

FALL 2023 UNDERGRADUATE RESEARCH SYMPOSIUM AWARDEES

Most Popular Project

The Omission Bias in the Chinese Context

Presenters: Yucheng Bao, Yun-Hsin Fang, Ruoming Sun

Project Subject: Social Science

Faculty Mentor: Julia Hur

Omission bias represents a type of decision-making bias, referring to the evaluation of commission as more blameworthy compared with omission. Most relevant research focuses on WEIRD (Western, Educated, Industrialized, Rich, and Democratic) countries. To extend the scope of research, we carried out a replication study based on Jamison, Yay, and Feldman (2020) among the Chinese population. While the original study only found omission-commission asymmetry in two attributes, our result provided stronger evidence for omission bias in four attributes - immorality, responsibility, causality, and intentionality. The attribute of responsibility in our study also revealed an interaction effect between commission and harm.

LIBERAL ARTS & BUSINESS

Best Research Project

Dirty Work in Jaipur: A Pilot Study on Waste Collection in Postcolonial Urban Communities

Presenter: Maanyaa Jain

Project Subject: Social Science

Faculty Mentor: Travis Klingberg

My research investigates how Prime Minister Narendra Modi's 2016 Swachh Bharat Mission (SBM) altered the relationships between gully-residents, waste-pickers, and waste in Jaipur, India. Through my research, in the form of interviews and literature review, I seek to understand what these changes reveal about the enduring power dynamics rooted in colonial history. The research positions waste labor as a microcosm of larger urban political and postcolonial narratives, offering insights into the evolving relationship between communities and waste in the context of India's urbanization.

LIBERAL ARTS & BUSINESS

Best Presentation Project

Reviving Jiehua: China's Lost Painting Form

Presenters: Alicia Arango, Alexandra Kogler,
Xuan Lin, Guilherme Cangiano Machado

Project Subject: Interdisciplinary

Faculty Mentor: Shuang Wen

Jiehua is a genre of Chinese painting that combines detailed architecture and shan shui landscapes, often adorned with the presence of figures, boats, and carts. Originating in the Western Zhou dynasty, it reached its zenith during the Song and Yuan periods, despite disdain from literati. The art form itself, together with its aesthetics and principles, disseminated to Japan and Korea, impacting the evolution of their art. Yet jiehua remains conspicuously neglected by English scholarship, with only two scholarly book publications and less than a dozen scholarly writings. This research establishes jiehua's value for multidisciplinary research and its transnational impact.

STEM

Best Research Project

MLFD: The Implementation and Performance Evaluation of an LSTM-based, SmartNIC-Offloadable Failure Detector

Presenter: Yuncheng Yao

Project Subject: Computer Science, Data Science,
and Engineering

Faculty Mentor: Olivier Marin

This project explores the feasibility of using machine learning algorithm for failure detection services. Our implementation shows that a DPDK-based failure detector (FD) using long short-term neural network performs well in terms of accuracy, at the cost of reasonable additional computation resources for training and inference. We also show that our implementation can be offloaded to a mainstream SmartNIC - NVIDIA BlueField-2, while retaining comparable quality of service. The viability of offloading ML-FD to SmartNIC further frees up the concern that it will take up too much computation resources.

STEM



Best Presentation Project

Thermal Tolerance Adaptations of Spotted Lanternflies (SLFs) in New York City and Shanghai

Presenter: Aria Zhang

Project Subject: Biology

Faculty Mentor: Kristin Winchell

Lycorma delicatula (spotted lanternfly) is an invasive species in the United States. The species has spread rapidly in the US since its introduction from China in 2014. This project investigates the thermal tolerance of adult spotted lanternflies from New York City and Shanghai, thus understanding the potential of this species to adapt to different climate conditions and urbanization in native and invasive ranges. We measured the thermal limits of adult spotted lanternflies from each city to determine the impacts of climate conditions and other covariates on thermal tolerance. We found that thermal limits differ between populations from NYC and Shanghai.