

Isaac Goldstein

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EDUCATION

University of California, Irvine

PhD, Statistics

Sep 2019 – Sep 2024

Advisor: Volodymyr M Minin

Lewis & Clark College

B.A., Mathematics with Honors

May 2016

summa cum laude

EXPERIENCE

Department of Statistics, Stanford University

Postdoctoral Scholar

Sep 2024

Supervised by Julia A Palacios.

Develop new Bayesian method for estimating infectious disease dynamics from phylogenetic trees in Julia.

Develop a BEAST2 package (Java) to jointly infer phylogenies and disease dynamics from pathogen sequence alignments.

ISI-BUDS, University of California, Irvine

Instructor

Jul 2024

Developed new lectures and taught introduction to linear models, generalized linear models, and mixed effects models for an undergraduate summer program

Supervised interactive labs with students exploring regression methods in R using real data sets.

Department of Statistics, University of California, Irvine

Graduate Student Researcher

Mar 2020 – Jun 2024

Developed new Bayesian methods for estimating infectious disease dynamics from wastewater, case, and test data.

Provided weekly statistical estimates of SARS-CoV-2 dynamics as part of UC-CDPH Modeling Rapid Response Team

Evaluated and applied method for inferring transmission trees from tuberculosis genomic data

ISI-BUDS, University of California, Irvine

Graduate Student Mentor

Aug 2022 & Aug 2023

Mentored three teams of undergraduate students conducting statistical analyses of epidemiological data

Provided assistance with R programming questions

Provided instruction on linear mixed effect models and causal inference models needed to conduct the analyses

SISMID, University of Washington

Teaching Assistant

Jul 2023

Developed new lecture and lab for modeling epidemics with compartmental models using Stan

Helped students one on one with conceptual and programming questions

Department of Statistics, University of California, Irvine

Teaching Assistant

Oct 2019 – Mar 2020

Led weekly discussion sections of thirty students to supplement main course lectures

Held office hours to help students one on one with complex concepts

Wrote worksheet and exam questions

Department of Ophthalmology, Oregon Health & Science University

Research Assistant 2, Ophthalmology

Oct 2016 – Jun 2019

Primary researcher on multiple medical informatics projects using secondary EHR data to address workflow and efficiency questions

Responsible for data collection, analysis, and manuscript creation

Provided statistical analysis for lab member projects

ACADEMIC

HONORS

& AWARDS

Stanford Center for Comp, Evolutionary, and Human Genomics Postdoctoral Fellowship Sep 2024

Beall Family Foundation Graduate Student Social Impact Award in Statistics Mar 2023

Laverne Noyes Fellowship Feb 2022

Honorable Mention for the NSF Graduate Research Fellowship Program Mar 2021

Honorable Mention for the Robert L. Newcomb Graduate Student Award Oct 2020

TECHNICAL

SKILLS

BEAST2, Julia, R, Stan; experience with BEAST, Python, Slurm Workload Manager

PUBLICATIONS

PREPRINTS

Goldstein, IH, Palacios, JA. “Coalescent Inference for Epidemics with Latent Periods.” *arXiv preprint*, arXiv:2511.09686, 2025. On submission.

Goldstein, IH, Parker, DM., Jiang, S., Pappu, AR., Minin, VM. “The signal is not flushed away: Inferring the effective reproduction number from wastewater data in small populations.” *arXiv preprint*, arXiv:2508.03959, 2025. On submission.

PEER-REVIEWED JOURNALS

Nemcova, B., Goldstein, IH, Sebastian, J., Minin, VM., Bracher, J. “Unjustified Poisson assumptions lead to overconfident estimates of the effective reproductive number.” *Epidemiology & Infection*, 1-20, 2025.

Goldstein IH, Parker DM, Jiang S, Minin VM. “Semiparametric inference of effective reproduction number dynamics from wastewater pathogen surveillance data.” *Biometrics*, ujae074, 2024.

Bayer D, Fintzi J, Goldstein IH, Lumbard K, Ricotta E, Warner S, Busch LM, Strich JR, Chertow DS, Parker DM, Boden-Albala B, Dratch A, Chhuon R, Quick N, Zahn M, Minin VN†. “Semi-parametric modeling of SARS-CoV-2 transmission in Orange County, California using tests, cases, deaths, and seroprevalence data,” *Annals of Applied Statistics*, 8(3): 2307-2325, 2024.

Goldstein IH, Wakefield J, Minin VM. “Incorporating testing volume into estimation of effective reproduction number dynamics,” *Journal of the Royal Statistical Society: Series A*, 2023;, qnad128, <https://doi.org/10.1093/jrssa/qnad128>

Goldstein IH, Bayer D, Kizito B, Matsiri O, Modongo C, Zetola N, Niemann S, Minin VN, Shin S. “Using genetic data to identify transmission risk factors: statistical assessment and application to tuberculosis transmission.” *PLOS Computational Biology*, 18.12: e1010696, Dec 2022.

