Keyang Zheng

Kez20@pitt.edu | +1 412-641-0594 | Pittsburgh, PA

RESEARCH INTEREST

My research interest lies at the interaction of Game Analytics, Team Communication, Distributed Collaboration, and Human Robot Teaming. I use various research platforms, such as multiplayer games, to study human interactions in a team setting, and explore new technologies that facilitate effective human team communication and collaboration. Through increased understanding of human interactions within a team, I explore various methods to improve the teaming experience and effectiveness of human and robots/AIs.

EDUCATION

University of Pittsburgh   Pittsburgh, US
School of Computing and Information   Fall 2018 – Present
Ph.D. in Information Science   Expected to graduate 2024
Advisor: Rosta Farzan

University of Pittsburgh   Pittsburgh, US
School of Computing and Information   2016 - 2018
M.S. in Information Science

Nanjing University   Nanjing, China
B.E. Computer Software Engineering   2012 - 2016
Software Institute
Outstanding Student Leadership Award in the Software Institute (2013)

RESEARCH EXPERIENCE

University of Pittsburgh   Pittsburgh, US
Research Assistant, School of Computing and Information   Sept 2023 – Present
- Explored how players in competitive online multiplayer games communicate and collaborate using non-verbal communication methods, such as Pings.
- Designing frameworks for bots/agents in the competitive online multiplayer games to enable improved communication between human players and bots/agents in a hybrid human-agent team.

Carnegie Mellon University   Pittsburgh, US
Research Assistant, Robotic Institute   Dec 2019 – Aug 2023
- Studied people's decision making and collaborative behaviors during a search and rescue mission in Minecraft.
- Designed models to identify misbeliefs or information imbalance among team members, and interventions to target these obstacles in team collaboration using deep reinforcement learning agents.

University of Pittsburgh Pittsburgh, US

Research Assistant, Graduate School of Public Health Aug 2018 – Apr 2020

- Participated in the development of Framework for Reconstructing Epidemiological Dynamics (FRED) Software for agent-based modeling.
- Developed a preliminary agent-based model on community influence of alcohol/substance abuse behaviors:

PUBLICATIONS

Zheng, K., Li, A., & Farzan, R. (2018). Exploration of online health support groups through the lens of sentiment analysis. In Transforming Digital Worlds: 13th International Conference, iConference 2018, Sheffield, UK, March 25-28, 2018, Proceedings 13 (pp. 145-151). Springer International Publishing.

Li, H., Zheng, K., Lewis, M., Hughes, D., & Sycara, K. (2021, September). Human theory of mind inference in search and rescue tasks. In Proceedings of the Human Factors and Ergonomics Society Annual Meeting (Vol. 65, No. 1, pp. 648-652). Sage CA: Los Angeles, CA: SAGE Publications.

Li, H., Le, L., Chis, M., Zheng, K., Hughes, D., Lewis, M., & Sycara, K. (2023, January). Sequential theory of mind modeling in team search and rescue tasks. In Computational Theory of Mind for Human-Machine Teams: First International Symposium, ToM for Teams 2021, Virtual Event, November 4–6, 2021, Revised Selected Papers (pp. 158-172). Cham: Springer Nature Switzerland.

Zheng, K., Stein, B., & Farzan, R. (2023). Use Ping Wisely: A Study of Team Communication and Performance under Lean Affordance. ACM Transactions on Social Computing, 5(1-4), 1-26.

Zheng, K., & Farzan, R. (2023). Understanding Player's Gesture-Based Communicative Behavior in MOBA Games. Proceedings of the ACM on Human-Computer Interaction, 7(CHI PLAY), 1068-1090.

Chis, M., Li, H., Zheng, K., Lewis, M., Hughes, D., & Sycara, K. (2023, October). The Cognitive Load–Productivity Tradeoff in Task Switching. In Proceedings of the Human Factors and Ergonomics Society Annual Meeting (p. 21695067231193677). Sage CA: Los Angeles, CA: SAGE Publications.

Li, H., Chis, M., Zheng, K., Lewis, M., Hughes, D., & Sycara, K. (2023, September). Sentiment analysis of Artificial Advisors in Search and Rescue Tasks. In Proceedings of the Human Factors and Ergonomics Society Annual Meeting (Vol. 67, No. 1, pp. 2564-2570). Sage CA: Los Angeles, CA: SAGE Publications.

Li, H., Fan, Y., Zheng, K., Lewis, M., & Sycara, K. (2023). Personalized Decision Supports based on Theory of Mind Modeling and Explainable Reinforcement Learning. arXiv preprint arXiv:2312.08397.

Teaching Experience

Teaching Fellow / Instructor
INFSCI 0510 Data Analysis   Spring 2024
University of Pittsburgh

Teaching Assistant
INFSCI 2430 Social Computing   Fall 2023
Gest Lecture: Team Communication in Virtual World
University of Pittsburgh

INFSCI 2160/1530 Data Mining   Fall 2023
University of Pittsburgh

TALKS AND PRESENTATIONS

Shared Deliberation in Facebook Support Groups for Sickle Cell Patients and Caregivers
Foundation for Sickle Cell Disease Research, Miami   April 2017

HONORS & AWARDS

Outstanding Student Leadership Award in the Software Institute   2013
Catherine Ofiesh and Gerald Orner Award   2018

SKILLS

Programming | Python • Java • C++ • Lua • Swift • JS • HTML/CSS/Bootstrap
ML, STAT | R • PyTorch • Keras • scikit-learn
Content Creation | Photoshop • Premiere Pro • After Effects • Audition

SERVICE

Paper Reviewer
WWW 2018, 2019
CSCW 2021, 2023
CHI Play 2022, 2023
IEEE Transaction on Human-Machine Systems