

FALL 2020

UNDERGRADUATE RESEARCH SYMPOSIUM

Winners

Most Popular Project

Between Life and Death: Art Practice in Navigating Digital Legacy for Online Bereavement

Presenters: Wang, Zhichen; Bi, Yanran; Gao, Xinyi

Project Subject: Interactive Media Arts

Mentor: Eric Parren

Aware of the current challenge that digital legacy and online bereavement lack systematic arrangement, the purpose of this project is to navigate the interpersonal experience of bereavement within the ever changing mediated environment. Through a multi-media art exhibition, the project aims at raising people's awareness of digital legacy and adopting their own way of digital remembrance after and ahead of death.

Best Research Project

Parameter Estimation for SIR Model Using MCMC and Its Meaning in Epidemic Control

Presenters: Liu, Xinhao; Chen, Kuntian; Liu, Hongquan

Project Subject: Math

Mentor: Xianbin Gu

The Novel Coronavirus Disease 2019 (COVID-19), breaking out in the late January, 2020, has evolved into a global pandemic. Eight months after its first confirmed case, it is still infecting everyone's daily life all over the world. In this project, by applying the susceptible-infected-removed (SIR) model for epidemic statistics modeling and Monte Carlo Markov Chain (MCMC) method for parameter estimation, researchers discussed about the possibility to estimate real-world epidemic data. More insights beyond the existing models and methods are also provided in this report.

Best Poster

Distinct Reverse Auditory Hierarchies during Speech and Hearing Imagery

Presenter: Chu, Qian

Project Subject: Neural Science

Mentor: Yanyue Yuan

People can hear the world with ears, as well as 'hear' using their 'mind's ear'. That is, perceptual representations arise from not only the bottom-up processing of external stimuli but also top-down processes such as mental imagery. Here we present an fMRI study on auditory reactivation during speech and hearing imagery to examine the neural processing of the 'mind's ear'. Using brain activation and functional connectivity analyses, we identified two distinct neural streams (motor-to-sensory transformation and memory retrieval) supporting auditory reactivation. Our results reveal the neural mechanisms underlying perceptual reactivation and motor-to-sensory transformation that support human higher-level cognition.

Best Research Project

Predictors of Chinese Parents' Attitudes Towards a Possible Sexual Minority Child

Presenter: Ying, Yurun

Project Subject: Social Science

Mentor: Pekka Santtila

In this study, we examined the attitudes of Chinese parents towards a sexual minority child in three dimensions (emotions, cognitions, and past behaviors/behavioral intentions) as well as their possible predictors. We found that female gender and nonheterosexual identity predicted more positive attitudes. We also found that beliefs in changeability and negative outcomes of homosexuality remained significant across all three dimensions of attitudes when controlling for others, although all predictors except for family cohesion and adaptability were significant univariately. Findings suggest that focusing on these factors in future research and interventions may be key to improving the well-being of Chinese LGB population.

Best Poster

Spatial Distribution and Accessibility Analysis of Public Hospitals in Shanghai

Presenter: Shi, Yiling

Project Subject: Social Science

Mentor: Chenghe Guan

This study assesses the current spatial distribution and accessibility situations of public hospitals in Shanghai. In addition to the point density analysis which directly reflects the spatial distribution pattern, this study also utilizes a comprehensively improved gravity model with travel times generated by web mapping API to accurately measure the accessibility level. The study finds that the central urban area gathers more high-quality public healthcare resources and also has higher accessibility levels. Based on the experiences and challenges, the study concludes with suggestions for future public hospital system optimizing in Shanghai, which can be leveraged for other public plannings