

# FAN BU

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<https://fanbu1995.github.io>

## PROFESSIONAL AFFILIATIONS

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### Tenure-track Assistant Professor

Jan 2024 - present

Department of Biostatistics, University of Michigan - Ann Arbor

### Postdoctoral Scholar

Aug 2021 - Dec 2023

Department of Biostatistics, University of California - Los Angeles

Supervisor: Dr. Marc Suchard

### Visiting Scholar

Sept 2022 - Nov 2022

Simons Institute, University of California - Berkeley

### Research Intern

May 2020 - Aug 2020

Duke Center for AIDS Research

## EDUCATION

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### Department of Statistical Science, Duke University

2017 - 2021

Ph.D. in Statistics; Dissertation: Stochastic Process Models on Dynamic Networks

Advisor: Dr. Alexander Volfovsky

### School of Mathematical Sciences, Peking University

2013 - 2017

B.S. in Mathematics and Applied Mathematics

## PUBLICATIONS & PREPRINTS

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† denotes student mentee

### Statistical Methodology:

N. Hartman and **F. Bu**. Joint Models for Health Services Delivery During Infectious Disease Epidemics (2025+). *Under review*.

P. Chatha†, **F. Bu**, J. Regier, E. Snitkin, and J. Zelner. Neural Posterior Estimation for Stochastic Epidemic Modeling (2025+). *Under revisions*.

**F. Bu**, A. E. Aiello, A. Volfovsky, and J. Xu. Stochastic EM algorithm for partially observed stochastic epidemics with individual heterogeneity (2025). *Biostatistics*.

**F. Bu**, J. Kagaayi, M. K. Grabowski, J. Xu, and O. Ratmann. Inferring HIV Transmission Patterns from Viral Deep-Sequence Data via Latent Spatial Poisson Processes (2024). *Biometrics*. (Winner of 2024 ISBA Biostats and Pharma Best Paper Award.)

**F. Bu**, M. J. Schuemie, A. Nishimura, L. H. Smith, K. Kostka, T. Falconer, J. A. McLeggon, P. B. Ryan, G. Hripcsak, and M. A. Suchard. Bayesian Safety Surveillance with Adaptive Bias Correction (2023). *Statistics in Medicine*.

M. Schuemie, **F. Bu**, A. Nishimura and M. Suchard. Adjusting for Both Sequential Testing and Systematic Error in Safety Surveillance using Observational Data: Empirical Calibration and MaxSPRT (2023). *Statistics in Medicine*.

**F. Bu**, A. E. Aiello, J. Xu, and A. Volfovsky. Likelihood-based Inference for Partially Observed Epidemics on Dynamic Networks (2020). *Journal of the American Statistical Association* (Winner of 2020 ASA SBSS Student Paper Award.)

**F. Bu** , S. Xu, K. Heller, and A. Volfovsky. SMOGS: Social Network Metrics of Game Success (2019). *The 22nd International Conference on Artificial Intelligence and Statistics (AISTATS)*.

W. Zhang, **F. Bu** , D. Owen-Oas, K. Heller, and X. Zhu. Who Started It? Identifying Root Sources in Textual Conversation Threads (2018). *arXiv:1809.03648*.

### Scientific / Collaborative:

S. Chattopadhyay, **F. Bu** , M. J. Schuemie, J. A. McLeggon, E. Westlund, G. Hripcsak, P. Ryan, M. A. Suchard. Comparative performance of the concurrent comparator design with existing vaccine safety surveillance approaches on real-world observational health data (2025+). *Under review*.

C. Kim, **F. Bu** , C. Blacketer, A. Ostropolets, [...], and Y. Lu. Comparative safety of second-Line antihyperglycemic agents in older adults with type 2 diabetes: a multinational real-world evidence from LEGEND-T2DM (2025+). *Under review*.

C. Reyes, T. Duarte-Salles, A. Pistillo, **F. Bu** , [...], and M. A. Suchard. Gastrointestinal Adverse Effects of Second-Line Anti-Diabetic Drugs: A Federated Cohort Study (2025+). *Under revisions*.

L. Rountree<sup>†</sup>, G. Tong, **F. Bu** , M. Ranney, and B. Mukherjee. Association of COVID-19 outcomes with measures of institutional and interpersonal trust: An ecological analysis using national data from 61 countries (2025). *Nature Scientific Reports*.

V. Obregon-Perko, A. Awasthi, R. Barfield, [...], **F. Bu** , [...], and A. Chahroudi. Biomarkers for viral rebound timing and control post-ART in SHIV-infected infant macaques (2025). *Science Translational Medicine* (accepted with minor revisions).

