Abhishek Pandey

Contact Information

Yale School of Public Health
135 College Street, Office No: 218
New Haven, CT 06510, USA

☎ +1 203 732-7682
✉ abhishek.pandey@yale.edu

Research Interests

- Mathematical epidemiology and evolution of infectious diseases.
- Evaluating effectiveness and cost-effectiveness of public health interventions.
- Computational dynamical systems and Optimization.

Employment History

Associate Research Scientist, Oct 2016-current

Yale School of Public Health, Center for Infectious Disease Modeling and Analysis

Postdoctoral Associate, July 2014-Sept 2016

Yale School of Public Health, Center for Infectious Disease Modeling and Analysis

- Mentor: Prof. Alison Galvani

Honors

Brown Coxe Postdoctoral Fellowship, July 2015-June 2016

Education

Ph.D. in Mathematics, May 2014

Clemson University, Department of Mathematical Sciences

- Thesis: Modeling dengue transmission and vaccination
- Advisors: Dr. Jan Medlock and Dr. Anuj Mubayi

M.S. in Mathematics, May 2011

Clemson University, Department of Mathematical Sciences

- Project: Modeling and optimization of the allocation of a new dengue vaccine
- Advisor: Dr. Jan Medlock
- GPA: 4.0/4.0

M.Sc. in Applied Mathematics, May 2008

Indian Institute of Technology Roorkee, Department of Mathematics

- Dissertation: Stability of LFSR based shift registers
- Advisor: Dr. Sugat Gangopadhyay
- GPA: 7.24/10

B.Sc. in Mathematics, May 2006

Delhi University, Ramjas College

Publications

A. Pandey*, C. Wells*, A.S. Parpia, M.C. Fitzpatrick, B.H. Singer, A. Galvani. Ebola vaccination in Democratic Republic of Congo: In press at *Proceedings of National Academy of Sciences*.

A. Pandey, M.C. Fitzpatrick, A.P Galvani. Metrics and benchmarks for HIV transition-Author's reply. 10.1016/S2352-3018(19)30049-9 *Lancet HIV*.

G. Akudibillah, **A. Pandey**, J. Medlock. Optimal control for HIV treatment. 10.3934/mbe.2019018 *Mathematical Biosciences and Engineering*.

A. Galvani, **A. Pandey**, M.C. Fitzpatrick, J. Medlock, G. Gray. Defining control of the HIV pandemic. 10.1016/S2352-3018(18)30178-4 *Lancet HIV*.

K.S. Rock, M.L. Ndeffo-Mbah, S. Castano, C. Palmer, **A. Pandey**, K.E. Atkins, J.M. Ndung'u, T.D. Hollingsworth, A. Galvani, C. Bever, N. Chitnis, M.J. Keeling. Assessing strategies against gambiense sleeping sickness through mathematical modeling. 10.1093/cid/ciy018 *Clinical Infectious Diseases*.

P. Sah, M.C. Fitzpatrick, **A. Pandey**, A. Galvani. HIV criminalization exacerbates subpar diagnosis and treatment across the United States: response to the 'Association of HIV diagnosis rates and laws criminalizing HIV exposure in the United States'. 10.1097/QAD.0000000000001636 *AIDS*.

J. Medlock, **A. Pandey**, A.S. Parpia, A. Tang, L.A. Skrip, A.P. Galvani. Effectiveness of UNAIDS targets and HIV vaccination across 127 countries. 10.1073/pnas.1620788114 *Proceedings of National Academy of Sciences*.

G. Akudibillah, **A. Pandey**, J. Medlock. Maximizing the benefits of ART and PrEP in resource-limited settings . 10.1017/S0950268816002958 *Epidemiology and Infection*.

A. Pandey*, K.S. Rock*, M.L. Ndeffo-Mbah, K.E. Atkins, C. Lumbala, A. Galvani, M.J. Keeling. Data-driven models to predict the elimination of sleeping sickness in former Equateur province of DRC. 10.1016/j.epidem.2017.01.006 *Epidemics*.

A. Pandey and A. Galvani. Strategies for *Trypanosoma brucei gambiense* elimination. 10.1016/S2214-109X(16)30284-4 *The Lancet Global Health*.

M.C. Fitzpatrick, H.A. Shah, **A. Pandey**, A.M. Bilinski, M. Kakkar, A.D. Clark, J.P. Townsend, S.S. Abbas, A.P. Galvani. One Health approach to cost-effective rabies control in India. 10.1073/pnas.1604975113 *Proceedings of National Academy of Sciences*.

A. Pandey*, K. Atkins*, N. Wenzel, L. Skirp, D. Yamin, M. Ndeffo-Mbah, T. Nyenswah, M. Fallah, L. Bawo, J. Medlock, F. Altice,J. Townsend, and A. Galvani. Retrospective analysis of 2014-5 Ebola Epidemic in Liberia. 10.4269/ajtmh.15-0328 *American Journal of Tropical Medicine and Hygiene*.

