EDWARD L. IONIDES

Department of Statistics
University of Michigan
453 West Hall
Ann Arbor MI 48109-1107

http://dept.stat.lsa.umich.edu/~ionides
email: ionides@umich.edu

RESEARCH INTERESTS

Time series analysis with applications to public health and the biological sciences. Methodology for inference on partially observed stochastic dynamic systems.

EDUCATION

1995-2001 Ph.D. in Statistics from University of California, Berkeley.

1994-1995 Master of Mathematics (passed with distinction) from Cambridge University.

1991-1994 B.A. in Mathematics (first class) from Cambridge University.

EMPLOYMENT AND PROFESSIONAL EXPERIENCE

2014-present Professor, Department of Statistics, University of Michigan.

2009-2014 Associate Professor, Department of Statistics, University of Michigan.

2002-2009 Assistant Professor, Department of Statistics, University of Michigan.

2001-2002 Visiting Assistant Professor, Department of Statistics, University of Chicago.

WORKING PAPERS

Wheeler, J., Rosengart, A. L., Jiang, Z., Tan, K., Treutle, N. and Ionides, E. L. (2023). Informing policy via dynamic models: Cholera in Haiti. *arxiv:2301.08979*.

Asfaw, K., Park, J., King, A. A., and Ionides, E. L. (2023). Partially observed Markov processes with spatial structure via the R package spatPomp. *arxiv:2101.01157v3*.

Ning, N. and Ionides, E. L. (2022). Systemic infinitesimal over-dispersion on general stochastic graphical models. *arxiv:2106.10387v2*.

PEER-REVIEWED PUBLICATIONS

Ning, N. and Ionides, E. L. (2023). Iterated block particle filter for high-dimensional parameter learning: Beating the curse of dimensionality. *Journal of Machine Learning Research* 24:1–76.

Ionides, E. L., Asfaw, K., Park, J., and King, A. A. (2023). Bagged filters for partially observed interacting systems. *Journal of the American Statistical Association* 118:1078-1089.

Ionides, E. L., Ning, N. and Wheeler, J. (2022). An iterated block particle filter for inference on coupled dynamic systems with shared and unit-specific parameters. *Statistica Sinica*, pre-published online.

Ionides, E. L. and Ritov, Y. (2022). The scientific method and p-values: Response to Mayo (2022). *Conservation Biology* 36:e13984.

King, A. A., Lin, Q., and Ionides, E. L. (2022). Markov genealogy processes. *Theoretical Population Biology* 143:77–91.

Ning, N., Ionides, E. L., and Ritov, Y. (2021). Scalable Monte Carlo inference and rescaled local asymptotic normality. *Bernoulli*, 27:2532–2555.

Park, J., and Ionides, E. L. (2020). Inference on high-dimensional implicit dynamic models using a guided intermediate resampling filter. *Statistics and Computing*, 30:1497-1522.

Subramanian, R., Romeo Aznar, V., Ionides, E., Codeço, C., and Pascual, M. (2020). Predicting re-emergence times of dengue epidemics at low reproductive numbers: DENV1 in Rio de Janeiro, 1986-1990. *Journal of the Royal Society Interface*, 17:20200273.

Kraay, A. N. M., Man, O., Levy, M. C., Levy, K., Ionides, E., Eisenberg, J. N. S. (2020). Understanding the impact of rainfall on diarrhea: Testing the concentration-dilution hypothesis using a systematic review and meta-analysis. *Environmental Health Perspectives*, 128:126001.

Kraay, A. N. M., Ionides, E. L., Lee, G. O., Cevallos Trujillo, W. F., and Eisenberg, J. N. S. (2020). Effect of childhood rotavirus vaccination on community rotavirus prevalence in rural Ecuador, 2008-2013. *International Journal of Epidemiology*, 49:1691-1701.

NeCamp, T., Sen, S., Frank, E., Walton, M. A., Ionides, E. L., Fang, Y., Tewari, A. and Wu, Z. (2020). Assessing real-time moderation for developing adaptive mobile health interventions for medical interns: Micro-randomized trial. *Journal of Medical Internet Research* 22:e15033.

Breto, C., Ionides, E. L., and King, A. A. (2019). Panel data analysis via mechanistic models. *Journal of the Americal Statistical Association*, 115:1178-1188.

Marino, J., S. Peacor, D. Bunnell, H. Vanderploeg, S. Pothoven, A. Elgin, J. Bence, J. Jiao and E. L. Ionides. (2019). Evaluating consumptive and nonconsumptive predator effects on prey density using field times series data. *Ecology*, 100:e02583.

Tapia Granados, J.A., Christine, P.J., Ionides, E.L., Carnethon, M.R., Diez Roux, A.V., Kiefe, C.I. and Schreiner, P.J., (2018). Cardiovascular risk factors, depression, and alcohol consumption during joblessness and during recessions in CARDIA young adults. *American Journal of Epidemiology*, 187:2339–2345.

