

CHENYIN GAO

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EDUCATION

North Carolina State University, USA <ul style="list-style-type: none">Ph.D. in Statistics. GPA: 4.0/4.0Research interests: survey sampling, causal inference and data integrationAdvisor: Dr. Shu Yang, syang24@ncsu.edu	2019 – 2024
Sun Yat-sen University, P.R. China <ul style="list-style-type: none">B.Sc. in Statistics. GPA: 3.8/4.0. Minor in Finance	2015 – 2019

AWARDS AND HONORS

- Mu Sigma Rho, National Statistics Honor Society, NCSU, 2021 - present
- Excellent Undergraduate Dissertation, SYSU, 2019
- China National Scholarship, China, 2018 (Awarded for outstanding full-time undergraduates)
- 1st Merit Scholarship, School of Mathematics, SYSU, 2018 (2/72)
- 1st Prize, China Undergraduate Mathematical Contest in Modeling, CSIAM, 2018

WORK/RESEARCH EXPERIENCE

North Carolina State University Department of Statistics, Graduate Student Research Assistant <ul style="list-style-type: none">Developed data integration frameworks for causal inference, survey sampling and missing dataDeveloped tensorized framework for causal inferences with sequential treatments	2020 – present
North Carolina State University Department of Statistics, Graduate Student Teaching Assistant <ul style="list-style-type: none">Assisted in several undergraduate-level course and graduate-level statistic courses	2020 – present
Eli Lilly & Company Academic Research Intern <ul style="list-style-type: none">Developed a data-adaptive integrative framework to empower clinical trials by harnessing the historical controlsConducted sensitivity analysis for longitudinal studies equipped with flexible machine learning methods	2022 – present
Duke University HIV/AIDS Research Intern <ul style="list-style-type: none">Developed a deep learning framework via low-rank tensor approximated convolutional neural network (CNN)	2021
GF Securities Co., Ltd. IT Department, Big Data Engineer Intern	2019
Deloitte Enterprise Consulting (Shanghai) Co., Ltd. Risk Advisory (RA), FSI	2017 – 2018

PUBLICATIONS/PREPRINTS

* Correspondence author

- C. Gao*** and S. Yang (2023). Pretest estimation in combining probability and non-probability samples, *Electronic Journal of Statistics*, DOI: 10.1214/23-ejs2137
- C. Gao**, S. Yang*, and J. K. Kim (2023). Soft calibration for correcting selection bias under mixed-effects models, *Biometrika*, DOI: 10.1093/biomet/asad016
- S. Yang*, **C. Gao**, X. Wang, and D. Zeng (2023). Elastic integrative analysis of randomized trial and real-world data for treatment heterogeneity estimation, *Journal of the Royal Statistical Society: Series B*, DOI: 10.1093/jrssl/qkad017
- C. Gao**, K. J. Thompson*, S. Yang and J. K. Kim (2022). Nearest neighbor ratio imputation with incomplete multinomial outcome in survey sampling. *Journal of the Royal Statistical Society: Series A*, DOI: 10.1111/rssa.12841
- L. Wu, **C. Gao**, S. Yang*, B. J. Reich, and A. Rappold. Estimating spatially varying health effects in app-based citizen science research (2023+), *Journal of the Royal Statistical Society: Series C*, revision
- C. Gao**, S. Yang, and A. Zhang* (2023+). Self-supervised image denoising via low-rank tensor approximated convolutional neural network, *submitted*
- C. Gao**, A. Zhang, and S. Yang* (2023+). Causal inference on sequential treatments via tensor completion, *submitted*

8. C. Gao, S. Yang*, M. Shan, W. Ye, I. Lipkovich, D. Faries (2023+) Integrating Randomized Placebo-Controlled Trial Data with External Controls: A Semiparametric Approach with Selective Borrowing, *submitted*
9. D. Faries*, C. Gao, X. Zhang, C. Hazlett, J. Stamey, S. Yang, P. Ding, M. Shan, K. Sheffield, N. Dreyer (2023+) Real Effect or Bias? Best Practices for Evaluating the Robustness of Real-World Evidence through Quantitative Sensitivity Analysis for Unmeasured Confounding, *submitted*
10. Q. Xie*, T. Du, M. Zhao, C. Gao, Q. Lyu, L. Suo, Y. Kuang (2021). Advanced trophectoderm quality increases the risk of a large for gestational age baby in single frozen-thawed blastocyst transfer cycles. *Human Reproduction* 36: 2111-2120
11. Y. Deng, C. Gao* (2022). Where does the risk lie? Systemic risk and tail risk networks in the Chinese financial market. *Pacific Economic Review*, DOI: 10.1111/1468-0106.12417

PRESENTATION

- C. Gao, S. Yang, M. Shan, W. Ye, I. Lipkovich, and D. Faries, Integrating Randomized Trial Data with External Controls: A Semiparametric Approach with Selective Borrowing. *JSM* (2023), Toronto, ON (Invited)
- C. Gao, S. Yang, Semi-parametric efficient integrative estimator borrowing historical controls with penalized bias. *ENAR* (2023), Nashville, TN
- C. Gao, A. Zhang, S. Yang, Causal Inference on Sequential Treatments via Tensor Completion. (2023), Duke University, Durham, NC (Invited)
- C. Gao, S. Yang, Pretest estimation in combining probability and non-probability samples. *JSM* (2022), Washington, DC
- C. Gao, P. Acharya, A. Zhang, CNN-based Single Cryo-EM Images Unsupervised Denoisers. Impact Talk presented at: *17th Annual Duke Center for AIDS Research Virtual Fall Scientific Retreat* (2021), Durham, NC (virtual)

SKILLS

- **Software:** R, Python, PyTorch, SQL, SAS
- **R package:**
 - [ElasticIntegrative](#) implements elastic analyses for the heterogenous treatment effects combining trials and real-world data
 - [SelectiveIntegrative](#) implements dynamic borrowing framework to incorporate information from other external-control (EC) datasets with the gold-standard randomized trials
- **Language:** Chinese (native), English
- **Others:** CFA Level I ([link](#))

ACTIVITIES AND SERVICES

- Top reviewer for *AISTATS* (2022, 2023)
- Co-organizer for *BIRS (Banff International Research Station) 5-day workshop, May 22–27, 2022* “Emerging Challenges for Statistics and Data Sciences: Complex Data with Missingness, Measurement Errors, and High Dimensionality” <http://www.birs.ca/events/2022/5-day-workshops/22w5010>