JINGXIAN LIAO

Davis, CA, 95616 | jxliao@ucdavis.edu | https://jxliao6.github.io/ | Demos

Research Focus

My research is in the intersection of Human-Computer Interaction (HCI), Data Science, Computer-Supported Cooperative Work, Social Computing, and human-AI interaction. I design and build systems that facilitate the consumption of online unstructured resources for general users and support human-AI interactions for end-users.

Education

- ***PhD in Computer Science,*** University of California, Davis 2018-present
  Thesis: Restructuring Unstructured Video Resources for Collaborative Learning and Work
- ***Master's in Statistics***, University of California, Davis 2016-2018
- ***Bachelor in Statistics,*** Hunan University 2012-2016

Selected Publications

Conference Regular Papers and Journal Papers

- **Jingxian Liao**, Wei Wang, Jason Xue, Anthony Lei, Xue Han, Kun Lu. 2022. Combating Sampling Bias: A Self-Training Method in Credit Risk Models. In Proceedings of the 34th Annual Conference on Innovative Applications of Artificial Intelligence (IAAI-22)
- Chien-Lin Tang*, **Jingxian Liao***, Hao-Chuan Wang, Ching-Ying Sung, Wen-Chieh Lin. 2021. ConceptGuide: Supporting Online Video Learning with Concept Map-based Recommendation of Learning Path. In Proceedings of the Web Conference 2021. *These authors contributed equally to this work **[Best Student Paper Award]**
- **Jingxian Liao** and Hao-Chuan Wang. 2020. Gestures as Intrinsic Creativity Support: Understanding the Usage and Function of Hand Gestures in Computer-Mediated Group Brainstorming. In Proceedings of ACM Human-Computer Interaction 3, GROUP, Article 243 (GROUP 2020)
- **Jingxian Liao**, Guowei Yang, David Kavaler, Vladimir Filkov, Prem Devanbu. 2019. Status, identity, and language: A study of issue discussions in GitHub. In PLOS ONE 14(6): e0215059.
- Chang Shu*, **Jingxian Liao***, Pengfei Wang*, Xiangning Zhu*, Yinghua Ren. 2015. The Empirical Research on the Real Economy and Financial Services based on the Effective Liquidity. In Financial Statistics Research. vol1, 2015. *These authors contributed equally to this work

Conference Late Breaking Work, Short Paper, Workshop Papers, Posters, Demos

- **Jingxian Liao**, Mrinalini Singh, Hao-Chuan Wang (2023). DeepThinkingMap: Collaborative Video Reflection System with Graph-based Summarizing and Commenting. to appear in Demo track, of the ACM SIGCHI Conference on Computer Supported Cooperative Work and Social Computing (CSCW), 2023
- **Jingxian Liao**, Mrinalini Singh, Yi-Ting Hung, Wen-Chieh Lin, Hao-Chuan Wang (2023). ConceptCombo: Assisting Online Video Access with Concept Mapping and Social Commenting Visualizations. to appear in Demo track, of the ACM SIGCHI Conference on Computer Supported Cooperative Work and Social Computing (CSCW), 2023
- **Jingxian Liao**, Hao-Chuan Wang, Social Nudge for Reflection: Concept Mapping and Commenting for Reflection on High-stakes Video Information. In CHI 2023 Workshop on Integrating Individual and Social Contexts into Self-Reflection Technologies
- **Jingxian Liao**. Restructuring Unstructured Video Resources for Collaborative Learning and Work. In The 2023 ACM International Conference on Supporting Group Work (GROUP '23)
- **Jingxian Liao**, Hao-Chuan Wang. 2022. Nudge for Reflective Mind: Understanding How Accessing Peer Concept Mapping and Commenting Affects Reflection of High-stakes Information. In Extended Abstracts of the 2022 CHI Conference on Human Factors in Computing Systems (CHI EA '22)
- **Jingxian Liao**, Wei Wang, Jason Xue, Anthony Lei. 2021. Data Augmentation Methods for Reject Inference in Credit Risk Models. In AAAI-21 Workshop on Knowledge Discovery from Unstructured Data in Financial Services
- Chien-Lin Tang, **Jingxian Liao**, Hao-Chuan Wang, Ching-Ying Sung, Yu-Rong Cao, Wen-Chieh Lin. 2020. Supporting Online Video Learning with Concept Map-based Recommendation of Learning Path. In Extended Abstracts of the 2020 CHI Conference on Human Factors in Computing Systems (CHI EA '20).

