Yehu Chen

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CONTACT INFO

McKelvey Hall 2010
Washington University in St. Louis
St. Louis, MO 63130

(734) 846-0174
chenyehu@wustl.edu
http://yahoochen97.github.io

RESEARCH INTERESTS

Machine learning, Causal inference, Bayesian methods, Gaussian process, Forecasting, and Quantitative methods

I am interested in applying Bayesian machine learning methods to quantitative research, especially causal inference, psychometrics, adaptive experimental design and forecasting. In my dissertation thesis *Advancing Modeling and Inference in Political Science with Gaussian Processes*, I investigate how to design interpretable machine learning algorithms for tackling core tasks in political science with the family of Gaussian process models, including latent issue position measurement, heterogeneous effect estimation in panel data, adaptive data acquisition in conjoint analysis.

EDUCATION

Washington University in St Louis, St Louis, MO
Ph.D. Candidate in Computational & Data Science, Sept. 2019 to Present

- Track: Computational Methodologies (*GPA: 3.9/4.0*)
- Advisors: Roman Garnet (*CSE*), Jacob Montgomery (*PoliSci*)
- Expected graduation: Summer 2025

University of Michigan, Ann Arbor, MI
B.S in Computer Science (Summa Cum Laude), Sept. 2017 to May. 2019

Shanghai Jiaotong University, Shanghai, China
B.S.E in Electrical and Computer Engineering, Sept. 2015 - Aug. 2019

PUBLICATIONS

A Multi-Task Gaussian Process Model for Inferring Time-Varying Treatment Effects in Panel Data. Yehu Chen, Annamaria Prati, Jacob Montgomery and Roman Garnett. In the 26th International Conference on Artificial Intelligence and Statistics (*AISTATS*), 2023

Gaussian Process Conjoint Analysis for Individual Marginal Effect Estimation with Adaptive Experiment. With Jacob Montgomery and Roman Garnett. *Under review*, Neurips 2024

GD-GPIRT: Generalized Dynamic Gaussian Process Item Response Theory for Latent Measurement. With JBrandon Duck-Mayr, Jacob Mont-

gomery and Roman Garnett. *Under review*, Neurips 2024

Idiographic Personality Gaussian Process for Psychological Assessment. With Joshua Jackson, Jacob Montgomery and Roman Garnett. *Under review*, Neurips 2024

Polls, Context, and Time: A Dynamic Hierarchical Bayesian Forecasting Model for US Senate Elections. Yehu Chen, Roman Garnett and Jacob M. Montgomery. In Political Analysis, 2023

Compressive Big Data Analytics: An ensemble meta-algorithm for high-dimensional multisource datasets. Simeone Marino, Yi Zhao, Nina Zhou, Yiwang Zhou, Arthur W. Toga, Lu Zhao, Yingsi Jian, Yichen Yang, Yehu Chen, Qiucheng Wu, Jessica Wild, Brandon Cummings and Ivo D. Dinov. In Plos one, 2020

WORKING IN PROGRESS

A Gaussian Process Framework for Structured, Flexible, and Interpretable Machine Learning Models in the Social Sciences. With Annamaria Prati, Ryan Johnson and Jacob Montgomery. In *APSA*, 2023

Gaussian process Regression and Post-stratification for Grouped Data. With Santiago Olivella (UNC), Bryant Moy (NYU) and Jacob Montgomery.

PRESENTATIONS

Poster Sessions:

- Society for Political Methodology Meeting, Riverside, CA, 2024
- STL DataFest 2024, st louis, MO, 2024
- Society for Political Methodology Meeting, Stanford, CA, 2023
- Information and Statistics in Nuclear Experiment and Theory, St Louis, 2023
- The 26th International Conference on Artificial Intelligence and Statistics, Valencia, Spain, 2023
- Society for Political Methodology Meeting, St Louis, MO, 2022
- Michigan Institute for Data Science Annual Symposium (Most Likely Health Impact Postewr), U of M Ann Arbor, MO, 2018

Campus Talks:

Computational Data Science Student Seminar, WashU St. Louis, 2022

TEACHING EXPERIENCE

Teaching Assistant, Washington University in St Louis 2019 to Present

- CSE 517A Machine Learning: Spring 2024
- PoliSci 582 Quantitative Political Methodology II: Fall 2021
- CSE 515T Bayesian Methods in Machine Learning: Spring 2021

Instructor Assistant, Shanghai Jiaotong University 2016 to 2019

- Honored Mathematics I, II & III: Fall 2016, Spring 2017, Summer 2017
- VE230 Electromagnetics I: Summer 2019

Grading Assistant, University of Michigan Fall 2018

- EECS 376 Foundation of Computer Science

WORK EXPERIENCE

Foxit Software Inc, Fremont, CA Jul. 2018 - Aug. 2018
Software Engineer Intern

Shanghai Fudan Microelectronics Group, Shanghai, China Winter 2017
Research Intern

SOFTWARE

gpirt R package for dynamic Gaussian process item response model for latent trait estimation with MCMC sampling (with JBrandon Duck-Mayr).

TECH SKILLS

Programming:
C, C++, C#, Python, R, Matlab, Java, JavaScript, HTML, Latex, Linux, SQL
Statistical and Machine Learning tools:
Tensorflow, pytorch, gpytorch, pyro, pymc, Stan, GPML toolbox

SERVICE

Conference Reviewer: 2023 - now
International Conference on Learning Representations (ICLR)
International Conference on Machine Learning (ICML)
Conference on Neural Information Processing Systems (NeurIPS)
International Conference on Artificial Intelligence and Statistics (AISTATS)

AWARDS & HONORS

'Deans List', University of Michigan 2017 to 2018
'Bosch' Scholarship, BOSCH, Ltd 2015 to 2016

REFERENCES

PROF. ROMAN GARNETT garnett@wustl.edu
Department of Computer Science and Engineering, WashU St. Louis

PROF. JACOB MONTGOMERY jacob.montgomery@wustl.edu
Department of Political Science, WashU St. Louis

PROF. TED ENAMORADO ted@wustl.edu
Department of Political Science, WashU St. Louis