

## Dr. Swapnil Mishra

---

CONTACT INFORMATION	Imperial College London School of Public Health Norfolk Place, St Mary's Campus Paddington, London W2 1PG, AUS	Phone: +44 (0)20 7594 9222 E-mail: <a href="mailto:s.mishra@imperial.ac.uk">s.mishra@imperial.ac.uk</a> WWW: <a href="https://s-mishra.github.io/">https://s-mishra.github.io/</a>
RESEARCH INTERESTS	<b>Modeling and Predicting evolution of diseases, social media:</b> epidemiology, infectious diseases, geo-statistics, online networks, stochastic processes, machine learning, time-series prediction.	
CURRENT ACADEMIC APPOINTMENTS	<b>Research Associate, Imperial College London</b> Faculty of Medicine, School of Public Health MRC Centre for Global Infectious Disease Analysis	May 2019 to present
EDUCATION	<b>The Australian National University</b> , Canberra, AUS Ph.D., Research School of Computer Science, 2015-2019 <ul style="list-style-type: none"><li>• Thesis: <i>Linking Models for Collective Attention in Social Media</i></li><li>• Advisors: Dr. Lexing Xie and Dr. Marian-Andrei Rizoio</li></ul> Master of Computing (First class Hons.), Research School of Computer Science, 2012-2012 <ul style="list-style-type: none"><li>• Topic: <i>Implementation and Experiments with Novel Parallel and Bursty Non-parametric Topic Models</i></li><li>• Advisor: Professor Wray Buntine</li></ul> <b>Maharashtra Institute of Technology</b> , Pune, India B.E , Computer Engineering, 2005-2009 <ul style="list-style-type: none"><li>• Prof.Savita Kulkarni</li></ul>	
PUBLICATIONS	<ul style="list-style-type: none"><li>[1] Seth Flaxman*, <b>Swapnil Mishra*</b>, Axel Gandy*, H. Juliette T. Unwin, Thomas A. Mellan, Helen Coupland, Charles Whittaker, Harrison Zhu, Tresnia Berah, Jeffrey W. Eaton, Mélodie Monod, Imperial College COVID-19 Response Team, Azra C. Ghani, Christl A. Donnelly, Steven M. Riley, Michaela A. C. Vollmer, Neil M. Ferguson, Lucy C. Okell, Samir Bhatt* "Estimating the effects of non-pharmaceutical interventions on COVID-19 in Europe." <i>Nature</i>, 2020.</li><li>[2] Lucy C Okell, Robert Verity, Oliver J Watson, <b>Swapnil Mishra</b>, Patrick Walker, Charlie Whittaker, Aris Katzourakis, Christl A Donnelly, Steven Riley, Azra C Ghani, Axel Gandy, Seth Flaxman, Neil M Ferguson, Samir Bhatt a "Have deaths from COVID-19 in Europe plateaued due to herd immunity?" <i>The Lancet</i>, 2020.</li><li>[3] Patrick G. T. Walker, Charles Whittaker, Oliver J Watson, <b>Swapnil Mishra</b>, Imperial College COVID-19 Response Team, Azra C. Ghani, Christl A. Donnelly, Steven M. Riley, Neil M. Ferguson "The impact of COVID-19 and strategies for mitigation and suppression in low- and middle-income countries" <i>Science</i>, 2020.</li><li>[4] Darlan S. Candido, Ingra M. Claro, Jaqueline G. de Jesus, William M. Souza, Filipe R. R. Moreira, Simon Dellicour, Thomas A. Mellan, others, <b>Swapnil Mishra</b>, Oliver G. Pybus, Ester C. Sabino, Nuno Rodrigues Faria "Evolution and epidemic spread of SARS-CoV-2 in Brazil." <i>Science</i>, 2020.</li><li>[5] Enrico Lavezzo, Elisa Franchin, Constanze Ciavarella, others, <b>Swapnil Mishra</b>, Imperial College COVID-19 Response Team, Christl A. Donnelly, Neil M. Ferguson, Ilaria Dorigatti, Andrea Crisanti "Suppression of a SARS-CoV-2 outbreak in the Italian municipality of Vo" <i>Nature</i>, 2020.</li></ul>	

