# Yehu Chen

**CONTACT INFO**  McKelvey Hall 2010
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**RESEARCH INTERESTS**  Machine learning, Bayesian methods, Gaussian process, causal inference, causal ML, 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*
- Dissertation: Advancing Modeling and Inference in Political Science with Gaussian Processes
- Advisors: Roman Garnet (CSE), Jacob Montgomery (PoliSci)
- Expected graduation: Spring 2024

**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

**GD-GPIRT: A Gaussian Process Model for Generalized Dynamic Item Response Theory.** With JBrandon Duck-Mayr, Jacob Montgomery and Roman Garnett. In *arxiv*, 2023

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

**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 *arxiv*, 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**

**Adaptive experiment design for multiple dimension treatment effect estimation in Gaussian Process preference learning.** With Jacob Montgomery and Roman Garnett.

**A Gaussian Process Framework for Idiographic Measurement of Psychological Traits.** With Joshua Jackson, Jacob Montgomery and Roman Garnett.

**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, 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:**
DCDS Student Seminar, WashU St. Louis, 2022

**TEACHING EXPERIENCE**

**Teaching Assistant,** Washington University in St Louis        2019 to Present
- CSE 515T Bayesian Methods in Machine Learning: Spring 2021
- PoliSci 582 Quantitative Political Methodology II: Fall 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
**Statistical and Machine Learning tools:**
Tensorflow, pytorch, gpytorch, pyro, pymc, Stan, GPML toolbox

**AWARDS & HONORS**

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

**REFERENCES**

DISTINGUISHED PROF. JEFF GILL            ✉ jgill@american.edu
Department of Government, American University

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