Bingchen Wang

Independent Researcher — AI & Economics

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Research Interests: Mechanism design and incentives in AI systems and digital markets; preference alignment theory and practice; large-language-model bias and mitigation.

Education

University of Oxford, St Hilda's College — Oxford, UK
M.Phil. in Economics *(Distinction)* — Oct 2019 – Jun 2021
Thesis: *Detecting Parameter Shifts using Multiplicative-Indicator Saturation*.
Supervisors: Prof. David Hendry and Prof. Jennifer Castle

Columbia University — New York, USA
B.A. in Mathematics–Statistics *(Summa cum laude)* — Sep 2016 – Dec 2018
Phi Beta Kappa; Department Honors in Statistics; GPA: 4.13/4.33

City University of Hong Kong — Hong Kong SAR
B.Sc. (Hons.) in Computing Mathematics *(First Class Honours)* — Sep 2014 – May 2016
Joint Bachelor's Degree Program with Columbia University; GPA: 4.13/4.3

Publications and Working Papers

Bingchen Wang, Zi-Yu Khoo, Jingtan Wang. "Prompts to Proxies: Emulating Human Preferences via a Compact LLM Ensemble." *arXiv preprint* arXiv:2509.11311, 2025. Under review

Bingchen Wang, Zhaoxuan Wu, Fusheng Liu, Bryan Kian Hsiang Low. "Paid with Models: Optimal Contract Design for Collaborative Machine Learning." *Proceedings of the AAAI Conference on Artificial Intelligence (AAAI-25)*, Oral Presentation, Philadelphia, USA, 2025

Research Experience

Independent Researcher — Zibo, China
Independent Research — AI & Economics — Jul 2025 – Present

- Propounded the preference reconstruction theory and operationalized it through the *Prompts to Proxies (P2P)* alignment pipeline; results formalized in a paper currently under peer review.
- Designing a dynamic bias benchmark for large language models, inspired by fictitious-résumé studies in labor economics, in collaboration with researchers in NLP and economics.
- Manage research logistics independently — sourcing compute credits and coordinating cross-platform experiments, including use of Alibaba Cloud and Google Cloud free credits.

Research Assistant — Singapore
Institute of Data Science, National University of Singapore — Jul 2023 – Jun 2025

- Originated and completed research on optimal contract design for collaborative machine learning, culminating in the *Paid with Models* paper (AAAI-25, Oral Presentation).
- Formulated the problem, derived theoretical results, implemented numerical experiments, and prepared the submission, rebuttal, and presentation materials.
- Initiated new research on AI for the social sciences, later developed into the *P2P* framework.

Independent Learning and Research Hong Kong & Zibo, China

Transition from Social Sciences to AI May 2022 – Jun 2023
- Completed structured coursework in *Python*, *Machine Learning*, and *Deep Learning*; studied core texts such as *The Elements of Statistical Learning*; explored literature on federated learning.
- Conducted exploratory projects on text analysis, clustering, and policy simulation using Python and PyTorch; authored learning materials and open notebooks as *Learner's Corner*.

Senior Research Assistant Hong Kong SAR

Research Hub on Institutions of China, The University of Hong Kong Sep 2021 – Apr 2022
- Cleaned and linked large-scale Chinese survey datasets (CGSS, CLDS, CFPS) and conducted exploratory data analysis in R to refine research questions and assess data quality.
- Applied ordered logistic regressions and grouped Lasso models to analyze ideology, income justice, and family background; authored the empirical analysis section of the associated paper.

Research Assistant Oxford, UK

Climate Econometrics Group, University of Oxford Oct 2019 – Jun 2021
- Maintained and expanded large-scale datasets on anthropogenic CO_2 emissions, integrating data from NASA, FRED, OECD, and national sources.
- Conducted econometric analysis on parameter-shift detection and time-series diagnostics; work contributed to my M.Phil. thesis on multiplicative-indicator saturation (MIS).

Selected Awards and Honors

Member, The Phi Beta Kappa Society, Columbia University, 2019
Joseph and Norma Preziosi Endowed Scholarship, Columbia University, 2018
Dean's Scholarship, College of Science and Engineering, City University of Hong Kong, 2017
Chow Sang Sang Group Scholarship, CityU–Columbia Joint Degree Program, 2016
HKSAR Government Scholarship, City University of Hong Kong, 2015–16
Chan Feng Men-ling Chan Shuk-lin ELC Scholarship, City University of Hong Kong, 2014
Full Tuition Scholarship, City University of Hong Kong, 2014, 15, 17

Teaching and Presentations

Invited Talk, End-of-Project Meeting, Trusted CollabML Lab, Singapore – "Let's Talk About Trust — Paid with Models: Optimal Contract Design for Collaborative Machine Learning", Mar 2025

Workshop Presentation, Good-Data Workshop, AAAI-25, Philadelphia, USA – "Fine-Tuning LLMs with Noisy Data for Political Argument Generation" (presented on behalf of S. Churina and K. Jaidka), Mar 2025

Oral Presentation, AAAI-25 Conference, Philadelphia, USA – "Paid with Models: Optimal Contract Design for Collaborative Machine Learning", Mar 2025

Teaching Assistant & Undergraduate Tutor, Columbia University – Assisted in teaching *Analysis and Optimization* (two sections, 80–100 students); provided one-on-one tutoring and exam preparation support for introductory statistics courses, 2017–18

Technical Skills and Languages

Programming: Python, R, MATLAB, Stata, OxMetrics, PyTorch, scikit-learn, Dash, Git.
Tools: LaTeX, Overleaf, Notion, VS Code, Google Cloud, Alibaba Cloud.
Languages: English (fluent), Mandarin Chinese (native), Cantonese (conversational).