- [6] **Swapnil Mishra** “Linking Models for Collective Attention in Social Media.” *PhD Thesis, Canberra, AUS, 2019.*
- [7] **Swapnil Mishra** “Bridging Models for Popularity Prediction on Social Media.” *In ACM International Conference on Web Search and Data Mining (WSDM '19), Melbourne, AUS, 2019.*
- [8] **S Mishra**, MA Rizoio, L Xie “Modeling Popularity in Asynchronous Social Media Streams with Recurrent Networks.” *In International AAAI Conference on Web and Social Media (ICWSM '18), Stanford, CA, USA, 2018.*
- [9] MA Rizoio, **S Mishra**, Q Kong, M Carman, L Xie “SIR-Hawkes: on the Relationship Between Epidemic Models and Hawkes Point Processes.” *Proceedings of the 27th International Conference on World Wide Web 2018, WWW'18, Lyon.*
- [10] MA Rizoio, Y Lee, **S Mishra**, L Xie “A Tutorial on Hawkes Processes for Events in Social Media.” *Book Chapter, Research Frontier of Multimedia, Morgan & Claypool.*
- [11] **S Mishra**, MA Rizoio, L Xie “Feature driven and point process approaches for popularity prediction.” *Proceedings of the 25th ACM International on Conference on Information and Knowledge Management, CIKM'16, Indianapolis.*
- [12] W Buntine.,**S Mishra.** “Experiments with non-parametric topic models.” *Proceedings of the 20th ACM SIGKDD international conference on Knowledge discovery and data mining, KDD'14, NY.*
- [13] W Buntine.,**S Mishra.** “Developing Topic Models for Information Retrieval.” *NIPS 2013 Topic modelling workshop, Lake Tahoe, Nevada US.*
- [14] **Swapnil Mishra\***, Seth Flaxman\*, Samir Bhatt\* “ $\pi$  VAE: Encoding stochastic process priors with variational autoencoders.”
- [15] **Swapnil Mishra\***, Tresnia Berah\*, Thomas A. Mellan\*, H. Juliette T. Unwin, Michaela A Vollmer, Kris V Parag, Axel Gandy, Seth Flaxman, Samir Bhatt\* “On the derivation of the renewal equation from an age-dependent branching process: an epidemic modelling.”
- [16] H. Juliette T. Unwin, Isobel Routledge, Seth Flaxman, Marian-Andrei Rizoio, Shengjie Lai, Justin Cohen, Daniel J. Weiss, **Swapnil Mishra\***, Samir Bhatt\* “Using Hawkes Processes to model imported and local malaria cases in near-elimination settings.”
- [17] H. Juliette T. Unwin\*, **Swapnil Mishra\***, Valerie C. Bradley\*, Axel Gandy\*, Thomas A. Mellan, Helen Coupland, Imperial COVID Response Team, Samir Bhatt \*, Seth Flaxman\* “State-level tracking of COVID-19 in the United States.”
- [18] Iwona Hawryluk, Thomas A Mellan, Henrique H Hoeltgebaum, **Swapnil Mishra**, Ricardo Schnekenberg, Charles Whittaker, Harrison Zhu, Axel Gandy, Seth Flaxman, Samir Bhatt “Inference of COVID-19 epidemiological distributions from Brazilian hospital data.”
- [19] Thomas A Mellan\*, Henrique H Hoeltgebaum\*, **Swapnil Mishra\***, Charlie Whittaker\*, Ricardo P Schnekenberg\*, Axel Gandy\*, Imperial COVID Response Team, Seth Flaxman\*, Samir Bhatt\* “Estimating COVID-19 cases and reproduction number in Brazil”
- [20] Michaela AC Vollmer, Ben Glampson, Thomas A Mellan, **Swapnil Mishra**, Luca Mercuri, Ceire Costello, Robert Klaber, Graham Cooke, Seth Flaxman, Samir Bhatt “A unified machine learning approach to time series forecasting applied to demand at emergency departments”

PUBLICATIONS:  
UNDER REVIEW

#### ADVISORY ROLE

Part of Advisory group to New York State for COVID-19 response, 2020  
Expert Advisor to Herbet Smith Freehills for COVID-19 response, 2020

#### AWARDS

ICWSM Student Travel Award (2018)  
ANU Vice Chancellor Travel Grant (2018)  
CIKM Student Travel Grant (2016)  
KDD Student Travel Grant (2014)  
ABU Robocon Misumi Sponsors Award  
ABU Robocon Mabuchi Motor Award

#### WORK EXPERIENCE

<b>Research Assistant</b> Research School of Computer Science, Australian National University Supervisor: Dr. Lexing Xie	Feb 2015 to May 2019
<b>Research Assistant</b> Optimisation Research Group, NICTA(Data61) Supervisors: Dr. Lexing Xie	Jul 2014 to Nov 2014
<b>Research Assistant</b> Machine Learning Research Group, Australian National University Supervisors: Prof. Wray Buntine	Nov 2012 to Jun 2014
<b>System Engineer</b> Decision Science, Infosys Ltd, Bangalore Client: Bank of America	Jul 2009 to Jul 2011

#### TEACHING EXPERIENCE

**Co-Lecturer**, 2018.7-2018.11, 2017.7-2017.11  
Australian National University, Canberra, AUS,  
Introduction to Programming for Data Scientists, COMP2420/6420, Semester 2.

**Co-Developer and Co-Lecturer**, 2018.2-2018.7  
Australian National University, Canberra, AUS,  
Introduction to Data Management, Analysis and Security, COMP2420/6420, Semester 1.

**Teaching Assistant**, 2017.7-2017.11, 2016.7-2016.11, 2014.7-2014.11, 2013.7-2013.11  
Australian National University, Canberra, AUS,  
Document Analysis, COMP4650/6490, Semester 2.

#### REFERENCES

<b>Prof. Lexing Xie</b> Professor Research School of Computer Science The Australian National University	Phone: +61 (0)2 6125 1646 E-mail: <a href="mailto:lexing.xlx@anu.edu.au">lexing.xlx@anu.edu.au</a>
---	---

**Dr. Samir Bhatt**

Senior Lecturer  
Faculty of Medicine, School of Public Health  
Imperial College London

Phone: +44 (0)20 7594 5029  
*E-mail:* [s.bhatt@imperial.ac.uk](mailto:s.bhatt@imperial.ac.uk)

**Dr. Seth Flaxman**

Senior Lecturer  
Faculty of Natural Sciences, Department of Mathematics  
Imperial College London

*E-mail:* [s.flaxman@imperial.ac.uk](mailto:s.flaxman@imperial.ac.uk)