Ionides, E. L., Breto, C., Park, J., Smith, R. A. and King, A. A. (2017). Monte Carlo profile confidence intervals for dynamic systems. *Journal of the Royal Society Interface* 14:1–10.

Smith, R. A., Ionides, E. L. and King, A. A. (2017). Infectious disease dynamics inferred from genetic data via sequential Monte Carlo. *Molecular Biology and Evolution* 34:2065–2084.

Koopman, J. S., Henry, C. J., Park, J. H., Eisenberg, M. C., Ionides, E. L., and Eisenberg, J. N. (2017). Dynamics affecting the risk of silent circulation when oral polio vaccination is stopped. *Epidemics* 20:21–36.

Tapia Granados, J. A. and Ionides, E. L. (2017). Population health in expansion and recession: Mortality and the Great Recession in Europe. *Health Economics*. 26:e219-e235.

Ionides, E. L., Giessing, A., Ritov, Y., and Page, S. E. (2017). Response to the ASA's statement on p-values: Context, process, and purpose. *The American Statistician* 71:88–89.

Nguyen, D., and Ionides, E. L. (2016). A second-order iterated smoothing algorithm. *Statistics and Computing* 27:1677-1692.

King, A. A., Nguyen, D. and Ionides, E. L. (2016). Statistical inference for partially observed Markov processes via the R package pomp. *Journal of Statistical Software* 69:1–43.

Tapia Granados, J. A., and Ionides, E. L. (2016). Statistical evidence shows that mortality tends to fall during recessions: A rebuttal to Catalano and Bruckner. *International Journal of Epidemiology* 45:1683–1686.

Ehsani, J. P., Ionides, E. L., Klauer, S. G., Perlus, J. G., and Gee, B. (2016). The Effectiveness of Cell Phone Restrictions for Young Drivers: A Review of the Evidence. *Transportation Research Record: Journal of the Transportation Research Board* 2602:3542

Bhadra, A. and Ionides, E. L. (2016). Adaptive particle allocation in iterated sequential Monte Carlo via approximating meta-models. *Statistics and Computing* 26:393–407.

Ionides, E. L., Nguyen, D., Atchade, Y., Stoev, S. and King, A. A. (2015). Inference for dynamic and latent variable models via iterated, perturbed Bayes maps. *Proceedings of the National Academy of Sciences of the USA* 112:719–724.

Romero-Severson, E. 0, Petrie, C. L., Ionides, E. L., Albert, J. and Leitner, T. (2015) Trends

of HIV-1 incidence with credible intervals in Sweden 2002-2009 reconstructed using a dynamic model of within-patient IgG growth. *International Journal of Epidemiology* 44:998–1006.

Romero-Severson, E. O., Volz, E., Koopman, J. S., Leitner, T. and Ionides, E. L. (2015). Dynamic variation in sexual contact rates for a cohort of HIV-negative urban gay men. *American Journal of Epidemiology* 182 255–262.

Katus, R. M., Liemohn, M. W., Ionides, E. L., Ilie, R. Welling, D. and Sarno-Smith, L. K. (2015). Statistical analysis of the geomagnetic response to different solar wind drivers and the dependence on storm intensity. *Journal of Geophysical Research: Space Physics* 120:310-327.

Larson, P. S., Minakawa, N., Dida, G. O., Njenga, S. M., Ionides, E. L. and Wilson, M. L. (2014) Insecticide-treated net use before and after mass distribution in a fishing community along Lake Victoria, Kenya: Successes and unavoidable pitfalls. *Malaria Journal* 13:466.

Tapia Granados, J. A., House, J. S., Ionides, E. L., Burgard, S. and Schoeni, R. S. (2014). Individual joblessness, contextual unemployment, and mortality risk. *American Journal of Epidemiology* 180:280-287.

Ehsani, J. P, Bingham, C. R., Ionides, E. L. and Childers, D. (2014). The short-term impact of Michigan's text messaging restriction on motor vehicle crashes. *Journal of Adolescent Health* 54:S68-S74.

Volz, E. M., Ionides, E. L., Romero Severson, E., Brandt, M., Mokotoff, E., and Koopman, J. S. (2013). HIV-1 transmission during early infection in men who have sex with men: A phylodynamic analysis. *PLoS Medicine* 10:e1001568.

Ionides, E. L., Wang, Z. and Tapia Granados, J. A. (2013). Macroeconomic effects on mortality revealed by panel analysis with nonlinear trends. *Annals of Applied Statistics* 7:13621385.

Mayer, B. T., Koopman, J. S., Henry, C. J., Gomes, G. M., Ionides, E. L. and Eisenberg, J. N. (2013). Successes and shortcomings of polio eradication: A transmission modeling analysis. *American Journal of Epidemiology* 177:1236-1245.