D. Morales, **F. Bu** , B. Viernes, [...], and M. A. Suchard. Risk of thyroid tumours with glucagon-like peptide-1 receptor agonists: international cohort study (2025). *Diabetes Care*.

L. Rountree<sup>†</sup>, Y.T. Lin, C. Liu, M. Salvatore, A. Admon, B. K. Nallamotheu, K. Singh, A. Basu, **F. Bu** , B. Mukherjee. Reporting of Fairness Metrics in Clinical Risk Prediction Models: A Call for Change to Ensure Equitable Precision Health Benefits for All (2025). *Online Journal of Public Health Informatics*.

C. Cai, M. Hribar, Sally Baxter, [...], **F. Bu** , [...], and Patrick B. Ryan. Semaglutide and Nonarteritic Anterior Ischemic Optic Neuropathy (2025). *JAMA Ophthalmology*.

**F. Bu** , E. Minty, A. Aminorroaya, C. Blacketer, [...], and M. A. Suchard. Multi-national Patterns of Individual Cardioprotective Agents as Second-line Treatments for Type 2 Diabetes Mellitus: a LEGEND-T2DM Study (2024). *Proceedings of the 2025 OHDSI Global Symposium*.

R. Khera, A. Aminorroaya, L. S. Dhingra, P. M. Thangaraj, A. P. Camargos, **F. Bu** , [...], and M. A. Suchard. Comparative Effectiveness of Second-line Antihyperglycemic Agents for Cardiovascular Outcomes: A Large-scale, Multinational, Federated Analysis of the LEGEND-T2DM Study (2024). *Journal of the American College of Cardiology*.

C. Cai, A. Nishimura, M. Bowring, [...], **F. Bu** , [...], and Patrick B. Ryan. Similar risk of kidney failure among patients with blinding diseases who receive ranibizumab, aflibercept, and bevacizumab (2024). *Ophthalmology Retina*.

**F. Bu** , F. Arshad, G. Hripcsak, P. B. Ryan, M. J. Schuemie, and M. A. Suchard. Response to Comments on “Serially Combining Epidemiological Designs Does Not Improve Overall Signal Detection in Vaccine Safety Surveillance” (2024). *Drug Safety*.

T. V. Anand, **F. Bu** , M. J. Schuemie, M. A. Suchard, and G. Hripcsak. Comparative safety and effectiveness of angiotensin converting enzyme inhibitors and thiazides and thiazide-like diuretics under strict monotherapy (2024). *Journal of Clinical Hypertension*.

R. Khera, L.S. Dhingra, A. Aminorroaya, [...], **F. Bu**, [...], and M. A. Suchard. Multinational patterns of second line antihyperglycaemic drug initiation across cardiovascular risk groups: federated pharmacoepidemiological evaluation in LEGEND-T2DM (2023). *BMJ medicine*.

F. Arshad, M. J. Schuemie, **F. Bu**, [...], and M. A. Suchard. Serially Combining Epidemiological Designs Does Not Improve Overall Signal Detection in Vaccine Safety Surveillance (2023). *Drug Safety*.

E. A. Voss, A. Shoaibi, L. Y. H. Lai, [...], **F. Bu**, [...], and P. B. Ryan. Contextualising adverse events of special interest to characterise the baseline incidence rates in 24 million patients with COVID-19 across 26 databases: a multinational retrospective cohort study (2023). *EClinicalMedicine*.

R. Asencio, **F. Bu**, L. Tucker, G. Varela, J. Moody, and A. Volfovsky. Network Position and Emergent Phenomena: A Multi-team System Case Study (2022+). *Under revisions*.

## AWARDS & HONORS

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2024 ISBA Biostats and Pharma Best Paper Award. *February 2025*  
For “Inferring HIV Transmission Patterns from Viral Deep-Sequence Data via Latent Spatial Poisson Processes”

Blackwell-Rosenbluth Award (for outstanding early-career statisticians) *November 2024*  
by the International Society for Bayesian Analysis.

