Isaac Gibbs

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EDUCATION

 Ph.D. in Statistics, Stanford University.
 2019 - Spring 2024

 Advisor: Emmanuel Candès.
 2019 - Spring 2024

 Thesis Topic: Development of novel statistical tools for quantifying the uncertainty underlying predictions made by black-box machine learning models.

B.Sc. in Math and Computer Science, McGill University. Graduated with first class honours.

2015-2019

PUBLICATIONS

Gibbs, I. and Candès, E. (2021). Adaptive conformal inference under distribution shift. Advances in Neural Information Processing Systems 34 (oral presentation). https://arxiv.org/abs/2106.00170.

Gibbs, I. and Chen, L. (2020). Asymptotic properties of random Voronoi cells with arbitrary underlying density. *Advances in Applied Probability*, 52(2), 655-680.

Gibbs I., Leavey K., Benton S.J., Grynspan D., Bainbridge S.A., and Cox B.J. (2019). Placental transcriptional and histologic subtypes of normotensive fetal growth restriction are comparable to preeclampsia. *American Journal of Obstetrics and Gynecology*, 220(1):110.e1-110.e21.

PREPRINTS AND WORK UNDER REVIEW

Gibbs, I., Cherian, J., and Candès, E. (2023+). Conformal prediction with conditional guarantees. arXiv preprint. https://arxiv.org/abs/2305.12616. Under review at Journal of the Royal Statistical Society: Series B.

Gibbs, I. and Candès, E. (2023+). Conformal inference for online prediction with arbitrary distribution shifts. *arXiv preprint*. https://arxiv.org/abs/2208.08401. *Major revision at Journal of Machine Learning Research*.

WORK EXPERIENCE

Meta Internship in the Central Applied Sciences group. Summer 2022 Developed statistical methods for using A/B test data to identify subsets of the population that showed a strong positive response to the treatment.

PRESENTATIONS

Contributed Presentations

 Joint Statistical Meeting. Talk - Conditional Coverage and Covariate Shift in Conformal Inference. 	August 8, 2023
• Advances in Neural Information Processing Systems 34. Talk - Adaptive Conformal Inference Under Distribution Shift.	December 9, 2021
• International Federation of Placenta Associations meeting. Talk - Placental subtypes of fetal growth restriction.	September 1, 2017

Conference Posters

• ICML 2021 Workshop on Distribution-Free Uncertainty Quantification. Title - Adaptive Conformal Inference Under Distribution Shift.

TEACHING AND MENTORSHIP

Mentorship

• Mentor for the summer undergraduate research program in statistics at Stanford. Summer 2023 Role - Worked with six undergraduates who were matched with professors from across Stanford to work on applied or theoretical statistics research questions. Served as a technical mentor to aid students in framing their problem and applying appropriate statistical tools.

Teaching as the Principal Instructor

• STATS302: Applied Statistics Qualifying Exam Workshop.	Summer 2021
Work as a Teaching Assistant	
• DATASCI120: Data Narratives.	Spring 2023
• STATS217: Introduction to Stochastic Processes I.	Winter 2023
• STATS300A: Theory of Statistics I.	Fall 2022
• STATS203: Introduction to Regression Models and Analysis of Variance.	Spring 2022
• STATS191: Introduction to Applied Statistics.	Winter 2022
• STATS200: Introduction to Statistical Inference.	Fall 2021
• STATS305b: Applied Statistics II.	Winter 2021
• STATS200: Introduction to Statistical Inference.	Fall 2020
• STATS203: Introduction to Regression Models and Analysis of Variance.	Summer 2020
• STATS290: Computing For Data Science.	Winter 2020
• STATS202: Data Mining and Analysis.	Fall 2019

AWARDS

Stanford Statistics Departmental Teaching Assistant Award. Received for outstanding contributions as a teaching assistant during Ph.D. at Stanford.	20)23
Dr. Feng Qian Convocation Prize. Awarded to top graduating students in computer science at McGill University.	20)19
NSERC Undergraduate Student Research Award. Received separately in 2018 and 2019 at McGill University.	2018, 20)19
Sir Edward Beatty Memorial Scholarship and Emily Ross Crawford Scholarshi For academic performance in B.Sc. at McGill University.	p. 20)18