Roy, M., Bouma, M. J., Ionides, E. L., Dhiman, R. C., and Pascual, M. (2013). Relapse treatment and the transmission dynamics of Plasmodium vivax malaria in NW India. *PLoS Neglected Tropical Diseases* 7:e1979.

Tapia Granados, J. A., Ionides, E. L. and Carpintero, O. (2012). Climate change and the world economy: Short-run determinants of atmospheric CO_2. *Environmental Science and Policy* 21:50-62.

Chuang, T., Ionides, E. L., Knepper, R. G., Stanuszek, W. W., Walker, E. D. and Wilson, M. L. (2012). Cross-correlation map analyses show weather variation influences on mosquito abundance patterns in Saginaw county, Michigan, 1989-2005. *Journal of Medical Entomology* 49:851-858.

Ionides, E. L. (2012). Comment: Cell motility models and inference for dynamic systems. *Journal of the American Statistical Association* 107:865-868.

Lindström, E., Ionides, E. L., Frydendall, J., and Madsen, H. (2012). Efficient iterated filtering. *System Identification* 16:1785-1790.

Bretó, C., and Ionides, E. L. (2011). Compound Markov counting processes and their applications to modeling infinitesimally over-dispersed systems. *Stochastic Proccesses and Their Applications* 121:2571–2591.

Ionides, E. L., Bhadra, A., Atchadé, Y., and King, A. A. (2011). Iterated filtering. *Annals of Statistics* 39:1776–1802.

Bhadra, A., Ionides, E. L., Laneri, K., Pascual, M., Bouma, M. and Dhiman, R. C. (2011).

Malaria in Northwest India: Data analysis via partially observed stochastic differential equation models driven by Lévy noise. *Journal of the American Statistical Association* 106:440–451.

Ionides, E. L. (2011) Discussion on "Feature Matching in Time Series Modeling" by Y. Xia and H. Tong. *Statistical Science* 26:49–52.

Tapia Granados, J. A. and Ionides, E. L. (2011). Health and macroeconomic fluctuations in contemporary Sweden. *European Journal of Population* 27:157–184.

Mayer, B. T., Koopman, J. S., Ionides, E. L., Pujol, J. M. and Eisenberg, J. N. S. (2011). A dynamic dose-response model to account for exposure patterns in risk assessment: A case study in inhalation anthrax. *Journal of the Royal Society Interface* 8:506–517.

Laneri, K., Bhadra, A., Ionides, E. L., Bouma, M., Dhiman, R. C., Yadav, R. S. and Pascual, M. (2010). Forcing versus feedback: Epidemic malaria and monsoon rains in NW India. *PLoS Computational Biology* 6:e1000898.

He, D., Ionides, E. L. and King, A. A. (2010). Plug-and-play inference for disease dynamics: Measles in large and small towns as a case study. *Journal of the Royal Society Interface* 7:271–283.

Bretó, C., He, D., Ionides, E. L. and King, A. A. (2009). Time series analysis via mechanistic models. *Annals of Applied Statistics* 3:319–348.

Schweigler, L. M., Desmond, J. S., McCarthy, M., Bukowski, K., Ionides, E. L., and Younger, J. G. (2009) Forecasting models of emergency department crowding. *Academic Emergency Medicine* 15:301–308.

King, A. A., Ionides, E. L., Pascual, M. and Bouma, M. J. (2008) Inapparent infections and cholera dynamics. *Nature* 454:877–880.

Ionides, E. L. (2008). Truncated importance sampling. *Journal of Computational and Graphical Statistics* 17:295–311.

Tapia Granados, J. A. and Ionides, E. L. (2008). The reversal of the relation between economic growth and health progress: Sweden in the 19th and 20th centuries. *Journal of Health Economics* 27:544–563.

Ionides, E. L., Bretó, C. and King, A. A. (2007). Modeling disease dynamics: Cholera as a case study. Chapter 8 of *Statistical Advances in the Biomedical Sciences* (edited by A. Biswas, S. Datta, J. Fine and M. Segal). Wiley, Hoboken NJ.

Ionides, E. L., Bretó, C. and King, A. A. (2006). Inference for nonlinear dynamical systems. *Proceedings of the National Academy of Sciences of the USA* 103:18438–18443.

Greene, S. K., Ionides, E. L. and Wilson, M. L. (2006). Patterns of influenza-associated mortality among U.S. elderly from 1968 to 1998 differ by geographical region and virus strain. *American Journal of Epidemiology* 163:316–326.

Ionides, E. L. (2005). Maximum smoothed likelihood estimation. *Statistica Sinica* 15:1003–1014.

Gage, G. J., Ludwig, K., Otto, K., Ionides, E. L. and Kipke, D. (2005). Naïve coadaptive cortical control. *Journal of Neural Engineering* 2:52–63.

