October 24, 2024

ICDM 2024 Application for Travel Grant

Dear Dr. Yi He,

I am writing to express my enthusiasm for the International Conference on Data Mining and to share my research interests, achievements, and future plans. My research journey has been shaped by a profound interest in understanding the mechanisms of cognition, particularly motivation and long-term passions.

As a graduate researcher at San Francisco State University (SFSU), I have had the opportunity to explore diverse research areas. My current work under Dr. Hui Yang on the "AdvisingGPT" project involves using foundation models for automated course equivalency evaluation and personalized academic advising. This research focuses on utilizing foundation and embedding models to enhance student success, while employing techniques such as instruction fine-tuning, retrieval-augmented generation, and prompt engineering. In addition, I am leading the "AI-STAARS" project under Dr. Anagha Kulkarni, where we aim to improve retention and academic achievement in Computer Science through providing academic support and stimulating students' sense of belonging and identity. This work has informed the forthcoming poster presentation "Metacognition in Computer Science Learning: Perception vs. Reality," at the National Association of School Psychologists Annual Convention.

In previous research roles, I have also delved into topics like clustering and analysis of phishing emails during my internship at Cofense Inc., where I significantly improved computational efficiency and data utilization. My undergraduate work at the University of Houston's NSF REU program equipped me with skills in multi-threaded algorithm development and exploratory clustering, while my time as a teaching assistant, facilitator, and program liaison at SFSU has refined my ability to communicate complex concepts effectively to diverse audiences.

The support from this grant will be instrumental in advancing my research goals. In the future, I plan to do research on biologically plausible neural networks, aiming to bridge the gap between artificial neural networks and biological brain functions. This research could provide critical insights into cognition, neurological diseases, and mental health. Moreover, this funding would enable me to deepen my knowledge in Data Mining and foster connections with leading experts in the field.

I am also honored to have the forthcoming publication, "Foundation Models for Course Equivalency Evaluation," accepted to the Workshop on Information Seeking with Big Models at the upcoming ICDM 2024 conference. This paper, co-authored with Dr. Arno Puder, Chair of the Computer Science Department at SFSU; Dr. Craig Hayward, Associate Vice Chancellor at Kern Community College District; and Dr. Hui Yang, Associate Professor of Computer Science at SFSU, will provide invaluable experience in communicating technical research to a diverse audience of experts.

Thank you for considering my application. This grant would not only accelerate my research but also deepen my impact on the academic community and society at large by enabling me to pursue my future research interests in the interplay between cognition and artificial intelligence.

Sincerely,

Mark S. Kim