Ruchen Wen

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➡ RESEARCH INTERESTS

My research focuses on **human-robot interaction** (**HRI**), particularly **linguistic HRI,** and **robot ethics**. I am also interested in **emotion understanding and representation** and (**robotics-centric**) **Computer Science education**.

➡ EDUCATION

Ph.D., Computer Science, *Colorado School of Mines, Golden, CO*   May 2023 (Expected)
    Advisor: Prof. Tom Williams

M.S., Software Engineering, *University of Wisconsin-La Crosse, La Crosse, WI*   May 2018

B.E., Software Engineering, *South-Central University for Nationalities, China*   June 2016

➡ PUBLICATIONS

Ruchen Wen, Zhao Han and Tom Williams. "Teacher, Teammate, Subordinate, Friend: Generating Norm Violation Responses Grounded in Role-based Relational Norms". In: *Proceedings of the 17th ACM/IEEE International Conference on Human-Robot Interaction (HRI)*. 24.8% acceptance rate, 2022.

Tom Williams and Ruchen Wen. "Human Capabilities as Guiding Lights for the Field of AI-HRI: Insights from Engineering Education". In: *Proceedings of the AAAI Artificial Intelligence for Human-Robot Interaction Symposium (AI-HRI)*. 2021.

Boyoung Kim, Ruchen Wen, Ewart J. de Visser, Qin Zhu, Tom Williams and Elizabeth Phillips. "Investigating Robot Moral Advice to Deter Cheating Behavior". In: *Proceedings of the ROMAN Workshop on Robot Behavior Adaptation to Human Social Norms (TSAR)*. 2021.

Qin Zhu, Tom Williams and Ruchen Wen. "Role-based Morality, Ethical Pluralism, and Morally Capable Robots" In: *Proceedings of Journal of Contemporary Eastern Asia (JCEA)*. 2021.

Ruchen Wen, Boyoung Kim, Elizabeth Phillips, Qin Zhu and Tom Williams. "Comparing Strategies for Robot Communication of Role-Grounded Moral Norms". In: *Proceedings of the Companion of the 16th ACM/IEEE International Conference on Human-Robot Interaction (HRI LBRs)*. 2021.

Boyoung Kim, Ruchen Wen, Qin Zhu, Tom Williams and Elizabeth Phillips. "Robots as Moral Advisors: The Effects of Deontological, Virtue, and Confucian Ethics on Encouraging Honest Behavior". In: *Proceedings of the Companion of the 16th ACM/IEEE International Conference on Human-Robot Interaction (alt.HRI)*. 2021.

Ruchen Wen, Tom Williams and Mohammed Aun Siddiqui. "Dempster-Shafer Theoretic Learning of Indirect Speech Act Comprehension Norms" In: *Proceedings of the 34th AAAI Conference on Artificial Intelligence (AAAI)*. 20.6% acceptance rate, 2020.

Qin Zhu, Tom Williams, Blake Jackson, and Ruchen Wen. "Blame-Laden Moral Rebukes and the Morally Competent Robot: A Confucian Ethical Perspective" In: *Science and Engineering Ethics*. 2020.

Tom Williams, Qin Zhu, Ruchen Wen and Ewart J. de Visser. "The Confucian Matador: Three Defenses Against the Mechanical Bull". In: *Proceedings of the Companion of the 15th ACM/IEEE International Conference on Human-Robot Interaction (alt.HRI)*. 2020.

Tom Williams, Daniel Grollman, Mingyuan Han, Ryan Blake Jackson, Jane Lockshin, Ruchen Wen, Zachary Nahman, and Qin Zhu. "'Excuse Me, Robot': Impact of Polite Robot Wakewords on Human-Robot Politeness". In: *Proceedings of the International Conference on Social Robotics*. 2020.

Qin Zhu, Tom Williams and Ruchen Wen. "Confucian Robot Ethics" In: *Proceedings of Computer Ethics - Philosophical Enquiry (CEPE)*. 2019.

Ruchen Wen, Ryan Blake Jackson, Tom Williams and Qin Zhu. "Towards A Role Ethics Approach to Command Rejection" In: *Proceedings of the HRI workshop on the Dark Side of Human-Robot Interaction*. 2019.

Ryan Blake Jackson, Ruchen Wen and Tom Williams. "Tact in Noncompliance: The Need for Pragmatically Apt Responses to Unethical Commands" In: *Proceedings of the AAAI/ACM Conference on Artificial Intelligence, Ethics, and Society (AIES)*. 15% acceptance rate (oral), 2019.

➡ ABSTRACTS & PRESENTATIONS

Extended Abstract, *March 2021.*
16th Human-Robot Interaction (HRI) Pioneers Workshop (HRI Pioneers 2021)
  "Toward Hybrid Relational-Normative Models of Robot Cognition"
Short Presentation, *August 2020.*
8th Annual Conference on Advances in Cognitive Systems (ACS 2020)
  "Dempster-Shafer Theoretic Learning of Indirect Speech Act Comprehension Norms"
Invited Speaker, *July 2020.*
11th International Conference on Applied Human Factors and Ergonomics (AHFE 2020)
  "Exploring Robotic Moral Competence Through Role Ethics"
Graduate Student Talk, *November 2018.*
Rocky Mountain Celebration of Women in Computing (RMCWiC 2018), Lakewood, CO
  "Towards a Role-Based Framework for Moral Robots" (**Honorable Mention Graduate Student Talk**)

➡ RESEARCH EXPERIENCE

Research Assistant
MIRROR Lab, Colorado School of Mines, Golden, CO; Director: Dr. Tom Williams   Aug 2018 – present
  • Investigating moral human-robot interaction
  • Conducting experiments to explore moral communication strategies
  • Implemented DS-Theoretic norm learning algorithm
  • Developing role-based framework for robotic moral competence
  • Supervising undergraduate and high school students

Research Student
Department of Computer Science, UWL, La Crosse, WI; Advisor: Dr. Allison Sauppé   Oct 2017 – July 2018
  • Investigated affective grounding in human-human and human-robot interaction
  • Examined bid/response action series and three types of behaviors in human interaction

Master's Thesis Research

Department of Computer Science, UWL, La Crosse, WI; Advisor: Dr. Martin Allen   Sep 2017   May 2018
- Developed a robotics tracking and control system for future robotic teaching and AI/ML research
- Utilized cameras that were installed in the lab as the vision system instead of on-board cameras
- Worked with OpenCV, a vision processing library, to detect elements in the actual environment, changing the virtual environment by adding and removing augmented-reality elements
- Established a server to coordinate data transmission between the vision system and multiple users

Research Student

Department of Computer Science, SCUN, China; Advisor: Dr. Yilin Kang   Summer 2017
- Explored different possibilities of companion robots
- Devised a chat-bot with certain actions triggering mechanisms

Undergraduate Research Student

Department of Computer Science, SCUN, China; Advisor: Dr. Xinnian Wang   Dec 2015   June 2016
- Introduced a difficulty adaption game design strategy based on user performance

Undergraduate Lab Assistant

New Thread Laboratory, SCUN, Wuhan, China; Director: Dr. Jun Tie   Nov 2014   June 2015
- Member of Android group, focused on user interface design and interactive design