Ionides, E. L., Fang, K. S., Isseroff, R. R., and Oster, G. F. (2004). Stochastic models for cell motion and taxis. *Journal of Mathematical Biology 48:23–37.*

Fang, K. S., Ionides, E. L., Oster, G., Nuccitelli, R., and Isseroff, R. R. (1999). Epidermal growth factor relocalization and kinase activity are necessary for directional migration of keratinocytes in DC electric fields. *Journal of Cell Science* 112:1967–1978.

NON-REFEREED PUBLICATIONS

Koopman, J. S., Singh, P. and Ionides, E. L. (2016). Transmission modeling to enhance surveillance system function. In *Transforming Public Health Surveillance*, edited by S. J. N. McNabb et al. Elsevier.

Ionides, E. L. (2010). Discussion of "Particle Markov chain Monte Carlo methods" by C. Andrieu, A. Doucet and R. Holenstein. *Journal of the Royal Statistical Society, Ser. B.* 72:323.

Ionides, E. L. (2007). Discussion of "Parameter Estimation for Differential Equations: A Generalized Smoothing Approach," by J. O. Ramsay, G. Hooker, D. Campbell and J. Cao. *Journal of the Royal Statistical Society, Ser. B.* 69:783–784.

Gage, G. J., Ionides, E. L. and Kipke, D. (2005). Information capacity of brain machine interfaces. *27th Conference of IEEE Engineering in Medicine and Biology Society*, 2110–2113.

GRANTS

2018-2023 *Collaborative research: Urban vector-borne disease transmission demands advances in spatiotemporal statistical inference.*
Role: Lead PI.
Total award: $1,300,000.

2017-2023 *RTG: Understanding dynamic big data with complex structure.*
Role: Co-investigator (PI, Elizaveta Levina).
Total award: $2,500,000.

2014-2019 *Center for Inference and Dynamics of Infectious Diseases.*
NIH (Modeling of Infectious Disease Agent Study, Center of Excellence).
Role: Investigator (PI, Elizabeth Halloran, Fred Hutchinson Cancer Research Center).
Individual award: $624,770, estimated as 5×yr1 expenditure (total $12,000,000).

2014-2019 *Modeling the Effects of the Environment on Enteric Pathogen Dynamics.*
NIH (Modeling of Infectious Disease Agent Study, Project).
Role: Investigator (PI, Joseph Eisenberg)
Individual award: $198,580, estimated as 5×yr1 expenditure (total $2,000,000).

2013-2017 *Iterated filtering: new theory, algorithms and applications.*
NSF (Division of Mathematical Sciences).
Role: Principal Investigator.
Award: $100,000.

2014 *Industry partnership program: Sponsored internships at M-Financial.*
Society of Actuaries.
Role: Co-superviser of undergraduate interns.
Individual award: $15,000.

2012-2014 *Efficient iterated filtering: theory and practice.*
University of Michigan Associate Professor Fund.
Role: Principal Investigator.
Award: $78,039.

2008-2014 *HIV risk dynamics, genetic patterns, and control.*
NIH (R01 from National Institute of Allergy and Infectious Diseases).
Role: Co-Investigator (PI, James Koopman).
Individual award: $49,373 (total $1,621,180).

2013-2014. *Analysis of the Association Between Cell Phone Use and Motor Vehicle Crashes.*
Centers for Disease Control (CDC).

Role: Co-investigator (PI, Ray Bingham).
Individual award: $13,949 (total $100,000).

2012-2013 *The effectiveness of novice teen driver cell phone bans in reducing crashes.*
University of Michigan Injury Center Pilot Study.
Role: Principal Investigator.
Award: $25,000.

2008-2012 *Inference for dynamic systems.*
NSF (Division of Mathematical Sciences).
Role: Principal Investigator.
Award: $200,000.

2009-2012 *Mortality and Macroeconomic Conditions: Differential Vulnerability and Mechanisms.*
NIH (R21 from National Institute of Child Health & Human Development).
Role: Co-Investigator (PI, José Tapia Granados).
Individual award $128,428 (total $400,000).

2008-2012 *Research and Policy in Infectious Disease Dynamics.*
NIH (Intergovernmental Personal Act position with Fogarty International Center).
Role: Principal investigator.
Award: $80,000.

2006-2008 *Vector-transmitted diseases in a changing world: a dynamical perspective.*
Graham Environmental Sustainability Institute.
Role: Co-Investigator (PI, Mercedes Pascual).
Individual award: $32,706 (total $196,292).

2006-2008 *Cortical control using multiple signal modalities.*
NIH (R21 from National Institute of Child Health & Human Development).
Role: Co-Investigator (PI, Daryl Kipke).
Individual award $14,828 (total $333,746).

2004-2008 *Collaborative research: The interplay of extrinsic and intrinsic factors in epidemiological dynamics: Cholera as a case study.*
NSF (Ecology of Infectious Disease).
Role: Co-Principal Investigator (PI, Mercedes Pascual).
Individual award: $165,388 (total $477,577).

