SOUMIK PURKAYASTHA

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Education

University of Michigan, Dept. of Biostatistics *Sep. 2019 - Apr. 2024 (expected)*
PhD in Biostatistics, Advisor: Peter X. K. Song

University of Michigan, Dept. of Biostatistics *Sep. 2019 - Apr. 2021*
MS in Biostatistics. **GPA 4.0+**

Indian Statistical Institute *July 2017 - June 2019.*
MS in Statistics, with specialization in Biostatistics. **GPA 4.0**

St. Xavier's College (Autonomous), Kolkata *July 2014 - June 2017.*
BS (Hons), major in statistics and minors in math and computer science. **GPA 4.0**

Publications and pre-prints

h-index: 9 (Google scholar); † denotes equal contribution.

Peer-reviewed publications

12. Salvatore, M.†, **Purkayastha, S.**†, Ganapathi, L., Bhattacharyya, R., Kundu, R., Zimmermann, L., Ray, D., Hazra, A., Kleinsasser, M., Solomon, S. and Subbaraman, R. and Mukherjee, B. *Lessons from SARS-CoV-2 in India: A data-driven framework for pandemic resilience.* **Science Advances**, 8(24), 2022. doi: 10.1126/sciadv.abp8621.
11. Bhaduri, R., Kundu, R., **Purkayastha, S.**, Kleinsasser, M., Beesley, L.J., Mukherjee, B. and Datta, J., *Extending the susceptible - exposed - infected - removed (SEIR) model to handle the false negative rate and symptombased administration of COVID19 diagnostic tests: SEIRfansy.* **Statistics in medicine**, 41(13), 2022. doi: 10.1002/sim.9357. Software: github.com/umich-biostatistics/SEIRfansy.
10. Zimmermann, L., Bhattacharya, S., **Purkayastha, S.**, Kundu, R., Bhaduri, R., Ghosh, P. and Mukherjee, B. *SARS-CoV-2 Infection Fatality Rates in India: Systematic Review, Meta-Analysis and Model-Based Estimation.* **Studies in Microeconomics** 9(2), 2021. doi: 10.1177/2321022211054324.
9. **Purkayastha, S.**, Kundu, R., Bhaduri, R., Barker, D., Kleinsasser, M., Ray, D. and Mukherjee, B. *Estimating the wave 1 and wave 2 infection fatality rates from SARS-CoV-2 in India.* **BMC Research Notes** 14(262), 2021. doi: 10.1186/s13104-021-05652-2.
8. **Purkayastha, S**, Bhattacharyya, R., Bhaduri, R., Kundu, R., Gu, X., Salvatore, M., Mishra, S. and Mukherjee, B. *A comparison of five epidemiological models for transmission of SARS-CoV-2 in India.* **BMC Infectious Diseases**, 533, 2021. doi: 10.1186/s12879-021-06077-9.
7. Salvatore, M., Basu, D., Ray, D., Kleinsasser, M., **Purkayastha, S**, Bhattacharyya, R., and Mukherjee, B. *Comprehensive public health evaluation of lockdown as a non-pharmaceutical in-*

tervention on COVID-19 spread in India: national trends masking state-level variations. **BMJ Open**, 10(12), 2021. doi: 10.1136/bmjopen-2020-041778.

6. **Purkayastha, S.** and Song P.X.K. *Discussion on The timing and effectiveness of implementing mild interventions of COVID-19 in large industrial regions via a synthetic control method by Tian et al.* **Statistics and Its Interface** 14(1), 2021. doi: 10.4310/20-SII652.
5. Tang, L., Zhou, Y., Wang, L., **Purkayastha, S.**, Zhang, L., He, J., Wang, F. and Song, P. X. K. *A Review of Multi-Compartment Infectious Disease Models.* **International Statistical Review** 88(2), 2020. doi: 10.1111/insr.12402.
4. **Purkayastha, S.**, Salvatore, M. and Mukherjee, B. *Are women leaders significantly better at controlling the contagion during the COVID-19 pandemic?* **Journal of Health and Social Sciences** 5(2), 2020. doi: 10.1101/2020.06.06.20124487.
3. Zhou, Y., Wang, L., Zhang, L., Shi, L., Yang, K., He, J., Zhao, B., Overton, W., **Purkayastha, S.**, and Song, P. X. K. *A spatiotemporal epidemiological prediction model to inform county-level COVID-19 risk in the United States.* **Harvard Data Science Review** Special Issue 1, 2020. doi: 10.1162/99608f92.79e1f45e.
2. Ray, D., Salvatore, M., Bhattacharyya, R., Wang, L., Du, J., Mohammed, S., **Purkayastha, S.**, Halder, A., Rix, A., Barker, D., Kleinsasser, M., Zhou, Y., Bose, D., Song, P.X.K., Banerjee, M., Baladandayuthapani, V., Ghosh, P. and Mukherjee, B. *Predictions, Role of Interventions, and Effects of a Historic National Lockdown in Indias Response to the COVID-19 Pandemic: Data Science Call to Arms.* **Harvard Data Science Review**, Special Issue 1, 2020. doi: 10.1162/99608f92.60e08ed5.
1. Giri, S., **Purkayastha, S.**, Hazra, S., Chanda, A., Das, I. and Das, S. *Prediction of monthly Hilsa (Tenualosa ilisha) catch in the Northern Bay of Bengal using Bayesian structural time series model.* **Regional Studies in Marine Science** 39, 2020. doi: 101456: 10.1016/j.rsma.2020.101456.

