Xiang MENG

1 Oxford St, Cambridge, MA 02138
xmeng@g.harvard.edu | 206-953-4289 | LinkedIn | Website | Github

Education

PhD, Harvard University, Statistics *Expected 2025*

Thesis committee: Natesh Pillai, Iavor Bojinov, Luke Miratrix

MSc, University of Washington (UW), Statistics *2020*

BSc, National University of Singapore (NUS), Quantitative Finance and Statistics *2018*

Minor in Computer Science. Exchange program in University of California, San Diego (UCSD).

Research Interest

My research focuses on the application of modern statistical methods to analyze datasets from digital platforms and applied social sciences. Specifically, I dedicate to developing **causal inference** methods that foster engagement from diverse stakeholders while maintaining methodological rigor.

Publications & Preprints (*indicates equal contribution)

[1] Meng, X., Bojinov, I., Lin, Y. (2024+). Staggered Adoption on Time-to-Event Outcomes. *In preparation.*

[2] Weingarden, H., **Meng, X.**, Armey, M., Onnela, J-P., Jaroszewski, A., Armstrong, C., & Wilhelm, S. (2024+). Detecting the Strength of Negative Emotion States in Body Dysmorphic Disorder using Passive Smartphone Data: An Intensive Longitudinal Assessment Study. *In preprapation.*

[3] Che J.*, **Meng X.***, Miratrix L. (2024+). Caliper Synthetic Matching. *In preparation.*

[4] **Meng X**., Dempsey W., Liao P., Reid N., Klasnja P., Murphy S. (2024+). Evaluation of the HeartSteps Online Algorithm. *In preparation.*

[5] Meng, Z., Yang, L., Raveendran, G., **Meng, X.,** Lin, J. (2024). Predict Progression Free Survival and Overall Survival Using Objective Response Rate for Anti-PD1/PDL1 Therapy Development. *BMC Cancer **24**, 912 (2024). https://doi.org/10.1186/s12885-024-12664-1*

[6] Wang L., **Meng X**., Richardson T., Robins J. (2022). Coherent modeling of longitudinal causal effects on binary outcomes. *Biometrics. 2022 May 4. doi: 10.1111/biom.13687.*

[7] **Meng X.**, Huang, J. (2021). **REFINE2:** A tool to evaluate real-world performance of machine-learning based effect estimators for molecular and clinical studies. *arXiv: 2105.13148*

[8] Gordon E., **Meng X.,** Barnes M., Bhattacharjee T., & Srinivasa, S. (2019). Adaptive Robot-Assisted Feeding: An Online Learning Framework for Acquiring Previously Unseen Food Items. *International Conference on Intelligent Robots and Systems, Las Vegas, US, 2020*

[9] Gordon E., **Meng X.,** Barnes M., Bhattacharjee T., & Srinivasa, S. (2019). Learning from failures in robot-assisted feeding: Using online learning to develop manipulation strategies for bite acquisition. *IJCAI 2019 Workshop on AI × Food.*

[10] **Meng X.** (2018). Dynamic Mean-Variance Portfolio Selection. *Undergraduate Thesis. arXiv:1907.03093*

Software & Methodologies

Xiang Meng, Jonathan Che, Luke Miratrix. Caliper Synthetic Matching. R package. In Preparation

Linbo Wang, **Xiang Meng**, Thomas Richardson, James Robins. Methodology of "Coherent modeling of longitudinal causal effects on binary outcomes". *Harvard Dataverse, https://dataverse.harvard.edu/dataset.xhtml?persistentId=doi:10.7910/DVN/UZAI96&faces-redirect=true*

Xiang Meng and Jonathan Huang. "REFINE2: A tool to evaluate real-world performance of machine-learning based effect estimators for molecular and clinical studies". *Github, https://github.com/mengeks/drml-plasmode*

Contributed Conference and Poster Presentations

Caliper Synthetic Matching:

New England Statistics Symposium (NESS) *May 2024*
American Causal Inference Conference (ACIC) *May 2024*
New England Student Research Symposium on Statistics and Data Science *Apr 2024*

A Novel Evaluation of a Just-in-Time Adaptive Intervention Algorithm.

INFORMS Annual Meeting *Oct 2023*
Harvard Statistics Department Seminar *Oct 2022*
Eastern North American Region (ENAR) Meeting *Mar 2022*
14th CMStatistics, Advances in statistical methods for mobile health *Dec 2021*
3rd Harvard Health Data Science Symposium *Nov 2021*
Joint Statistical Meeting (JSM) *Aug 2021*

Causal Questions in Micro-Randomized Trials (MRTs): Introduction and Challenges.