PROFESSIONAL ORGANIZATIONS

American Association for the Advancement of Science (elected fellow).

International Statistical Institute (elected member).

Institute of Mathematical Statistics (elected fellow).

American Statistical Association.

EDITORIAL POSITIONS

2013-2015 Associate editor for Electronic Journal of Statistics.

2007-2009 Associate editor for Annals of Statistics.

REFEREE SERVICE

Journal article review: American Journal of Epidemiology, American Mathematical Monthly, American Naturalist, Annals of Applied Statistics, Annals of Statistics, Bernoulli, Biology Let-

ters, Biometrical Journal, Biometrics, BMC Infectious Diseases, Bulletin of Mathematical Biology, Clinical Infectious Diseases, Computational Statistics & Data Analysis, Ecological Monographs, Ecology, Epidemics, Environmental Health Perspectives, European Physical Journal B (Condensed Matter and Complex Systems), Health Economics, Journal of Applied Statistics, Journal of Biological Dynamics, Journal of Biology, Journal of Mathematical Biology, Journal of Multivariate Analysis, Journal of Population Economics, Journal of Statistical Planning and Inference, Journal of the American Statistical Association, Journal of the Royal Society Interface, Journal of the Royal Statistical Society B: Statistical Methodology, Journal of the Royal Statistical Society C: Applied Statistics, Lancet Global Health, Mathematical Biosciences, Nature, Nature Communications, NPJ Digital Media, Oxford Economic Papers, Physica D: Nonlinear Phenomena, PLoS Computational Biology, Proceedings of the National Academy of Sciences of the USA, Proceedings of the Royal Society B: Biological Sciences, Scandinavian Journal of Statistics, Science, Science Advances, Signal Processing, Signal Processing Letters, Statistical Science, Statistics & Computing, Statistics & Probability Letters, Statistics Surveys, Stochastic Environmental Research and Risk Assessment, Theoretical Population Biology, Wellcome Open Research.

Books and book chapter review: Cambridge University Press, Prentice Hall, Springer-Verlag, Wiley.

Grant proposals review: NSF Computational and Data-Enabled Science and Engineering in Mathematical and Statistical Sciences; NSF Community and Population Ecology; NSF Smart and Connected Health Program; Canadian Statistical Science Institute; Massey Fund, New Zealand; Michigan Institute for Data Science; Michigan Institute for Computational Discovery and Engineering

Tenure and promotion case review: Arizona State University; Cornell University; Fred Hutchinson Cancer Research Center; Ohio State University; Pennsylvania State University; Queen's University, Ontario; University of British Columbia; University of California, Berkeley; University of Toronto, Ontario; University of Wisconsin, Madison.

DEPARTMENTAL SERVICE

2022-2023 Associate Chair for Undergraduate Studies

2014-2022 Director of Undergraduate Programs

2017-2022 Undergraduate Data Science Program Committee, member and chair

2012-2022 PhD admissions committee

2017-2021 Computing committee, chair

2018-2021 Michigan Student Symposium for Interdisciplinary Statistical Sciences (MISSISS), faculty coordinator

2019-2021 Grade review committee, member

2020 Operations under Covid, member

2020 Teaching under Covid, member

2014-2017 Computing committee, member

2015-2017 Undergraduate research committee, chair

2014-2015, 2016-2018 Undergraduate curriculum committee, chair

2013-2015 Department executive committee

2004-2011, 2013-2016 Undergraduate curriculum committee, member

2012-2017 Undergraduate advisor

2006-2014 PhD qualifying exam committee

2011, 2013, 2021, 2022 Faculty search committee

2008-2013 Incoming PhD student screening and placement exam committee

2008-2009 Outreach committee

2004-2005 Graduate curriculum committee

2002-2004 Curriculum committee

OTHER PROFESSIONAL SERVICE

2018-2023 Advisory board for EPSRC grant *New Approaches to Bayesian Data Science: Tackling Challenges from the Health Sciences* (PI, Paul Fearnhead).

2019 Instructor for a short course on *Partially observed systems: combining data with science* at University of Michigan.

2015-2023 Instructor for a short course on *Simulation-based Inference for Epidemiological Dynamics* at the annual Summer Institute in Statistics and Modeling in Infectious Diseases, University of Washington, Seattle.

2017 External PhD examiner, Department of Statistics, University of British Columbia.

2014 Organizer for BIRS meeting on *Statistics and Nonlinear Dynamics in Biology and Medicine*.

2012 Organizer for NIH-supported workshop on *Simulation-based Inference for Mechanistic Models*.

2010 External PhD examiner, Department of Mathematical Statistics, Lund University, Sweden.

2008-present Developer of R software package `pomp` for inference from Partially Observed Markov Processes, `http://cran.r-project.org`.

