for the first credit product of its kind in Papua New Guinea. Designed the farmer data structure and, with an IT technician, built the first app integrated with the bank's system for automatic loan approval and payment. Worked with the credit scorer on which variables predicted repayment. Documented in a GSMA case study (2022).
- Analysed how smallholder farmers responded to training. Built the skills of staff at a start-up vanilla exporter and set up its databases and data systems.

Marie Curie Fellow and CNRS Postdoctoral Researcher, École Normale Supérieure, Paris — **Jul 2014 – Jun 2018**

- Developed and tested theory on how biodiversity patterns emerge over millions of years, using individual-based stochastic simulations in C++ on large parallel clusters and supercomputers, with outputs analysed in purpose-built R code. Published as first author in *Philosophical Transactions of the Royal Society B* (2016). Won the €202k fellowship as sole applicant.

Senior Teaching Fellow in Ecology (Grade 7), University of York — **Apr 2006 – Jun 2014**

- Designed and led **Advanced Stats with R** for the MRes in Ecology and Environmental Management (12 lectures, 12 practicals: linear models, GLMs, mixed models, GAMs, multivariate analysis), and Ecological Sampling Techniques. Consistently the top-

rated ecology lecturer in student evaluations (4.7–4.9 out of 5).

- Carried out the statistical analysis for the *Science* (2012) study of arthropod diversity in a tropical forest, and co-authored a *Molecular Ecology* (2012) study of virus host switching whose prediction of a new rodent host was later confirmed. Supervised 27 honours, 17 MRes and 1 PhD students.

Lecturer in Animal Ecology, University of Aberdeen **Jan 2004 – Sep 2005**

- Coordinated the MSc Ecology programme. Taught population ecology, matrix population modelling and population viability analysis.

Field scientist and research manager, Smithsonian Institution (Gabon); Conservation International **2001 – 2003**

- Designed and ran a year-long monitoring study comparing four sampling methods across habitats with different levels of disturbance: about 400,000 specimens from 1,682 species groups. Trained a team of eight, managed the database and analysis, and published four peer-reviewed papers.

EDUCATION

PhD, Biology (Tropical Biodiversity), Université Libre de Bruxelles, 2000. Highest distinction.

Graduate (Honours), Biology (Zoological Sciences), Université Libre de Bruxelles, 1991. Highest distinction. Paul Brien Prize for the best honours thesis in zoology.

RESEARCH FUNDING

About €394,000 in total, including a Marie Curie Intra-European Fellowship (MEDIATEMP, EU grant 629825, €202,405, awarded 2013, held 2014–2016), People's Trust for Endangered Species (£18,315, 2011), BBSRC/NERC Syntax (£22,126, 2010), University of York pump-priming (£8,000, 2010) and the Carnegie Trust (£1,900, 2004).

SELECTED PUBLICATIONS

Missa O, Dytham C & Morlon H (2016) Understanding how biodiversity unfolds through time under neutral theory. *Philosophical Transactions of the Royal Society B* 371: 20150226.

Basset Y, … Missa O, … Leponce M (2012) Arthropod diversity in a tropical forest. *Science* 338: 1481–1484. Statistical analysis; cited more than 800 times.

Irwin NR, Bayerlová M, Missa O & Martínková N (2012) Complex patterns of host switching in New World arenaviruses. *Molecular Ecology* 21: 4137–4150.

Missa O, Basset Y, Alonso A, et al. (2009) Monitoring arthropods in a tropical landscape: relative effects of sampling methods and habitat types on trap catches. *Journal of Insect Conservation* 13: 103–118.

Basset Y, Missa O, Alonso A, et al. (2008) Changes in arthropod assemblages along a wide gradient of disturbance in Gabon. *Conservation Biology* 22: 1552–1563.

UNCTAD (2023) *A Voluntary Sustainability Standards Guidebook for Vanilla in Papua New Guinea*, and *Papua New Guinea Vanilla Export Guide*. Co-author.

PROFESSIONAL ACTIVITIES AND ADDITIONAL INFORMATION

- Peer reviewer, often invited for statistical expertise, for 16 journals including *Philosophical Transactions B, The American Naturalist, Ecology, Journal of Applied Ecology, Methods in Ecology and Evolution* and *Oikos*.
- External PhD examiner (McGill University; Université Libre de Bruxelles); internal MSc examiner (University of York). Member of the British Ecological Society.
- Full right to work in the UK. Languages: French (native), English (bilingual), Tok Pisin (fluent).
- 19 species of insects and spiders named in my honour. Author of *Rabbit Holes and the Pursuit of Meaning*, a practical guide to critical thinking (manuscript due December 2026).

REFERENCES

Available on request.