Society for Causal Inference (SCI) Causal Inference for Social Impact *Jun 2021*

Learning from failures in robot-assisted feeding:

IJCAI 2019 Workshop on AI×Food, Poster and Oral Presentation *Aug 2019*

Selected Achievements & Awards

- Bok Teaching Certificate, Harvard University 2024
- Graduate School Conference Travel Award, UW 2019
- Lijen Industrial Development Medal for best thesis project in the discipline, NUS 2018
- Provost's Honors for academic excellence, Revelle College, UCSD 2017

Teaching Experience

Introduction to Data Science, Harvard University, Head Teaching Fellow (TF) for 220 students, oversaw 29 TFs *Fall 2023*

The Art of Teaching in Statistics, Harvard University, teaching preparation for all 1st year statistics PhD students. *AY 2022 – 23*

Data Analysis in Modern Biostatistics (Biomarker and Cancer Research), Harvard University *Spring 2022*

Introduction to Probability, Harvard University *Fall 2021*

STEMPREP Summer Statistics Course for 7th and 8th Grade Students, UW *Summer 2019*

Programming Methodology in Python, NUS *AY 2015 - 16, Spring 2018*

Academic & Student Service

Reviewer for Biometrika, Biometrics, Journal of Applied Statistics (JAS), NeuroIPS workshop.

Co-Chair for seminar department at Harvard Chinese Student & Scholar Association (HCSSA), organized and supervised 7 seminars to give industry and academia exposure to Chinese graduate students across art and science, industry and academia.

Volunteered experiences (10+ times) in supporting elders, mentally disables, women and gender-diverse individuals.

Work Experience

Sanofi *May – Aug 2022*

Summer Intern, Clinical Evidence and Data Science Team

- Co-created a comprehensive database from over 400 clinical trials on Anti-PD1/PDL1 cancer treatments using R.
- Co-developed a predictive method for three survival outcomes in cancer patients.

Dymon Asia Capital *April – July 2017*

Summer Intern, Risk Analysis

- Improved risk reporting procedure for macro fund using VBA; shortened procedure from 2 hours to less than 20 seconds.
- Streamlined daily risk management by meticulously monitoring daily equity fund risk and macro fund risk.

Skills

Languages: Mandarin Chinese (Native), English and Japanese (Proficient in writing, speaking, reading, listening)
Programming & IT: Python, SQL, R, SAS, SPSS, C++, Unix, Java, VBA, Matlab

References

Luke Miratrix
Associate Professor, Graduate School of Education, Harvard University
Affiliate Faculty of the Department of Statistics
Email: luke_miratrix@gse.harvard.edu;
Tel: 510-735-7635
Website: https://www.gse.harvard.edu/directory/faculty/luke-miratrix

Hilary Weingarten
Assistant Director, Center for Digital Mental Health
Psychologist, Center for OCD and Related Disorders, Massachusetts General Hospital
Assistant Professor, Harvard Medical School
E-mail: hilary_weingarden@mgh.harvard.edu
Tel: 617.643.626

Research Experience

Harvard University

Graduate Researcher; Advisor: Iavor Bojinov

se Cambridge, MA 2010-2017

• Used

Graduate Research Assistant *September 2020 – Present*

Anti-Sedentary Message Analysis in Mobile Health *September 2020 – Present*

Supervised by Prof. Susan Murphy

- Evaluated mobile health clinical trials by understanding with behavioral scientists' need and developing fair evaluation methods.
- Prepared usable data frames from 300,000+ lines of raw data from 3 different sources with 3500+ line of R scripts.
- Accelerated the code for an existing statistical model by 10x.

A Congenial Parameterization on Optimal Treatment Regime

Supervised by Prof. Thomas Richardson *June 2019 – Jul 2021*

- Developed a novel model by fusing two ideas of optimal treatment regime and multiplication effect modelling.
- Implemented the model with simulation and real data with 2500+ lines of R code.

Adaptive Robot-Assisted Feeding

Prof. Siddhartha Srinivasa's Personal Robotics Lab *June 2019 – Sep 2019*

- Formulated the online learning problem using contextual bandit algorithms and developed 1000+ line (excluding changes) of Python scripts to implement algorithms
- Proved the robustness of algorithms by integrating them with the real-world dataset.
- Demonstrated usability of algorithms by designing and conducting experiments on the real robot.

Risk Management Institute, NUS *January 2018 – March 2018*

Undergraduate Research Assistant

- Enhanced the BuDA (bottom-up default analysis) program and facilitated the implementation of the forward-intensity model.
- Collaborated the migration of the parameter estimation process from Matlab to Julia with 300+ lines coding.

References

Iavor Bojinov

Luke Miratrix

Hilary Weingarten

Professor, xxx, Harvard University
Email: samurphy@fas.harvard.edu;
Website: http://people.seas.harvard.edu/~samurphy/

Kelly McConville

Senior Lecturer, Department of Statistics, Harvard University
Email: pamelapollock@fas.harvard.edu
Website: https://bokcenter.harvard.edu/people/pamela-pollock-0

Research Interest (for keywords)

My PhD thesis focuses on **real world** concerns for reinforcement learning (**RL**) applications. One specific concern is how to spread interventions uniformly, or **how to achieve full exploration**, with mobile devices when facing uncertainties from user behaviors. I also ask how to warm up an RL algorithm using **offline RL under** these concerns / **constraints**. This thesis is motivated by my past research experience in causal inference methodology, robotics, portfolio optimization.