2008-2012 Member of RAPIDD (Research and Policy for Infectious Disease Dynamics; a program established by NIH Fogarty International Center and the Department of Homeland Security for improving the capacity to plan and respond to infectious disease threats via mathematical modeling and statistical analysis).

2008 Organizer for an invited session on *Time Series Analysis via Mechanistic Models* at JSM.

2007-2010 Member of National Center for Ecological Analysis and Synthesis (NCEAS) working group on *Inference for Mechanistic Models*, involved four meetings at NCEAS (Santa Barbara) during 2007–2010.

COURSES TAUGHT

University of Michigan: Applied Statistics II (STATS 401), Introduction to Probability (MATH/STATS 425), Analysis of Time Series (STATS 531), Applied Probability and Stochastic Modeling (STATS 620), Graduate proseminar (STATS 810).

University of Chicago: State Space Models (STATS 333), Linear Models and Experimental Design (STATS 222), Statistical Methods and their Applications (STATS 220).

PHD STUDENTS

Kidus Asfaw. *Simulation-based Inference for Partially Observed Markov Process Models with Spatial Coupling* (2021). Jointly supervised with Aaron King.

Timothy Necamp. *Design and Analysis of Sequential Randomized Trials with Applications to Mental Health and Online Education* (2019). Jointly supervised with Zhenke Wu.

Joon Ha Park. *Computational Inference Algorithms for Spatiotemporal Processes and Other Complex Models* (2018).

R. Alexander Smith. *Inference of infectious disease dynamics from genetic data via Sequential*

Monte Carlo (2018). Jointly supervised with Aaron King.

Dao Nguyen. *Iterated filtering and smoothing with application to infectious disease models* (2016).

Zhen Wang. *Topics in time series analysis with macroeconomic applications* (2012).

Anindya Bhadra. *Time series analysis for nonlinear dynamical systems with applications to modeling of infectious diseases* (2010).

Carles Bretó. *Statistical inference for nonlinear dynamical systems* (2007).

POSTDOCTORAL FELLOWS

Brandon Legried (2020-2022). NSF trainee on *Understanding dynamic big data with complex structure*, working on inferring population dynamics from genetic sequence data.

Patricia (Ning) Ning (2019-2022). NSF/NIH funded project on *Urban vector-borne disease transmission demands advances in spatiotemporal statistical inference.*

Qianying Lin (2019-2022). Michigan Institute for Data Science Institute fellowship on *Phylodynamic inference with applications to epidemiology.* Current. Jointly supervised with Aaron King.

Kevin Bakker (2018-2020). NIH postdoctoral fellowship on *Uncovering the Mechanisms Driving Seasonal Polio Incidence: A Modeling Approach Towards Endgame Strategies.* Jointly supervised with Mercedes Pascual. Now Assistant Research Scientist at University of Michigan.

Carles Bretó (2015-2018). NIH-funded project on *X-Raying High-Dimensional Infectious disease* as part of the Center for Inference and Dynamics of Infectious Diseases . Jointly supervised with Aaron King. Now Assistant Professor of Economics at University of Valencia, Spain.

John Marino (2015-2016). NSF postdoctoral fellowship on *Enhancement of ecological inference and forecasting, with applications to critical threats facing Great Lakes fisheries.* Jointly supervised with Scott Peacor. Now Assistant Professor of Biology at Bradley University.

PHD THESIS COMMITTEES

Kevin Bakker	2017	Ecology & Evolutionary Biology
Christoph Boehm	2016	Finance
Peter Boldenow	2012	Epidemiology
Clinton Carlson	2014	Civil & Envoronmental Engineering
Holly Chung	2013	Mathematics
Bryce Corrigan	2012	Political Science
Luis Fernando Chaves	2008	Ecology & Evolutionary Biology
Ting-Wu Chuang	2009	Epidemiology
Yu-Han Kao	2018	Epidemiology
Kohinoor Dasgupta	2013	Statistics
Greg Gage	2006	Bio-engineering
Rachel Gicquelais	2018	Epidemiology
Camden Gowler	2020	Ecology & Evolutionary Biology
Sharon Greene	2005	Epidemiology
Huaiying Gu	2013	Mathematics
John Haiducek	2018	Climate & Space Sciences & Engineering
Derek Hansen	2023	Statistics
James Henderson	2015	Statistics
Christopher Henry	2017	Epidemiology
Yu-Han Kao	2018	Epidemiology
Roxanne Katus	2014	Atmospheric, Oceanic & Space Sciences

