Tim CD Lucas

PERSONAL INFORMATION

email	✉ timcdlucas@gmail.com
twitter	🐦 @timcdlucas @statsforbios
website	www.ucl.ac.uk/~ucbptcl
github	www.github.com/timcdlucas
scholar	Google scholar
phone	07415 863 536

PRESENT APPOINTMENT

2016–present · **CBER Programmer**

Research Programmer

I am currently the staff programmer for the Centre of Biodiversity and Environment Research at UCL. I work on two main projects. I am working with the Madingley Model—an ecological model of all life, written in C#. My primary task is to enable this model to run on the *high performance cluster* at UCL. Secondly, I am translating code from *Mathematica to R* that performs statistical analyses for measurements of 3D objects used in *paleontological research*. I also provide technical support for the rest of the department.

EDUCATION

2012–present · **University College London, CoMPLEX**

PhD

Social structure and network epidemiology in bat zoonoses
Description: I am using *complex networks* to study the epidemiology of bat-borne diseases. As bats carry a number of important *zoonotic diseases*, understanding the spread of these diseases within the bat population and how this affects spillover to humans and livestock is increasingly important. The unusually social nature of bat populations will strongly affect how diseases spread.
Supervisors: PROF. KATE JONES & DR HILDE WILKINSON-HERBOTS

2011–2012 · **University College London, CoMPLEX**

MRes

Modelling Biological Complexity · **Merit**
Description: Projects included adapting 'ideal gas' models to acoustic data, analysing moment closures for a *pair-approximation* model of plant ecology and applying a novel *machine learning* method to a library of bat calls.

2006–2010 · **University of Sheffield, Animal & Plant Sciences**

MBioSci

Zoology · **First**
Description: For my final project I used *wavelet* analysis to study multi-annual *cycles in malaria* incidence in Thailand.

PREVIOUS APPOINTMENTS

Autumn 2014 · **Zoön: An R package for reproducible SDMs**

Internship

I wrote the first version of an R package for *reproducible* species distribution modelling. The package uses an online repository of user submitted 'modules' to allow the software to keep up with this fast moving field and allow analyses to be completely reproducible. [Github]

August 2011 · **Smithsonian Tropical Research Institute**

Volunteer Fieldwork	Two months fieldwork in Panamá on two projects: studying *Anolis* dewlap evolution and studying gut length plasticity in Red-eyed tree frogs.

May 2011   Chiloé Silvestre, Chilé

Volunteer Fieldwork	I spent two weeks trapping Darwin's foxes in Chilé to collect samples for geophylogenetics.

August 2010   University of Sheffield

Summer Internship	I studied the evolutionary response of plant communities to climate change with Dr Raj Whitlock. I collected, propagated and analysed plants collected from the field.

August 2009   University of York, YCCSA

TRANSIT Internship	I studied collective foraging behaviour by programming a *complex 3D foraging model* in Java and running simulations on a cluster at the York Centre for Complex Systems Analysis.

OTHER APPOINTMENTS AND AFFILIATIONS

Peer Review	*Journals Reviewed for:* · Methods in Ecology and Evolution, National Academy Science Letters
Society Membership	2014–present · Royal Society of Tropical Medicine and Hygiene: Student member

CONFERENCES

2015	*The Zoön Project: Reproducible, Remixable and Shareable Species Distribution Modelling with R.* Presentation at BES Annual Meeting by August T, Golding N, **Lucas TCD**, Gavaghan D, Isaac N, O'Hara B, van Loon E & McInerny G *Simple, Shareable and Reproducible Species Distribution Modelling with the Zoön R package.* Poster at BES Annual Meeting by N Golding, **Lucas TCD**, August T, Gavaghan D, Isaac N, O'Hara B, van Loon E & McInerny G *Comparative and computational studies of pathogen richness in bats.* Presentation at Research in Progress, RSTMH by **Lucas TCD**, Wilkinson-Herbots H & Jones KE. *A comparative and computational study of population structure and pathogen richness in bats.* Presentation at Epidemics5 conference by **Lucas TCD**, Wilkinson-Herbots H & Jones KE. *An ideal gas model for estimating absolute abundances from bat detector data.* Presentation at the National Bat Conference. [slides] *Pathogen diversity and bat population structure.* Poster at British Parasitological Society Autumn Meeting. *Estimating abundance from camera traps and acoustic sensors.* Presentation at CEH, Wallingford seminar series.
2014	Presentation at id2oxford conference. [slides] Poster at the CoMPLEX conference. [pdf]
2013	Presentation at BritBats 2 [slides]. Invited attendance at ecoVIZ Tansley workshop. Poster at the CoMPLEX conference and id2 conference. [pdf]

PUBLICATIONS

2016   **Lucas TCD**, Wilkinson-Herbots HM, & Jones KE. *A comparative and computational study of population structure and pathogen richness in bats.* In prep.

Curnick DJ, Koldewey HJ, **Lucas TCD**, Jones KE & Collen B. *Detecting changes in pelagic shark populations using remote cameras.* In prep.

2015   **Lucas TCD***, Moorcroft EA*, Freeman R, Rowcliffe MJ & Jones KE. (2015) *A generalised random encounter model for estimating animal density with remote sensor data.* Methods in Ecology and Evolution. doi: 10.1111/2041-210X.12346 [pdf]

2013   Walters CL, Collen A, **Lucas TCD**, Mroz K, Sayer CA and Jones KE. (2013) Challenges of Using Bioacoustics to Globally Monitor Bats. in *Bat Evolution, Ecology, and Conservation.* Springer New York. 479-499.

     * Co-first authors.

SOFTWARE

On CRAN   Goswami A, **Lucas TCD**, Sivasubramaniam P, Finarelli J (2016) *A Maximum Likelihood Approach to the Analysis of Modularity.* www.github.com/timcdlucas/EMMLi

Lucas TCD, Golding N, August T, McInerny G, van Loon E (2015) *Zoön: Reproducible, Accessible & Shareable Species Distribution Modelling.* www.github.com/zoonproject/zoon

Lucas TCD (2015) *palettetown: Use Pokemon Inspired Colour Palettes* www.github.com/timcdlucas/palettetown

TEACHING

2015 · Demonstrator for reproducible species distribution modelling workshop run by Quantitative Ecology special interest group at BES.

2013–2014 · Online tutor for SysMIC, a course for teaching quantitative skills to biologists.

COMPUTATIONAL SKILLS

Languages   R (eight years), Python, Matlab, Mathematica, Java, SQL.

OS   Comfortable with Windows, Mac or Linux.

Other   Experience in Git/Github, unit testing, LaTeX, web design, markdown, R package development, shell/ssh and high performance computing.

REFEREES

PROF. KATE JONES
Chair of Ecology and Biodiversity
Centre for Biodiversity and Environment Research
University College London
Gower Street
London
United Kingdom
WC1E 6BT

DR GREG MCINERNY
Centre for Interdisciplinary Methodologies
University of Warwick
Coventry
United Kingdom
CV4 7AL

Email: kate.e.jones@ucl.ac.uk
Tel: +44 (0)20 31084230

Email: G.McInerny@warwick.ac.uk
Tel: +44 (0)2476 574710

June 6, 2016

Email: kate.e.jones@ucl.ac.uk
Tel: +44 (0)20 31084230

Email: G.McInerny@warwick.ac.uk
Tel: +44 (0)2476 574710

June 6, 2016