

ROBIN THOMPSON

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RESEARCH POSITIONS

- 2017 – Present** **Christ Church, University of Oxford**
- Junior Research Fellowship in the Sciences
 - Conducting independent research programme including investigating the impact of individual host-level processes on the dynamics of population-level models for forecasting infectious disease epidemics
- 2016 – 2017** **Department of Zoology, University of Oxford**
- Postdoctoral research assistant in Evolutionary Epidemiology (working with Dr Katrina Lythgoe)
 - Building and analysing mathematical and computational models for the transmission and evolution of infectious diseases, with application to HIV
- 2015 – 2016** **Department of Computer Science, University of Oxford**
- Postdoctoral research assistant in Computational Biology (working with Professor David Kay and Dr Rafel Bordas)
 - Developer of Lung Chaste, a computational model of the respiratory system

EDUCATION

- 2011 – 2015** **Gonville and Caius College, University of Cambridge**
- PhD in Mathematical Biology, Department of Plant Sciences (supervised by Dr Nik Cunniffe and Professor Chris Gilligan)
 - Thesis title: Parameter inference and outbreak modelling for forecasting and optimising control of invading infectious diseases
- 2007 – 2011** **Worcester College, University of Oxford**
- MMath in Mathematics, first class honours
 - Dissertation title: Modelling cell migration and adhesion during development (supervised by Professor Ruth Baker and Dr Christian Yates)

PUBLICATIONS

- **Thompson RN**, Hart W. Confusing symptoms and infectiousness will not always disrupt forecasting and control of Ebola outbreaks. Submitted
- Suffert F, **Thompson RN**. Some empirical arguments demonstrating that the latent period varies over the course of a plant disease epidemic. Submitted
- Obolski U, Lourenco J, Thompson C, **Thompson RN**, Gori A, Gupta S. Vaccination can drive an increase in frequencies of antibiotic resistance among non-vaccine serotypes of *Streptococcus pneumoniae*. *Proc Natl Acad Sci*. In Press
- **Thompson RN**, Gilligan CA, Cunniffe NJ. Control fast or control smart: when should invading pathogens be controlled? *PLoS Comp Biol* 14: e1006014, 2018
- Raghwani J, **Thompson RN**, Koelle K. Selection on non-antigenic gene segments of seasonal influenza A virus and its impact on adaptive evolution. *Virus Evol* 3: vex034, 2017
- Kraemer MUG, Faria NR, Reiner Jr RC, Golding N, Nikolay B, Stasse S, Johansson MA, Salje H, Faye O, Wint GRW, Niedrig M, Shearer FM, Hill SC, **Thompson RN**, Bisanzio D, Taveira N, Nax HH, Pradelski BSR, Nsoesie EO, Murphy NR, Bogoch II, Khan K, Brownstein JS, Tatem AJ, de Oliveira T, Smith DL, Sall A, Pybus OG, Hay SI, Cauchemez S. Spread of Yellow Fever Virus outbreak in Angola and the Democratic Republic of Congo 2015-2016: a modelling study. *Lancet Inf Dis* 17: 330-338, 2016
- ***Thompson RN**, Gilligan CA, Cunniffe NJ. Detecting presymptomatic infection is necessary to forecast major epidemics in the earliest stages of infectious disease outbreaks. *PLoS Comp Biol* 12: e1004836, 2016
- **Thompson RN**, Cobb RC, Gilligan CA, Cunniffe NJ. Management of invading pathogens should be informed by epidemiology rather than administrative boundaries. *Ecol Model* 324: 28-32, 2016
- **Thompson RN**, Yates CA, Baker RE. Modelling cell migration and adhesion during development. *Bull Math Biol* 74: 2793-2809, 2012
- Tappin SJ, Howard TA, Hampson MM, **Thompson RN**, Burns CE. On the autonomous detection of coronal mass ejections in heliospheric imager data. *J Geophys Res* 117: A05103, 2012

* This publication was awarded the PLoS Computational Biology Research Prize 2017 for its public impact in highlighting the need for accurate diagnostic tests for Ebola

CONFERENCES AND PRESENTATIONS

Oral presentations:

- British Applied Maths Colloquium, St Andrews (Mar 2018)
- Further Maths – What Next? Oxford University outreach lecture, Oxford (Mar 2018)
- WCMB mathematical biology meeting, Oxford (Jan 2018)
- Mathematical Models in Ecology and Evolution, London (Jul 2017)
- Mathematical and Computational Evolutionary Biology, France (Jun 2017)
- Modeling Viral Infections and Immunity Keystone symposium, USA (May 2017)
- Department of Zoology infectious diseases seminar, University of Oxford (Apr 2017)
- University of Bath mathematics seminar (Mar 2017)

- Lady Margaret Hall mathematics seminar, Oxford (Feb 2015)
- Departmental mathematical epidemiology seminar, Cambridge (Jul 2014)
- International Congress of Plant Pathology, China (Aug 2013)
- Society for Mathematical Biology Annual Meeting, USA (Jun 2013)
- University of Lincoln, New Zealand (Jan 2013)
- Models in Population Dynamics and Ecology conference, Brazil (Aug 2012)
- Departmental mathematical epidemiology seminar, Cambridge (Jul 2012)
- SIAM National Student Conference, Manchester (May 2012)
- Worms and Bugs lecture series, Cambridge (Jan 2011)

