

Ben Lambert

CV

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Current research

I am currently a research associate at Imperial College London, where I work with Thomas Churcher on the epidemiology of malaria in near elimination settings.

PhD: 2013-2017

title *Understanding mosquito vectors and methods for their control*. I was involved in two separate projects: 1. Modelling the use of genetically-modified mosquitoes as a way of controlling wild populations of mosquitoes. 2. Using hierarchical Bayesian models and machine learning to calculate novel estimates of mosquito parameters; for example, mortality and dispersion, both of which are important for understanding the epidemiology of malaria.

supervisors Prof. Sir Charles Godfray, Dr Ace North.

location Department of Zoology, University of Oxford.

dates Includes one year of initial training on a doctoral training course.

Education

2008
2010

MPhil, Economics, *University of Cambridge*, Distinction.

Thesis on the empirical relationship between terrorism and religion.

2003
2007

MPhys, Physics, *University of Oxford*, 1st class degree.

Thesis on simulating DNA nanostructures using the Ising model.

Publications

Epidemiology

“The use of driving endonuclease genes to suppress mosquito vectors of malaria in temporally variable environments”, 2018, *Malaria Journal*.

“Monitoring the Age of Mosquito Populations Using Near-Infrared Spectroscopy”, 2018, *Scientific Reports*.

“Epidemiological and ecological determinants of Zika virus transmission in an urban setting”, 2017, *eLife*.

Bayesian inference

textbook “A Student’s Guide to Bayesian Statistics”, 2018, Sage publications

“Bayesian inference of agent-based models: a tool for studying kidney branching morphogenesis”, 2018, *Journal of Mathematical Biology*.

Other research activities

- NGO An active member of Target Malaria consortium, and participated in meetings in the UK, US and Uganda.
- HIV On the origins of HIV subtypes and their implications for potential vaccines, with Prof. Astrid Iversen, WIMM, Oxford University.
- evolutionary biology Evolution of cultural traits, with Prof. Armand Leroi at Imperial College, London.
- animal movement Developing statistical models to allow a better understanding of the migration of elephants and pigeons, with Susanne Vogel, Lucy Taylor, and Leandro Abade, in Department of Zoology, University of Oxford.
- Bayesian inference Bayesian inference for deterministic systems using approximate Jacobians. This is work with Simon Taverer and David Gavaghan.
- Bayesian inference Pints software: developing a versatile tool for inference in difficult time series systems. This is work with a group in the Department of Computer Science at University of Oxford.

Teaching

- Lecturing DPhil course in applied Bayesian inference. Three iterations of this course taught across all medical and social sciences at University of Oxford. All syllabus and materials produced by me.
- Online Published over 500 videos on econometrics and Bayesian statistics, with over 11 million unique views worldwide.
- Graduate tutor MPhil econometrics courses at Oxford.
- Undergraduate tutor Economics courses (econometrics, micro and game theory); Applied mathematics and statistics.

Awards

- DTC Public Engagement award, 2015. Based on my econometrics and Bayesian statistics online lecture courses.
- Mary Somerville scholar, 2005-2007.

Conferences, talks and media

- Presented two posters MIM in Dakar, Senegal, April 2018.
- Invited talk Identifiability and inference conference at University of Warwick, November 2017.
- BBC4 documentary The Secret Science of Pop. Aired in March 2017.
- Presented poster DTC symposium Oxford, February 2016.

- Inference Bayesian hierarchical modelling, November 2015.
group, Oxford
- EEID, Oxford Evolutionary ecology of infectious diseases group. Using spectroscopy and machine learning to estimate mosquito population parameters, December 2015.
- Financial Discussed in an article, "Are Moocs the perfect drug?" September 2015.
Times article
- MathCompEpi, Do *Anopheles* undergo senescence? August-September, 2015
Sicily
- MMEE, Paris Mathematical modelling in ecology and evolution. Estimating *Anopheline* age through a Bayesian meta-analysis, July 2015.

Experience

2010
2013

GDM Digital, and Havas Media (advertising companies), Manager.

Responsible for organising statistical analyses of advertising campaigns. The work entailed using machine learning, time series econometrics, and Bayesian statistics to estimate the return on advertising campaigns.

Consultancy

- MarketingQED, Analysed their proprietary statistical software, and provided consultancy for new
London statistical products being launched, 2014-2016.
- Sage Produced video lectures on ANOVA, and other statistical techniques.
publications,
London

References

Prof. Sir Charles Godfray

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Prof. Armand Leroi

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Prof. Helen Byrne

Mathematical Institute

University of Oxford

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Dr Ace North

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Oxford University

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