OHDSI Best Collaborator Showcase for clinical application (nominated). *October 2024*

OHDSI Titan Award for Methodological Research. *October 2022*

Mentorship of Excellence award for 2022 UCLA B.I.G. summer research program. *August 2022*

ISBA World Meeting travel award. *June 2022*

Duke CFAR Fall Retreat Best Poster Award. *October 2020*

American Statistical Association Section on Bayesian Statistical Science (ASA SBSS) *August 2020*  
Student Paper Award.  
For “Likelihood-based Inference for Partially Observed Epidemics on Dynamic Networks”

Joint Statistical Meetings travel award. *August 2020*

Honorable Mention for Ph.D. Teaching Assistant for the Year. *May 2020*

Women in Machine Learning Workshop (WiML) travel award. *December 2017*

## RESEARCH GRANTS & AWARDS

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US FDA CBER BEST Initiative, 75F40120D00039 *Sep 2024 - March 2025*  
“OHDSI-based FDA BEST Community Engagement and Development Coordination Center”  
Role: UM site PI (lead PI: George Hripcsak, Columbia University)

Bill & Melinda Gates Foundation, INV-077867 *Aug 2024 - Aug 2026*  
“Comparative Effectiveness of Different Dosing Schedules of PCV in Brazil”  
Role: UM site PI (lead PI: Kayoko Shioda, Boston University)

MIDAS Propelling Original Data Science (PODS) program *Aug 2024 - July 2025*  
“Neural Posterior Estimation (NPE) approaches for fitting high-dimensional stochastic epidemic models to real-world spatiotemporal disease data”  
Role: dual PI (with Jon Zelner, University of Michigan)

US CDC NCIRD U01, IP001138 *Jan 2025 - Aug 2025*

“Data driven transmission models to optimize influenza vaccination and pandemic mitigation strategies”  
Role: co-I (PI: Jon Zelner, University of Michigan)

## PROFESSIONAL SERVICE

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### Professional Societies:

Program Chair for *Biopharmaceutical section of the International Society for Bayesian Analysis*. January 2025 - present

Associate Chair for *ENAR Social Media Committee* September 2023 - December 2024

Program Chair for *the junior section of the International Society for Bayesian Analysis (j-ISBA)*. January 2022 - December 2023

### Editorial and Review Responsibilities:

Member for Book of OHDSI Committee. March - December 2025

Judge for ASA SBSS student paper competition. October - December 2024

Scientific Review Committee member for 2024 OHDSI Global Symposium. March - October 2024

Co-editor for BaYSM 2023 proceedings, “*New trends in Bayesian Statistics*”. May - December 2024

Grant proposal reviewer for UKRI. February 2024

**Journal reviewer** for: *The Proceedings of the National Academy of Sciences (PNAS)*, *Nature Communications*, *Nature Cardiovascular Research*, *Journal of the American Statistical Association (JASA)*, *Biometrics*, *Annals of Applied Statistics (AOAS)*, *Journal of Computational and Graphical Statistics (JCGS)*, *Statistics in Medicine*, *Biostatistics*, *Bayesian Analysis*, *Statistical Science*, *Communications in Statistics*, *Science Advances*, *Environmental and Ecological Statistics*, *Statistics and Public Policy*, and *Statistics and Computing*.

**Conference reviewer** for: *Uncertainty in Artificial Intelligence (UAI) 2024*.

### Conference Organization:

Scientific Programme Committee member for CFE-CMStatistics 2025 March - December 2025

Scientific Programme Committee member for CFE-CMStatistics 2024 April - December 2024

Organizing Committee member for BIRS-CMO Workshop “Frontiers of Bayesian Inference and Data Science”. December 2023 - September 2024

Organizing Committee member for 2024 ISBA EAC conference. February - June 2024

Invited session (j-ISBA sponsored) organizer for Joint Statistical Meetings (JSM) 2024 December 2023 - August 2024

Organizing Committee member for Bayesian Young Statisticians Meeting (BaYSM) 2023. May - November 2023

### Internal & Miscellaneous:

Faculty judge for *Michigan Student Symposium for Interdisciplinary Statistical Sciences (MSSISS)* March 2025

Chair of seminar committee for UM Biostatistics. September 2024 - August 2025

J-FAB committee member for UM School of Public Health. September 2023 - August 2025

Judge for *Duke Datathon*.

*October 2020 & 2021*

Consultant for *DataFest: COVID-19 Virtual Data Challenge*.

*April 2020*

Consultant for *ASA DataFest @ Duke*.

*April 2018 & April 2019*

## TEACHING & MENTORING

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### While at University of Michigan:

Ph.D. committee member for:

Prayag Chatta (Statistics), Leyao Zhang (Biostatistics), Mingyan Yu (Biostatistics), Tasmine Clement (Bioinformatics), and Troy (Zirui) Zhou (Epidemiology).