Poster presentations:

- Modeling Viral Infections and Immunity Keystone symposium, USA (May 2017)
- International Epidemiology Workshop, China (Aug 2013)
- American Geophysical Union fall meeting, USA (Dec 2010)

Workshops:

- ICERM Predictive Policing Workshop, USA (Aug 2016)
- Hackout 3: analysis and modelling tools for emergency outbreak response, USA (Jun 2016)
- Dynamics of Infectious Diseases Summer School, Finland (Aug 2014)
- Gates' Epidemiology Workshop, Cambridge (Jul 2013)

PRIZES AND GRANTS

- PLoS Computational Biology Research Prize 2017 for research paper in PLoS Computational Biology with highest public impact in 2016-2017, £1800 (Nov 2017)
- Nominated for Oxford University student-led teaching award for Outstanding Tutor (Jun 2017)
- Keystone Future of Science Award of £1000 (Feb 2017)
- EPSRC vacation bursary of £2254 – for undergraduate student William Hart to undertake the project “Choosing appropriate mathematical models for planning control of invading pathogens” (Apr 2016)
- Wellcome Trust Summer Research Experience Placement bursary of £1750 – for undergraduate student Lauren Enright to undertake the project “Modelling the evolutionary epidemiology of chronic viral infections: Incorporating host heterogeneity into nested models of virus evolution” (Apr 2016)
- University of Lincoln (New Zealand) academic grant of £2000 (Dec 2012)
- Frank Smart studentship, including research award of £1000 (Nov 2012)
- “Best talk” prize – SIAM student conference, Manchester (May 2012)
- BBSRC Doctoral Training award (Oct 2011)

TEACHING

- 2017 – Present** **Christ Church, University of Oxford**
- Delivering weekly tutorials on first and second year undergraduate mathematics courses. Other responsibilities involve conducting admissions interviews and setting/marking internal examinations
- 2015 – Present** **University of Oxford**
- Research supervisor of the following projects:
 - Part C dissertation project 2017-18 “Efficient analysis of epidemiological models in which the infectiousness of each infected host is time-dependent” (William Hart)
 - Summer project 2017 “A user-friendly interface for estimating pathogen transmissibility during infectious disease outbreaks” (Jake Stockwin)
 - Part C dissertation project 2016-17 “The role of host heterogeneity in HIV evolution” (Lauren Enright)
 - Summer project 2016 “Choosing appropriate mathematical models for planning control of invading pathogens” (William Hart)
 - Summer project 2016 “Modelling the evolutionary epidemiology of chronic viral infections: Incorporating host heterogeneity into nested models of virus evolution” (Lauren Enright)
 - Visiting research student project 2015 “Modelling major epidemics of invading pathogens” (Brandi Henri)
 - Assisted running of epidemiological modelling practicals for 2nd year Biology undergraduate students
- 2014 – 2017** **Lady Margaret Hall, University of Oxford**
- Stipendiary Lectureship in Applied Mathematics. Delivered weekly tutorials on first and second year undergraduate courses including Differential Equations, Calculus of Variations, Fluid Dynamics and Mathematical Biology. Other responsibilities involved conducting admissions interviews and setting/marking internal examinations
- 2014** **University of Cambridge**
- Lectured Part IA Mathematical Biology. Delivered seven matrix modelling lectures (to 200 students) and ran associated computer programming practicals. Received top feedback from students since the course began
- 2011 – 2014** **University of Cambridge**
- Conducted weekly supervisions in Part IA Mathematical Biology for a range of colleges (ten students per year), and assisted the running of associated computer programming practicals

- Part II and Part III dissertation co-supervisor (three students)

2014 – 2015

Wellcome Trust Epidemiology Course

- Delivered three epidemiological modelling lectures in each year to policymakers and epidemiologists and ran two computing practicals

2011 – 2013

Worcester College, University of Oxford

- Non-stipendiary Lectureship in Applied Mathematics (15 students per year)

OTHER WORK EXPERIENCE

2015

Outer Temple Chambers, London

- Conducted data analysis for a high profile court case

2014

UK Government

- Internship in Department for Environment, Food and Rural Affairs
- Wrote several papers for Chief Scientific Advisor about UK-China Sustainable Agriculture Innovation Network

2011

Macquarie Securities Group, London

- Quantitative analyst internship

2010

SouthWest Research Institute, Colorado

- Wrote a computer program to track coronal mass ejections from the Sun to Earth

POSITIONS OF RESPONSIBILITY

2017 – Present

Editor, Society for Mathematical Biology Newsletter

2017

Examiner, University of Oxford

- DPhil viva examiner
- DPhil Transfer of Status viva examiner
- Examiner of MMath Part C dissertation

2013 – Present

Research grant reviewing:

- Medical Research Council

Publication reviewing:

- Scientific Reports
- Theoretical Population Biology
- Journal of Biological Systems

- Proceedings of the International Conference of Numerical Analysis and Applied Mathematics