Dong-Yun Kim	2003	Statistics
Alicia Kraay	2017	Epidemiology
Rohit Kulkarni	2004	Statistics
Peter Larsen	2013	Epidemiology
Sheng Li	2011	Epidemiology
Timothy Lycurgus	2021	Statistics
Olga Marchenko	2012	Statistics
Bryan Mayer	2011	Biostatistics
Bryan Moyers	2017	Bioinformatics
Hirak Parikh	2009	Bio-engineering
Caroline Parins-Fukuchi	2019	Ecology & Evolutionary Biology
Akarin Phaibulpanich	2006	Statistics
Clara Shaw	2019	Ecology & Evolutionary Biology
Krithika Suresh	2018	Biostatistics
Natalya Verbitsky	2006	Statistics
Kam Chung Wong	2017	Statistics
Azadeh Yazdan	2010	Bio-Engineering
Xubo Yue	2023	Industrial and operations engineering
Xinyu Zhang	2017	Epidemiology

UNDERGRADUATE RESEARCH PROJECTS

Kevin Tan. Differentiable Plug-and-Play Particle Filtering. Honors thesis (2023).

Bo Yang. Analysis of Panel Data via Mechanistic Models in a PanelPOMP Framework. Honors thesis (2023).

Yize Hao and Mingyuan Li. Modeling Measles in Multiple Cities. Research project (2023).

Kevin Tan and Noah Treutle. On the Transmissibility of Cholera During the 2010-2019 Haiti Cholera Epidemic. Research project (2022).

Mingxuan Ge. Redistribution of Equity Returns After The Minimum Wage Policy. Honors thesis, co-advised with Florian Gunsilius (2022).

Anna Rosengart. Modelling the 2010-2019 Haiti Cholera Epidemic. Honors thesis (2021).

Anna Rosengart and Andy Gu. Spatiotemporal epidemiology of dengue virus and the curse of dimensionality for Monte Carlo methods. Research project (2021).

Chao Péter Yang. The classical-romantic dichotomy: A machine learning approach. Honors thesis, co-advised with Daniel Forger (2021).

Yiyang Nan and Allister Ho. Modeling and data analysis to understand spatiotemporal epidemiology of dengue virus. Research project (2020).

Isabella Gierlinger and William Smith. Inference from viral genomes. Research project (2019).

Xiaotong Yang. *Fitting mechanistic models to Daphnia panel data within a panelPOMP framework*, honors thesis (2018).

Yichen Zhang. *Environmental drivers of diarrheal infection*, summer project (2017).

Haoran Chen. *Epidemiological time series analysis*, summer project (2017).

Rebecca Mukena Yumba. *Poliovirus Transmission Between Children, Teenagers and Adults: A Partially Observed Markov Process Analysis* (2016).

Hwanwoo Kim. *Topics in design and analysis of clinical trials for adaptive treatment plans* (2015). Winner of 2nd prize in the national Undergraduate Statistics Project Competition.

Xi Wu and Kelly Schmidt. *Identification of insurance companies at risk of insolvency* (2014).

Cong Zhang. *Investigating sequential Monte Carlo methods for time series analysis* (2012).

Xiaoai Chai. *Building POMP objects in R for a dynamic general stochastic equilibrium model* (2011).

Murat Ahmed. *Modeling cholera as a stochastic process* (2005).

SEMINARS, PRESENTATIONS AND WORKSHOPS

2023 Workshop on *Design and Analysis of Infectious Disease Studies*, Mathematisches Forschungsinstitut Oberwolfach, Germany; invited speaker.

2022 IMS annual meeting, London, UK; invited speaker.

2022 Workshop on *Multiscale Microbial Communities*, Institute for Mathematical and Statistical Innovation, Chicago; invited speaker.

2021 University of Warwick, Algorithms & Computationally Intensive Inference seminar.

2021 Chalmers University of Technology / University of Gothenburg, Statistics seminar.

2021 JSM, online, speaker in invited session on *High-Dimensional Parameter Learning on Spatio-Temporal Hidden Markov Models and Its Applications in Epidemiology.*

2020 Workshop on *Mathematical modeling and statistical analysis of infectious disease outbreaks*, Centre International de Rencontres Mathématiques, Luminy, France; invited speaker.

2020 University of Michigan, Statistics department seminar.

2019 Workshop on *Bayes for Health*, Lancaster, UK; invited speaker.

2019 Los Alamos National Laboratories, Center for Nonlinear Studies seminar.

2019 Ohio State University, Statistics department seminar.

2018 Workshop on *Future challenges in statistical scalability*, Isaac Newton Institute, Cambridge, UK; invited speaker.

2018 Workshop on *Design and Analysis of Infectious Disease Studies*, Mathematisches Forschungsinstitut Oberwolfach, Germany; invited speaker.

2017 Workshop on *New Perspective on State Space Models*, Casa Matemática Oaxaca, Mexico; invited speaker.

2017 JSM, Baltimore, speaker in invited session on *Advances in Spatio-Temporal Epidemiology.*

2017 University of Chicago, presentation to the Pascual and Cobey groups, Department of Ecology & Evolution.

2017 Series of six guest lectures at University of Pennsylvania, Department of Statistics, on *Likelihood-based inference for dynamic systems.*

2016 Harvard University, Statistics department seminar.

2015 London School of Hygiene and Tropical Medicine, Centre for the Mathematical Modelling of Infectious Diseases seminar.

