YANXUAN WU

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RESEARCH STATEMENT

My research interests span various topics in economics and design of technology, focusing on human-technology interaction and technology innovation process. I use methodologies including data analysis, mathematical modeling, machine learning, experimental design, and simulation. Most recently, I work on (1) **AI hiring**, focusing on the use and design of AI interview tools; (2) **economics of technology market**, focusing on open-source community's role in the market competition and innovation.

EDUCATION

Shanghai Jiao Tong University (SJTU) — Shanghai, China
B.S. in Electrical Engineering (major) and Finance (minor) — Sep 2019 – Jun 2023
- Courses (87/100): Linear Algebra, Probability and Statistics, Calculus(I&II), Experimental Economics, Management Science, Intermediate Microeconomics, Econometrics, Electrical Power System Optimization and Marketing, Power System Information Economics

University College London (UCL) — London, United Kingdoms
Exchange in Arts and Science — Jan 2022 – Jun 2022
- Courses: Machine Reasoning and Expert Systems, Quantitative Methods and Mathematical Thinking, Algorithms: Logic and Structures

WORKING PAPER

Yanxuan Wu, Haihan Duan, Xitong Li, and Xiping Hu, 'When does Open-Source Engagement Hinder Innovation? Navigating the Deployment Dilemma in Open-Source vs. Closed-Source AI Models' ([Working Paper](#)).

Brief: We proposed a game theoretical model to analyze how the engagement of the open-source community(O) in foundation technology market influences the interaction between closed-source foundation technology developers(F) and domain-specific technology developers(S). We identified two types of engagement strategies of O: proactive and reactive. Within each strategy, we investigated the deployment dilemma that S faces when choosing a foundation technology as the base model. Also, we analyzed the technological outcomes with and without O's engagement, identifying the conditions when innovation is hindered or benefited.

RESEARCH EXPERIENCE

Influencer Marketing (Machine Learning) — Jun 2023 – present
Research Assistant with [Prof. Xitong Li](#) *(HEC Paris)* and [Prof. Shunyuan Zhang](#) *(Harvard)*
"*Influencer Selection with a Multi-Task Learning Model*"
- Improved Multi-Gate Mixture-of-Experts (MMOE) algorithm, based on the incentive mechanism of influencer behavior and interactions between marketing goals (reputation, revenue, acceptance), increasing the revenue prediction performance by over 20%.
- Explored the underlying mechanisms of multi-task learning models, based on literatures and regression analysis, identifying model-relevant factors such as the gating mechanism, data-relevant factors such as data sparsity, and feature-relevant factors such as latent relevance.
- Embedded dynamic weighting algorithm (GradNorm) into MMOE to dynamically tune the weights of different tasks during the training process, increasing the model performance by over 200% over a highly unbalanced and sparse dataset.
- Examined topic modeling algorithms (BerTopic, LDA etc.), implemented multimodal BerTopic model to cluster millions of posts (images and texts), optimized the topic representation, achieving a balanced performance on different metrics (coherence, topic overlap etc.).

Electricity Market (Empirical, Simulation, Modeling) — Dec 2022 – Jun 2023
Bachelor Thesis with [Prof. Donghan Feng](#) *(SJTU)*
"*Strategic Bidding Behavior of Electricity Suppliers by Using Market Power*"
- Analyzed the market clearing data to investigate the day-ahead electricity market, finding that the average prices received by geographically dispersed suppliers were unexpectedly similar and increased by 50% from July to November though the market demand maintained stable.
- Ran Mento Carlo simulations on stepwise bidding curves and programmed the optimization to clear the market, finding the price similarity was a joint effect of the market design of 'one-bid-one-day' and the highly correlated bidding curves at the generator, firm, and group level.
- Built a model featured with linear bidding curves to prove that the group-level price similarity only depends on the y-intercept of bidding curve even though it may range from negative infinity to nearly the price cap.

PROFESSIONAL EXPERIENCE

MoSeeker — Shanghai, China
Data Scientist, AI Interview Team — Aug 2023 – Oct 2024
- Algorithm Development
- Designed an interview question generation algorithm, by combining knowledge graph and LLM, improving the depth and diversity of interview questions, smoothing the communication, and balancing the job requirements and the candidate's experience.
- Built an automated resume parsing system, based on multiple LLM agents (i.e., GPT and Deepseek) and text processing tools (i.e., Tika and pdfplumber), achieving over 90% accuracy across diverse formats of resumes such as image-based PDFs and multilingual resumes.

- Designed a relationship-identification algorithm with two key components — standardization and matching — to identify connections between users (e.g., colleagues, schoolmates) on the platform, achieving over 90% accuracy across millions of users.

- Data Analysis
- Demonstrated the effectiveness and potential socioeconomic biases of AI evaluation on candidates' interview performance by using multiple methods such as hypothesis testing and regression to analyze the campus recruitment data.
- Examined millions of job posts and applications to illustrate and visualize the talent trends from multiple aspects such as talent flows across job types and cities and most popular skills.

Guo Sheng Securities Institute   **Shanghai, China**
Research Intern, Electrical Engineering and New Energy Team   Jul 2021 – Aug 2021
- Independently investigated the whole supply chain of electrical vehicle, analyzing the competitive landscape and comparing various companies, and forming in-depth reports with more than 15,000 words
- Built and managed a database for electrical vehicle to track the production and sales by country, firm, and model.

HONORS & AWARDS
- Honor Student in Shanghai Jiao Tong University (University, 2%)   2020, 2021
- Ren Yuan Electric Scholarship (University, 3/118)   2020, 2021
- 2nd Prize in Fanhai International Collidoscope Challenge (International, 2/80)   2021
- Advanced Social Practice Individual in Shanghai Jiao Tong University (University, 1%)   2020

ADDITIONAL INFORMATION
- **Languages:** English (fluent), Mandarin Chinese (native)
- **Standardized Test:** GMAT (96%), IELTS (8), TOEFL (107)
- **Programming:** Python (proficiency), MATLAB, Stata, C++, MySQL
- **Part-Time Job**: Physics and Math teacher for AP/A-level/IGCSE course, IELTS teacher
- **Interests:** Teaching, Calligraphy, Photography, Travelling, Reading, Basketball, Tennis