Xiang MENG

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Education

Harvard University *September 2020 – Present*

PhD in Statistics. Research interest: Causal inference and reinforcement learning in mobile health

References: Prof. Susan Murphy (samurphy@fas.harvard.edu)

University of Washington (UW) *September 2018 – June 2020*

Master of Science in Statistics: Advanced Methods and Data Science. GPA: 3.87/4.00. Member of Causal Inference Working Group
References: Prof. Thomas Richardson (thomasr@uw.edu); Asst. Prof. Alex Luedtke (aluedtke@uw.edu)
Award: Graduate School Conference Travel Award (IJCAI 2019)

National University of Singapore (NUS) *August 2014 – June 2018*

Bachelor of Science (Honors) Major: Quantitative Finance; Second major: Statistics. Minor: Computer Science
GPA: Overall 4.82/5.00, Dean's List recipient (top 5% of cohort); Lijen Industrial Development Medal (best project in the discipline)

University of California, San Diego (UCSD), Education Abroad Program *January 2017 – April 2017*

Attended two graduate classes, Numerical Methods for PDE, Applied Statistics; received Provost's Honors, Revelle College

Preprint & Publications

[5] Wang L., **Meng X**., Richardson T., Robins J. (2021). Coherent modeling of longitudinal causal effects on binary outcomes. Under review.

[4] **Meng X.**, Huang, J. (2021). Doubly robust, machine learning effect estimation in real-world clinical sciences: A practical evaluation of performance in molecular epidemiology cohort settings. *arXiv: 2105.13148*

[3] 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*

[2] 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.*

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

Presentations

[6] Assessing Uniformity in Sampling of Sedentary Times. *Joint Statistical Meeting (JSM), Aug 2021.*

[5] Causal Questions in Micro-Randomized Trials (MRTs): Introduction and Challenges. *Society for Causal Inference (SCI) Causal Inference for Social Impact, Jun 2021.*

[4] The Central Role of Propensity Score in Causal Inference. *Harvard Statistics Seminar Summer 2020.*

[3] A Congenial Parameterization on Optimal Treatment Regime. *UW Causal Inference Working Group Fall 2019.*

[2] Learning from failures in robot-assisted feeding: Using online learning to develop manipulation strategies for bite acquisition (with Gordon E.). *IJCAI 2019 Workshop on AI×Food, Poster and Oral Presentation.*

[1] Transparent Parametrizations of Models for Potential Outcomes. *UW Causal Inference Working Group Spring 2019.*

Research Experience

Anti-Sedentary Message Analysis in Mobile Health *September 2020 – Present*
Supervised by Prof. Susan Murphy

- Managed minute-level raw data of 141 participants with duration from 3 to 6 months by designing summary statistics and creating

usable data frames with 3500+ line of R scripts.
- Created feature variables by testing various proxies for user behaviors including users' instant response to the message, etc.
- Conducted analysis in missing data by defining the severity of missingness and separately looking into outliers.

A Congenial Parameterization on Optimal Treatment Regime

Supervised by Prof. Thomas Richardson *June 2019 - Present*

- Studied both problems of optimal treatment regime and multiplication effect modelling for longitudinal data.
- Fused two ideas by deriving a congenial parameterization for multiplicative effect under optimal treatment regime.

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.

Professional Experience

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.

Dymon Asia Capital *April 2017 – 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.
- Conducted market research investigating relationship between fund level exposure and fund performance using Excel and R.

Leadership & Volunteering

King Edward VII (KEVII) Chinese Drama *October 2014 – May 2016*

Head of Public Relations / Assistant Production Manager

- Staged two performances in different roles; led sub-committee of 14 and acted as junior leader for committee of 45.
- Managed whole sales process for c. 1k tickets and handled total revenue over US$7800; secured sponsorship over US$5900.

NUS Volunteer Action Committee *January 2016 – April 2016*

Volunteer

- Directed 8 lunch and shopping sessions for over 20 physically and mentally challenged elderly people; organized 2 social outings.

Teaching Experience

STAT 110: Probability *Sep 2021 – Dec 2021*

Teaching Fellow

- Design material and teach 1-hour sections per week. Held weekly 2-hour office hours.

STEMPREP Summer Course for 7th and 8th Grade Students *July 2019 – August 2019*

Instructor of Statistics to students over US

- Designed lectures, 5 homework, 3 exams (including 1 quiz), for a 5-week course. Held daily classes and weekly office hours.

CS1010S: Programming Methodology in Python *Aug. 2015 – May 2016, Jan. 2018 – May 2018*

Student teaching assistant at National University of Singapore

- Managed classes of 12; gave weekly tutorial sessions; graded homework; saved prof. 6 hours per week.

Selected Coursework

Graduate:

- Statistical Inference, Design and Experimental Analysis, Causal Inference, Measure Theory
- Advanced Machine Learning; Reinforcement Learning and Bandits

Undergraduate (including graduate-level courses):

- Mathematical Statistics; Time Series; Stochastic Processes; Simulation; Data-Driven Optimization
- Corporate Finance; Financial Markets; Mathematical Finance I & II; Financial Modelling and Computation
- Data Structures and Algorithms I & II; Database Systems; Computer Organizatio

Technical Competencies & Interests

Languages: Proficient in English (written and spoken); Native in Mandarin Chinese; Intermediate Japanese
Programming & IT: Python, SQL, R, SAS, SPSS, C++, Unix, Java, VBA, Matlab; Microsoft Excel/Word/PowerPoint, Adobe Suite
Certifications: CFA Level I; Bloomberg Aptitude Test (BAT), 83rd percentile globally (taken in Sophomore year)
Interests and student groups: Music (gave ~10 band performances), stand-up comedy and crosstalk (gave 3 performances), distance running (participated NUS marathon), basketball (KEVII hall team), video making (produced ~5 videos for KEVII Motion)