THE UNIVERSITY OF HONG KONG



COMPUTER SCIENCE



CS Seminar - An Author-Assisted Approach to Improving Peer Review for Large CS Conferences, with Experiments at ICML 2023



Date: July 19, 2023 (Wed) Time: 2:30 - 3:30pm Mode: Mixed (Tam Wing Fan Innovation Wing Two & via Zoom)

To Register: https://hku.zoom.us/meeting/register/tJltc-ugqjM pGdbOw27f9uCT8L6JAmINRZzO



Abstract:

Speaker:

In 2014, the number of submissions to NeurIPS was 1,678, but this number skyrocketed to 10,411 in 2022, putting a huge strain on the peer review process. In this talk, we attempt to address this challenge starting by considering the following scenario: Alice submits a large number of papers to a machine learning conference and knows about the ground-truth quality of her papers; Given noisy ratings provided by independent reviewers, can Bob obtain accurate estimates of the ground-truth quality of the papers by asking Alice a question about the ground truth? First, if Alice would truthfully answer the question because by doing so her payoff as additive convex utility over all her papers is maximized, we show that the questions must be formulated as pairwise comparisons between her papers. Moreover, if Alice is required to provide a ranking of her papers, which is the most fine-grained question via pairwise comparisons, we prove that she would be truth-telling. By incorporating the ground-truth ranking, we show that Bob can obtain an estimator with the optimal squared error in certain regimes based on any possible ways of truthful information elicitation. Moreover, the estimated ratings are substantially more accurate than the raw ratings when the number of papers is large and the raw ratings are very noisy. Finally, we conclude the talk with an experiment of this scoring mechanism in ICML 2023. This is

based on arXiv:2110.14802, arXiv:2206.08149, arXiv:2304.11160, and arXiv:2306.11154.

Biography:

Weijie Su is an Associate Professor at the University of Pennsylvania, with appointments at the Wharton School and in the Department of Computer and Information Science, where he is a co-director of the Penn Research in Machine Learning Center. He received his Ph.D. degree from Stanford University in 2016 and his bachelor's degree from Peking University in 2011. His research interests include economic aspects of generative AI, privacy-preserving machine learning, deep learning theory, optimization, and mechanism design. He is a recipient of the Stanford Theodore Anderson Dissertation Award in 2016, an NSF CAREER Award in 2019, an Alfred Sloan Research Fellowship in 2020, the IMS Peter Gavin Hall Prize in 2022, and the SIAM Early Career Prize in Data Science in 2022.

For enquiries, please email enquiry@cs.hku.hk or call 2859-2180.