Dusek, H, Goldstein IH, Rule A, Chiang MF, Hribar MF. “Clinical Documentation During Scribed and Non-scribed Ophthalmology Office Visits .” *Ophthalmology Science*, 1.4:100088, Dec 2021.

Chen J, Hribar M, Goldstein IH, Rule A, Lin WC, Dusek H, Chiang MF. ” Electronic health record note review in an outpatient specialty clinic: who is looking?” *Jamia Open*, 4(3):ooab044, Jul 2021.

Henriksen B, Goldstein IH, Rule A, Huang AE, Dusek HL, Igelman A, Chiang MF, Hribar MR. “Electronic Health Records in Ophthalmology: Source and Method of Documentation.” *American Journal of Ophthalmology*, 211: 191-199, Mar 2020.

Bellsmith K, Brown J, Jin Kim S, Goldstein IH, Coyner A, Ostmo S, Gupta K, Paul Chan RV, Kalpathy-Cramer J, Chiang MF, Campbell PJ. “Aggressive Posterior Retinopathy of Prematurity: Clinical and Quantitative Imaging Features in a Large North American Cohort.” *Ophthalmology*, 127.8: 1105-1112., Feb 2020.

Hribar MR, Rule A, Huang AE, Dusek HL, Goldstein IH, Henriksen B, Lin WC, Igelmen A, Chiang MF. “Redundancy of Progress Notes for Serial Office Visits.” *Ophthalmology*, 127(1): 134-135, Jan 2020.

Goldstein IH, Gowrisankaran S, Hwang T, Bales R, Chiang MF, Hribar MR. “Changes in EHR use time and documentation over a decade of use.” *Ophthalmology*, 126(6): 783-791, Jun 2019.

Hribar MR, Huang AE, Goldstein IH, Reznick LG, Kuo A, Loh AR, Karr DJ, Wilson L, Chiang MF. “Data Driven Scheduling for Improving Patient Efficiency in Ophthalmology Clinics.” *Ophthalmology*, 126.3 : 347-354, 2019.

Hribar MR, Read-Brown S, Goldstein IH, Reznick LG, Lombardi L, Parikh M, Chamberlain W, Chiang MF. “Secondary use of electronic health record data for clinical workflow analysis.” *Journal of the American Medical Informatics Association*, 25(1):40-46, Jan 2018.

Goldstein IH, Hribar MR, Read-Brown S, Chiang MF. “Association of the Presence of Trainees With Outpatient Appointment Times in an Ophthalmology Clinic.” *JAMA Ophthalmology*, 136(1): 20-26, Jan 2018.

Chen YP, Goldstein IH, Lathrop ED, Nelson RB. “Computing an Expected Hitting Time for the 3-Urn Ehrenfest Model via Electric Networks.” *Statistics and Probability Letters*, 127:42-48, April 2017.

Lathrop ED, Goldstein IH, Chen YP. “A note on a generalized Ehrenfest urn model: another look at the mean transition times.” *Journal of Applied Probability*, 53(2): 630-632, June 2016.

CONFERENCE PAPERS

Goldstein IH, Parker DM, Jiang S, Minin VM. "Semiparametric Inference of the Effective Reproduction Number Dynamics from Pathogen RNA Counts Collected from Wastewater." Anchorage, AK. 2023. *Western North American Region of the International Biometric Society*.

Goldstein I, Wakefield J, Minin VN. "Improving and Evaluating Methods for Estimating Changes in the Effective Reproduction Number." Remote. 2022. *Western North American Region of the International Biometric Society*.

Chen J, Goldstein IH, Lin WC, Chiang MF, Hribar MR. "Application of Machine Learning to Predict Patient No-Shows in an Academic Pediatric Ophthalmology Clinic." Remote. 2020. *AMIA Annual Symposium Proceedings*.

Hribar MR, Dusek HL, Goldstein IH, Rule A, Chiang MF. "Methods for Large-Scale Quantitative Analysis of Scribe Impacts on Clinical Documentation." Remote. 2020. *AMIA Annual Symposium Proceedings*.

A Rule, Goldstein IH, Chiang MF, Hribar MR. "Clinical Documentation as End-User Programming." Virtual, USA, April 2020. *CHI Conference on Human Factors in Computing Systems*. <https://doi.org/10.1145/3313831.3376205>

Goldstein IH, Hribar MR, Reznick LG, Chiang MF. "Analysis of Total Time Requirements of Electronic Health Record Use by Ophthalmologists Using Secondary EHR Data." San Francisco, CA. November 2018. *AMIA Annual Symposium Proceedings*. In press.

Hribar MR, Biermann D, Goldstein IH, Chiang MF. "Clinical Documentation in Electronic Health Record Systems: Analysis of Patient Record Review During Outpatient Ophthalmology Visits." San Francisco, CA. November 2018. *AMIA Annual Symposium Proceedings*. In press.

