Xinru Wang

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Research Interests

Human-AI interaction, human computation, computational social science.

Education

Purdue University — West Lafayette, IN, USA
Ph.D. in Computer Science, GPA: 3.90/4.00 — Aug 2019 – present

Peking University — Beijing, China
B.S. in Psychology, GPA: 3.51/4.00 — Sep 2016 – Jun 2019

Peking University — Beijing, China
B.S. in Intelligence Science and Technology, GPA: 3.65/4.00 — Sep 2015 – Jun 2019

- Thesis: "Analysis of MOOC Forum Data towards AI Support"

Publications

1. **Xinru Wang**, Ming Yin. Are Explanations Helpful? A Comparative Study of the Effects of Explanations in AI-Assisted Decision-Making. *The 26th ACM International Conference on Intelligent User Interfaces (IUI), College Station, TX, April 2021.*
2. **Xinru Wang**, Ming Yin. Effects of Explanations in AI-Assisted Decision Making: Principles and Comparisons. *ACM Transactions on Interactive Intelligent Systems (TiiS), 2022* [Accepted conditionally]
3. **Xinru Wang**, Zhuoran Lu, Ming Yin. Predicting Human Behavior in AI-Assisted Decision Making. *The Web Conference (WWW), Lyon, France, April 2022.*

Research Experience

Purdue University | Department of Computer Science — West Lafayette, IN, USA
Research Assistant — Jun 2020 – present

- Title: The Effects of Explanations in AI-Assisted Decision-Making, Human Behavior Models in AI-Assisted Decision-Making, etc.
- Advisor: Ming Yin, Assistant Professor
- Conducted a randomized human-subject experiment to evaluate whether four types of model-agnostic explainable AI methods satisfy three desirable properties of ideal AI explanations on two types of decision-making tasks where people perceive themselves as having different levels of prior knowledge in.
- Proposed a space of three-component models (i.e. inference + utility + selection) that resemble human behavior in the setting of AI-assisted decision making.

University of Michigan | School of Information — Ann Arbor, MI, USA
Summer Research Intern — Jul 2018 – Sep 2018

- Title: Modeling Bi-directional Trust in Semi-autonomous Vehicles for Improved System Performance
- Advisor: Lionel Robert, Associate Professor
- Extracted reaction time and eye-gaze monitoring data from a raw dataset.
- Analyzed data to investigate the correlation between trust behavior, trust, and secondary task performance of subjects. Implemented classic classification and regression methods on the dataset for trust modeling.

Work Experience

Kendall Square Capital | Technology Department Beijing, China
Machine Learning Intern Jan 2019 – Apr 2019

- Extracted over 70 time-series features from the limit order book data, for prediction of mid-price movement in high frequency trading. Reduced mean squared error by 30% in the regression task.

DiDi | Department of Smart Transportation Beijing, China
Machine Learning Intern Sep 2018 – Jan 2019

- Extracted taking-order features for the drivers, then reduced the number of features according to F-scores. Implemented random under-sampling method to reduce imbalance between positive and negative samples in the dataset.
- Trained a XGBoost model whose AUC reaches 0.76 on the under-sampled dataset and 0.88 on the actual dataset.
- Completed data analysis for driver's waiting-time model on a hive dataset of million orders of magnitude.

Patents

1. **X. Wang**, Y. Wang, and Z. Yu. " recommendation method for recipes based on deep learning". *CN107665254A, Feb. 2018* (In Chinese).

Teaching

- **Teaching Assistant** at Purdue University Fall 2019 and Spring 2020
  Python Programming (CS38001)
  Artificial Intelligence (CS471)
  Introduction to Data Science (CS242)

Skills

- **Programming Languages:** Python, SQL, MATLAB, C/C++, Java, HTML/CSS/JavaScript
- **Toolkits:** Pandas, Numpy, sklearn, Meteor

Languages

- **English:** GRE 162+170+3.5, TOEFL 111
- **Chinese:** Native speaker
- **French:** Fresh learner

Scholarships and Awards

- Academic Excellence Award, Peking University (top 15%) 2015 – 2016
- May 4th Scholarship, Peking University 2015 – 2016
- Academic Excellence Award, Peking University (top 10%) 2017 – 2018
- Fei-Xun Scholarship, Peking University 2017 – 2018

Extracurricular Activities

- Student Volunteer at ACM SIGIR Conference 2018 Jul 2018

- Member at Womens' Volleyball Team of EECS, Peking University Sep 2016 – Aug 2017
  Responsible for the organization of weekly training and the registration of important competitions.