Under peer-review

3. **Purkayastha, S.** and Song, P.X.K. *fastMI: a fast and consistent copula-based estimator of mutual information.* 2022. doi: 10.48550/arXiv.2212.10268. Software: github.com/soumikp/fastMI.
2. **Purkayastha, S.** and Song, P.X.K. *Asymmetric predictability in causal discovery: an information theoretic approach.* 2022. doi: 10.48550/arxiv.2210.14455. Software: github.com/soumikp/DMI.
1. **Purkayastha, S.** and Basu, A. *On minimum Bregman divergence inference.* 2021. doi: 10.48550/arXiv.2008.06987.

Professional experience

2. **Apple Inc.**, Cupertino, USA: *Statistical analyst intern* May 2021 - August 2021
1. **Walmart Labs**, Bangalore, India: *Statistical analyst intern* May 2018 - July 2018

Teaching

3. Lecturer, Summer Institute in Biostatistics (SIBS) Program, University of Michigan
   Introduction to linear regression (39 participants) 2022
2. Lecturer, Summer Institute in Biostatistics (SIBS) Program, University of Michigan
   Introduction to probability theory (39 participants) 2022
1. Grader, University of Michigan
   BIOS 802: Advanced Inference II (25 students) 2021

Honors and awards

7. *University of Michigan*: **Rackham Predoctoral Fellowship**. 2023+
6. *University of Michigan*: **Richard G. Cornell Fellowship**. 2021
5. *University of Michigan*: **Michigan Data Science Challenge Winner**. 2019
4. *Indian Statistical Institute*: **Sabyasachi Roy Memorial Gold Medal**. 2019
3. *Indian Statistical Institute*: **Scholarship for academic performance**. 2017-19
2. *St. Xavier's College*: **Best undergraduate degree dissertation**. 2017
1. *Indian Science Congress Association*: **Poster presentation award**. 2016

Professional service

Peer review

3. Annals of Applied Statistics 2022+
2. New England Journal of Statistics in Data Science 2022+
1. PLOS One 2021+

Affiliations

4. International Biometric Society, Western North American Region (WNAR) 2022+
3. American Statistical Association 2021+
2. Institute of Mathematical Statistics 2021+
1. International Biometric Society, Eastern North American Region (ENAR) 2021+

University service

2. STATCOM: Statistics in the community, Co-president 2022 –
1. Seminars and Brown Bag Committee 2020-2022

Selected press

5. Bastian, H., *Women Versus Men Leaders in the Pandemic: An Update and Dig Into the Latest*

Data. **PLOS Blogs**, 2022. url: https://absolutelymaybe.plos.org/2022/06/28/women-versus-men-leaders-in-the-pandemic-an-update-and-dig-into-the-latest-data/

4. Laguipo, A., *A study of the COVID fatality rates in India during waves 1 and 2.* **News-Medical.Net**, 2021. url: https://www.news-medical.net/news/20210603/A-study-of-the-COVID-fatality-rates-in-India-during-waves-1-and-2.aspx
3. Mukherjee, B., **Purkayastha, S.**, Salvatore, M., Mishra, S. *Underreporting does hurt the COVID fight.* **The Hindu**, 2021. url: https://www.thehindu.com/opinion/lead/under-reporting-does-hurt-the-covid-fight/article34474676.ece
2. Ellis-Petersen, H. *India's 1.3bn population locked down to beat coronavirus.* **The Guardian**, 2021. url: https://www.theguardian.com/world/2020/mar/24/indias-13bn-population-locked-down-to-beat-coronavirus
1. Basu, D., Salvatore, M., Kleinsasser, M., Purkayastha, S., Bhattacharya, R., and Mukherjee, B., *We're Focusing on National Data on COVID-19 When We Should Be Looking at State-Level Trends* **The Wire**, 2020. url: https://thewire.in/health/covid-19-india-national-data-state