T.D. Hollingsworth, E.R.Adams, [et al. including **A. Pandey**]. Qualitative analyses of modelling to support achievement of the 2020 goals for nice neglected tropical diseases. 10.1186/s13071-015-1235-1 *Parasites & Vectors*.

A. Pandey, K. Atkins, B. Bucheton, M. Camara, S. Aksoy, A. Galvani and M. Ndeffo-Mbah. Evaluating long-term effectiveness of sleeping sickness control measures in Guinea. 10.1186/s13071-015-1121-x *Parasites & Vectors*.

A. Pandey, and J. Medlock. The introduction of denuge vaccine may temporarily cause large spikes in prevalence. 10.1017/S0950268814001939 *Epidemiology and Infection*.

A. Pandey*, K. Atkins*, J. Medlock, N. Wenzel,M. Ndeffo-Mbah, J. Townsend, J. Childs, T. Nyenswah, and A. Galvani. Strategies for Containing Ebola in West

Africa. 10.1126/science.1260612 *Science*.

A. Pandey, A. Mubayi and J. Medlock. Comparing vector–host and SIR models for dengue transmission. 10.1016/j.mbs.2013.10.007 *Mathematical BioSciences*.

Selected Talks

Comparing models of dengue transmission in Thailand and variability in the estimates of R_0 among studies, SIAM Annual Meeting, Chicago, July 2014

The introduction of dengue vaccine may temporarily cause large spikes in prevalence, Spring Central AMS Sectional Meeting, Texas Tech University, April 2014.

Transient Spikes after Vaccination Introduction, The Fourth International Conference on Mathematical Modeling and Analysis, Texas Tech University, October 2013.

Comparing vector–host and SIR models for dengue transmission, The Society for Mathematical Biology Annual Meeting and Conference, Arizona State University, June 2013.

Mathematical Modeling of Dengue Transmission, Mathematical Biology Seminar, Oregon State University, November 2012.

Posters

Comparing vector–host and SIR models for dengue transmission, The Society for Mathematical Biology Annual Meeting and Conference, Tempe, Arizona, June 2013.

Bayesian MCMC Estimation for a Dengue Model, SIAM Annual Meeting, Minneapolis, Minnesota, July 2012.

Parameter Estimation and Model Selection for Dengue Transmission, DIMACS/MBI Workshop on Genetics and Disease Control, Cape Coast, Ghana, August 2011.

Parameter Estimation and Model Selection for Dengue Transmission, CBMS Mathematical Epidemiology with Applications, East Tennessee State University, July 2011.

Work Experience

Research Assistant, Spring 2014
Department of Mathematical Sciences, Clemson University
School of Public Health, Yale University
Mentor: Prof. Alison Galvani

Research Assistant, Summer 2012–Summer 2013
Department of Biomedical Sciences, Oregon State University
Mentor: Dr. Jan Medlock

Research Assistant, Fall 2009–Spring 2010
Department of Mathematical Sciences, Clemson University
Mentor: Dr. Jan Medlock

Instructor, Spring 2012, Fall 2011, Fall 2010, Fall 2013
Department of Mathematical Sciences, Clemson University

Teaching Assistant, Fall 2008–Summer 2009, Summer 2010,
Spring 2011–Summer 2011
Department of Mathematical Sciences, Clemson University

Teaching Experience

Calculus of Several Variables (Undergraduate), Fall 2013
Department of Mathematical Sciences, Clemson University

Experimental Statistics Lab (Undergraduate), Spring 2012, Fall 2011
Department of Mathematical Sciences, Clemson University

Calculus of a Single Variable (Undergraduate), Fall 2010
Department of Mathematical Sciences, Clemson University

Academic Activities

Organizer, Minisymposia: *Applications of Data-driven Models from Scientific Research to Public Health Issues*
SIAM Annual Meeting, Chicago, Illinois, July 2014

Organizer, Minisymposia: *Modeling Infectious Diseases and Control Strategies*
38^{th} Annual SIAM Southeastern Atlantic Section Conference, Florida Institute of Technology, March 2014

Member, Society of Industrial and Applied Mathematics (SIAM) and American Mathematical Society (AMS)

Class Representative, Session 2007–2008, Session 2006–2007
Department of Mathematics, Indian Institute of Technology Roorkee

Treasurer, Cognizance 2008 (Annual Technical Festival)
Department of Mathematics, Indian Institute of Technology Roorkee

Computer Skills

Operating Systems:	Windows 7/8/10, Linux
Languages:	C/C++, Python, MATLAB, R
Applications:	LaTeX, Lyx, Office, Sage, Mathematica, Berkeley-Madonna, Lindo

References

Alison Galvani, Burnett and Stender Families Professor, Epidemiology (Microbial),Yale School of Public Health, Yale University `alison.galvani@yale.edu`

Jan Medlock, Associate Professor, Department of Biomedical Sciences, Oregon State University, `jan.medlock@oregonstate.edu`

Anuj Mubayi, Assistant Professor, School of Mathematical and Natural Sciences, Arizona State University, `amubayi@asu.edu`

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