- **Jingxian Liao**, Hao-Chuan Wang. 2020. Beyond Consciousness: Studying Intrinsic and ImplicitGesture Use in Group Brainstorming through a Data ScienceLens. In Human-Centered Data Science Workshop at GROUP 2020

Selected Professional Experience

PhD researcher in HCI 09/2018- current

Collaborative and Social Computing Lab, UC Davis Davis, California

- Led end-to-end BERT-based personalized video recommendation systems, achieving a 14.4% uplift in user satisfaction compared to YouTube
- Crafted real-time GPT-aided Human-AI full-stack prototypes for collaborative interpretation and brainstorming, using React, JavaScript, and LLMs
- Conducted ethnography, surveys, and interviews, executing user experiments with 200+ participants, providing actionable insights to design and engineering practitioners and researchers
- Mentored six junior researchers across Human-AI collaboration/VR/search, emphasizing the importance of user-centric design and research methodologies

Researcher Intern 06/2022-09/2022

Google Health, Google Research Palo Alto, California

- Automated hypothesis testing to establish environment-health statistical relationships, adaptable for most testing methods, saving domain experts' most coding burden, CLs merged in main branch
- Visualized the geo-distribution of 500k UK population about health and other conditions in different scales
- Employed quantitative regression and Bayesian techniques to guide future public health research start points

Data Scientist Intern 06/2020-09/2021

Intuit AI, Intuit Mountain View, California

- Developed self-training models for credit score assessment, boosting default risk prediction accuracy by 4% and improving data fairness, and now employed to refine the underwriting process
- Innovatively used approval rate to gear towards risk slope optimization, enhancing financial risk control capabilities by increasing the loan approval rate up to 8.8% with the same default rate
- Streamlined an automatic processing algorithm based on 10M bank records to identify financial health and loan risk using Spark, SQL, and peer benchmarking

User experience Research Intern 07/2019 - 09/2019

Intel-NTU Connected Context Computing Center Taipei, Taiwan

- Conducted and contextual inquiries with 20 taxi drivers and their partners, focusing on the challenges and needs of long-time workers
- Employed mixed-methods research, conducting usability studies and ethnography, resulting in key actionable insights for the design of AI-driven social health monitors

Research Assistant 08/2017-09/2018

DECAL Lab, UC Davis Davis, California

- Developed an auto-Encoder recommendation system using Keras and Tensorflow, predicting domain experts with up to 87% accuracy over 3k developers
- Executed web crawling on GitHub to curate top 100 active and popular projects, gathering comprehensive project activities with API

Selected Award, Patent, Coverage, and Academic Service

- Best Student Paper Award, the Web Conference 2021
- Google PhD Fellowship nominee, 2020
- First class scholarship, Hunan University, 2013-2015

- US patent. "Method of Machine Learning Training for Data Augmentation". Published. US20220237520A1
- US patent. "Combining Unsupervised and Supervised Machine Learning to Estimate SMB (Small Business) Revenue in Lending". Published. US20230101182A1

- Member of SIGCHI working group on hybrid conference experiences since 2022
- Reviewer for ACM CHI, CSCW, DIS, mobileHCI, IUI, CUI since 2020
- Special Recognitions for Outstanding Reviews in CSCW, DIS

- Co-organizer, Reflecting on Hybrid Events: Learning from a Year of Hybrid Experiences, In Proceedings of the 41st Annual SIGCHI Conference on Human Factors in Computing Systems (CHI2023)

- UC Davis CS Department News Coverage on our WWW 2021 Paper: “A Guide for Learning from YouTube”

Skills And Expertise

- ML and AI: Natural Language Processing, Deep Learning, Recommender System, Information Retrieval, Large Language Model Application, Supervised and Semi-supervised Machine Learning, Reinforce Learning, Generalized Linear Regression
- Statistics: Data Mining and Analysis, Time Series, Hypothesis Testing, Statistical Modelling, Generalized Linear Regression, Bayesian Statistics and Modelling, Causal Inference
- UX: Social Computing, Human-AI Collaboration, Data Visualization, Experiment Design, System Evaluation, User Interaction Design, Prototype, Social Cognition
- Programming: Python (PyTorch, Keras), C/C++, R, SQL, JavaScript, D3.js, React, HTML/CSS,
- Cloud related: AWS, Git, Databricks, Google Cloud, Microsoft Azure, Firebase, Hadoop, Tableau