*Biostatistics 602: Biostatistical Inference.*

*Winter 2025*

*Biostatistics 602: Biostatistical Inference.*

*Winter 2024*

### While at UCLA:

Instructor for OHDSI Tutorials at the 2023 Global Symposium.

*Fall 2023*

Mentor for the 2022 *B.I.G. summer research program*.

*Summer 2022*

### While at Duke University:

Instructor of Record for

*STA101: Data Analysis/Statistical Inference*

*Summer 2021*

Lab instructor and teaching assistant for

*STA199: Introduction to Data Science*

*Fall 2020*

*STA723: Statistics Case Studies.*

*Spring 2020*

*STA601: Bayesian Methods and Modern Statistics.*

*Fall 2019*

Team manager and student mentor for *Duke Data+ 2019*.

*Summer 2019*

Instructor of *Duke Statistical Science Bootcamp*.

*August 2018*

## INVITED TALKS & PRESENTATIONS

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### Oral Presentations:

Invited talk at CmStatistics 2025.

*December 2025 (scheduled)*

Invited talk at EcoSta 2025.

*August 2025 (scheduled)*

Topic contributed talk at Joint Statistical Meetings.

*August 2025*

Invited talk at IMS New Researchers Conference (NRC).

*August 2025*

Invited talk at the ISBA BioPharm meeting.

*June 2025*

Invited talk at the 14th International Conference on Bayesian Nonparametrics.

*June 2025*

Invited seminar talk at Statistics Department, UC Riverside.

*June 2025*

Invited talk at 2025 Bayesian Young Statisticians Meeting (BaYSM).

*April 2025*

Invited seminar talk at Duke Biostatistics & Bioinformatics.

*February 2025*

Invited seminar talk at Centre for Statistics in Medicine (CSM) Botnar Research Centre, Oxford University.	<i>December 2024</i>
Invited talk at the UM Statistics student seminar.	<i>November 2024</i>
Invited talk at the Duke Statistical Science Alumni Symposium.	<i>October 2024</i>
Invited talk at the 2024 International Day of Women in Statistics and Data Science (IDWSDS) Conference.	<i>October 2024</i>
Contributed talk at ISBA World Meetings 2024.	<i>July 2024</i>
Invited talk at Ecosta 2024.	<i>July 2024</i>
Invited talk at the Online Seminar on Spatial and spatio-temporal Point processes and beyond (OSSP).	<i>April 2024</i>
Invited talk at the Statistical Methods for Infectious Diseases Across Scales Workshop (by Penn State University).	<i>April 2024</i>
Recent publications highlight talk at OHDSI community meeting.	<i>March 2024</i>
Invited talk at ENAR 2024.	<i>March 2024</i>
Invited talk at CMStatistics 2023.	<i>December 2023</i>
Invited talk at the RAND statistics seminar.	<i>Nov 2023</i>
Invited talk at EcoSta 2023.	<i>August 2023</i>
Invited talk at IISA 2023.	<i>June 2023</i>
Contributed talk at ENAR 2023.	<i>March 2023</i>
Invited colloquium talk at Reed College.	<i>March 2023</i>
Invited talk at the FDA CBER BEST Seminar Series.	<i>February 2023</i>
Topic-contributed talk at CMStatistics 2022.	<i>December 2022</i>
Invited talk at the UCLA 2022 Fall Biomathematics Seminar Series .	<i>November 2022</i>
Invited presentation at the 2022 OHDSI Global Symposium.	<i>October 2022</i>
Oral presentation at NSF Student Conference on COVID-19 Modeling.	<i>January 2021</i>
Invited talk at 2020 Bayesian Young Statisticians Meeting: Online (BAYSM:O).	<i>November 2020</i>
Topic-contributed talk at 2020 Joint Statistical Meetings.	<i>August 2020</i>
Invited talk at the 3rd Annual AT&T Labs Graduate Student Symposium.	<i>November 2019</i>
Invited talk at the 2019 New England Symposium on Statistics in Sports (NESSIS).	<i>September 2019</i>

### **Poster Presentations:**

Collaborator Showcase poster presentation at the 2024 OHDSI Global Symposium.	<i>October 2024</i>
Poster presentation at the 2022 ISBA World Meeting.	<i>June 2022</i>
Poster presentation at the Dynamics & Evolution of Human Viruses meeting.	<i>April 2022</i>
Poster presentation at the 22nd International Conference on Artificial Intelligence and Statistics (AISTATS).	<i>April 2019</i>
Poster presentation at the 2018 ISBA World Meeting.	<i>June 2018</i>