Huang AE, Hribar MR, Goldstein IH, Henriksen B, Lin WC, Chiang MF. "Clinical Documentation in Electronic Health Record Systems: Analysis of Similarity in Progress Notes from Consecutive Outpatient Ophthalmology Encounters." San Francisco, CA. November 2018. *AMIA Annual Symposium Proceedings*. In press.

Lin WC, Goldstein IH, Hribar MR, Chiang MF. "Secondary Use of Electronic Health Record Data for Prediction of Outpatient Visit Length in Ophthalmology Clinics." San Francisco, CA. November 2018. *AMIA Annual Symposium Proceedings*. In press.

Goldstein IH, Hribar MR, Sarah RB, Chiang MF. "Quantifying the Impact of Trainee Providers on Outpatient Clinic Workflow using Secondary EHR Data." Washington, DC. November 2017. *AMIA Annual Symposium Proceedings*, 2017: 760-769, April 2018.

CONFERENCE PRESENTATIONS & POSTERS

Goldstein IH, Palacios, JA. “Coalescent Inference for Pathogens with Latent Periods.” Boston, MA, 2026. Joint Statistical Meetings.

Goldstein IH, Palacios, JA. “Coalescent Inference for Pathogens with Latent Periods.” Nagoya, Japan, 2026. International Society for Bayesian Analysis.

Goldstein IH, Palacios, JA. “Coalescent Inference for Pathogens with Latent Periods.” Berkeley, CA, 2026. Probabilistic Modeling in Genomics Conference.

Goldstein IH, Palacios, JA. “Inference of effective reproduction number dynamics from pathogen genealogies for pathogens with latent periods.” San Diego, CA, November 2025. EPIDEMICS 10: 10th International Conference on Infectious Disease Dynamics

Goldstein IH, Palacios, JA. “Semiparametric inference of effective reproduction number dynamics from pathogen genealogies.” Los Angeles, CA, June 2025. 14th International Conference on Bayesian Nonparametrics.

Goldstein IH, Parker DM, Jiang S, Minin VM. “Semiparametric Inference of Effective Reproduction Number Dynamics with RNA Counts and Minimal Compartmental Models.” Oberwolfach, Germany, Feb 2023. Design and Analysis of Infectious Disease Studies (Mathematisches Forschungsinstitut Oberwolfach).

Goldstein IH, Parker DM, Jiang S, Minin VM. “Using infectious disease RNA counts from wastewater surveillance to estimate the effective reproduction number.” Washington DC, October 2022. Models of Infectious Disease Agent Study.

Hribar MR, Lin WC, Goldstein IH, Chiang MF. “Machine Learning for Prediction of Pediatric Ophthalmology Examination Lengths and Scheduling Optimization.” March 2019. American Association for Pediatric Ophthalmology and Strabismus.

Chiang MF, Goldstein IH, Henriksen B, Huang A, Chen J, Reznick LG, Wilson L, Hribar MR. “Pediatric ophthalmology documentation using electronic health records (EHRs): where does the data come from, and how often is it reviewed?” March 2019. American Association for Pediatric Ophthalmology and Strabismus.

Chiang MF, Henriksen B, Huang A, Goldstein I, Hribar MR. “Clinical ophthalmology documentation using electronic health records: how much text is new, and who is writing it?” Dana Point, CA. May 2018. American Ophthalmological Society.

Goldstein IH, Hribar MR, Chiang MF. “Changes in Electronic Health Record use time over a decade of use.” Honolulu, HI. May 2018. IOVS 2018;59(9): ARVO E-Abstract 4156.

Henriksen B, Goldstein I, Hribar MR, Huang AE, Chiang MF. “Electronic Health Records in Ophthalmology: Source and Method of Documentation.” Honolulu, HI. May 2018. IOVS 2018; 59: ARVO E-Abstract 4155

Hribar MR, Read-Brown S, Goldstein I, Reznick L, Chiang MF. “Improving Clinic Wait Times with Scheduling Templates.” Honolulu, HI. May 2018. IOVS 2018; 59: ARVO E-Abstract 5248

Chiang MF, Goldstein I, Read-Brown S, Hribar MR. “Impact of resident and fellow trainees on patient encounter length in an academic ophthalmology center.” American Ophthalmological Society. Bath County, VA. May 2017.

Goldstein IH, Hribar MR, Read-Brown S, Chiang MF. “Quantifying the Impact of Trainees on Outpatient Ophthalmology Clinic Workflow.” Baltimore, MD. May 2017. IOVS 2017;58: ARVO E-Abstract 5060

Reznick L, Hribar MR, Read-Brown S, Goldstein I, Chiang MF, Yackel TR. “Impact of Medical Trainees on Clinical Efficiency in a Pediatric Ophthalmology Practice.” Nashville, TN. April 2017. American Association for Pediatric Ophthalmology and Strabismus annual meeting.

INVITED SEMINARS AND WORKSHOPS

Modelling and inference for pandemic preparedness, Isaac Newton Institute, August 2024

Delphi Group, Carnegie Mellon University, March 2024

School of Public Health, University of California Berkeley, February 2024