2015 French National Institute for Agricultural Research, Research Unit in Applied Mathematics and Computer Science seminar.

2015 8th International Conference of the ERCIM WG on Computational and Methodological Statistics, London, UK; invited speaker.

2015 Workshop on *Silent Circulation during the Polio Eradication Endgame*, University of Washington, Seattle; invited participant.

2014 Workshop on *Advancing Software for Ecological Forecasting*, at the National Centre for Supercomputing Applications, University of Illinois at Urbana-Champaign; invited participant.

2014 ENAR, Baltimore; invited speaker.

2013 Workshop on *Design and Analysis of Infectious Disease Studies*, Mathematisches Forschungsinstitut Oberwolfach, Germany; invited participant.

2013 European Meeting of Statisticians, Budapest, Hungary; contributed speaker.

2013 Midwest Statistics Research Conference, University of Wisconsin, Madison; invited speaker.

2013 Research and Policy in Infectious Disease Dynamics and Emerging Pathogens Institute workshop on *Survival Analysis and Phylogenetics in Infectious Disease Epidemiology*, University of Florida; invited participant.

2013 University of Michigan, Epidemiology department seminar.

2012 JSM, San Diego; discussant for invited session.

2012 University of California, Davis, Statistics Department seminar.

2012 Mathematical Biology Institute workshop on *Statistical Inference for Mathematical Biology*, at Ohio State University; plenary speaker.

2012 Research and Policy in Infectious Disease Dynamics meeting, Washington DC; annual convocation.

2011 University of Michigan, Industrial and Operations Research department seminar.

2011 University of Michigan, Ecological Theory Group seminar.

2011 Research and Policy in Infectious Disease Dynamics meeting, Washington DC; annual convocation.

2010 IMS annual meeting, Gothenburg, Sweden; invited speaker.

2010 Research and Policy in Infectious Disease Dynamics meeting, Washington DC; annual convocation.

2009 Harvard University, Epidemiology of Infectious Diseases seminar.

2009 Midwest Statistics Research Conference, University of Chicago; invited speaker.

2009 University of Michigan, Center for Computational Medicine and Biology seminar.

2008 Duke University, Computational Biology & Bioinformatics seminar.

2008 Workshop on *Sequential Monte Carlo methods* at SAMSI, North Carolina; invited discussant.

2008 University of Cambridge Department of Engineering, Signal Processing group seminar.

2008 University of Cambridge Department of Applied Mathematics and Mathematical Physics, Mathematical Biology group seminar.

2008 Columbia University, Statistics department seminar.

2008 Pennsylvania State University, Center for Infectious Disease Dynamics, workshop on *Epidemic model hierarchies and model validation*; invited speaker.

2007 University of St Andrews, seminar for National Centre for Statistical Ecology,

2007 Cornell University, Statistics department seminar.

2007 Wayne State University, Probability and Statistics group seminar.

2007 Workshop on *Statistical Methods for Modeling Dynamic Systems*, Montreal; invited speaker.

2007 University of Cambridge, Statistics group seminar.

2007 University of Oxford, Statistics department seminar.

2007 Pennsylvania State University, Statistics department seminar.

2007 Pennsylvania State University, Center for Infectious Disease Dynamics seminar.

2007 University of Pittsburgh, Mathematical Biology group seminar.

2006 University of Michigan, Statistics department seminar.

2006 SIAM / Society for Mathematical Biology annual meeting, Raleigh, North Carolina; invited minisymposium speaker.

2006 Northwestern University, Biostatistics department seminar.

2005 Carnegie Mellon University, Statistics department seminar.

2005 NSF workshop on Ecology of Infectious Diseases at Washington, D.C.; poster presentation.

2005 Montreal statistics colloquium speaker (CRM-ISM-GERAD).

2004 Joint Statistical Meetings at Toronto; contributed presentation.

2004 IMS/Bernoulli Society meeting at Barcelona; contributed presentation.

2004 University of Western Ontario, Statistics department seminar.

2004 NSF workshop on Ecology of Infectious Diseases at Arlington, VA; participant.

2004 Workshop on Statistical Analysis of Neuronal Data at Pittsburg, PA; participant.

2003 Workshop on Point Processes - Theory and Applications, Banff International Research Station; invited speaker.

2002 University of Michigan, Statistics department seminar.

2002 University of Chicago Graduate School of Business, Econometrics and Statistics seminar.

2001 University of California, Los Angeles, Statistics department seminar.

2001 University of Chicago, Statistics department seminar.

2000 University of California, Berkeley, Statistics department Neyman seminar.