Sept 2019

XUAN ZHAO

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ACADEMIC POSITIONS

The University of Chicago, Booth School of Business 2017–Present
Postdoctoral Research Fellow, Center for Decision Research

EDUCATION

Brown University 2011–2017
Ph.D. in Social Psychology
Dissertation: When Do We Take Other People's Perspectives? An Investigation into the Contextual Triggers of Visual Perspective Taking
Committee: Bertram Malle (Chair), Hyowon Gweon, Joachim Krueger, Oriel FeldmanHall

Stanford University 2015
Exchange Scholar, Department of Psychology & Graduate School of Business

Zhejiang University (Hangzhou, China) 2007–2011
B.Sc. in Psychology, first-class honors at Chu Kochen College
Thesis: Visual working memory in multiple object tracking through occlusion
Advisor: Mowei Shen

RESEARCH INTERESTS

Conversation and perspective taking
Anthropomorphism and human-robot interaction
Social judgment and decision-making
Prosocial behaviors

HONORS AND AWARDS

International Conference on Human-Robot Interaction, Best Paper Award, runner-up	2018
Society of Personality and Social Psychology, Q&pAy Grant Competition, winner	2017
Psychology of Technology Preconference, SPSP, Graduate Student Travel Award, first prize	2017
Society of Philosophy and Psychology, Graduate Student Travel Award	2016
Morality and Unethical Behavior Summer School Fellowship, IDC Herzliya	2016
The Reginald D. Archambault Teaching Award (Honorable Mention), Brown University	2015
Dissertation Fellowship, Brown University	2015
Society of Personality and Social Psychology, Graduate Student Travel Award	2014
Tübingen International Summer School Fellowship, 2014, Tübingen University	2014
First-Year Fellowship, Brown University	2011
First-Class Scholarship for Outstanding Student, Zhejiang University	2009, 2010
Honor of Excellent Student Leader, Zhejiang University	2008-2010
Kwang-Hua Scholarship for Academic Excellence, Kwang-Hua Foundation	2011
First-Class Award for Student Research, Zhejiang University	2009

PEER-REVIEWED PUBLICATIONS

Phillips, E., **Zhao, X.,** Ullman, D., & Malle, B. F. (2018). What is human-like?: Decomposing robot human-like appearance using the Anthropomorphic roBOT (ABOT) Database. In *Proceedings of the Eleventh Annual ACM/IEEE International Conference on Human-Robot Interaction*, 105-113.

- Nominated for Best Paper Award in Theory and Methods at HRI'18.

Zhao, X., Cusimano, C., & Malle, B. F. (2016). Do people spontaneously take a robot's visual perspective? In *Proceedings of the Eleventh Annual ACM/IEEE International Conference on Human-Robot Interaction*, 335-342.

Li, J., **Zhao, X**., Cho, M.J., Ju, W., Malle, B. F. (2016). From trolley to autonomous vehicle: Perception of responsibility and moral norms in traffic accidents with autonomous cars. *SAE Technical Paper*, 2016-01-0164.

Zhao, X., Malle, B.F., & Gweon, H. (2016). Is it a nine, or a six? Prosocial and selective perspective taking in four-year-olds. In *Proceedings of the 38th Annual Conference of the Cognitive Science Society*, 924-292.

Zhao, X., Cusimano, C., & Malle, B.F. (2015). In search of triggering conditions for spontaneous visual perspective taking. In *Proceedings of the 37th Annual Meeting of the Cognitive Science Society*, 2811-2816.

MANUSCRIPTS UNDER REVIEW (see Appendix for abstracts; available upon request)

Zhao, X., Phillips, E., & Malle, B. F. How people infer a humanlike mind from a robot body. (submitted to *Science*)

Zhao, X., & Malle, B. F. Seeing through a robot's eyes: Spontaneous perspective taking toward humanlike machines. (under review at *Psychological Science*)

Bluvstein, S.*, **Zhao, X.***, Barasch, A., Schroeder, J. "Hello! How may I helo you?": How (corrected) errors humanize a communicator. [*equal authorship] (under review at *Organizational Behavior and Human Decision Processes*)

Zhao, X., **Zhao, X.,** Gweon, H., & Kushnir, T. Leaving a choice for others: Children's social evaluations of considerate actions. (under review at *Child Development*)

Hoffman, G. & **Zhao, X.** A primer for empirical studies in human-robot interaction. (under review at *ACM Transactions on Human-Robot Interaction*)

WORKING PAPERS (see Appendix for abstracts; available upon request)

Zhao, X. & Epley, N. Insufficiently complimentary?: Underestimating the positive impact of compliments creates a barrier to expressing them. (targeting at *Journal of Personality and Social Psychology*)

Zhao, X., Jung, M., Ong, D. C., Costa, J., FeldmanHall, O., Malle, B. F. Pulling the heart string: Feeling human heartbeat promotes prosocial and cooperative behaviors. (targeting at *Psychological Science*)

Zhao, X., Caruso, H., & Risen, J. L. "Thank you, because…": Discussing disagreement while finding common ground. (targeting at *Psychological Science*)

Zhao, X., Cusimano, C., & Malle, B. F. Easing into another mind: Goal inference facilitates perspective taking. (targeting at *Journal of Experimental Social Psychology*)

SELECTED MANUSCRIPTS IN PREPERATION

Zhao, X. & Epley, N. Under-asking: Underestimating others' happiness to help as a barrier to help-seeking. (In preparation for *Psychological Science*)

Zhao, X. & Epley, N. The unwarranted concern for giving too many compliments. (In preparation for the special issue on the need to belong at *Self &Identity*)

CHAIRED SYMPOSIUM

Talking Across Divides: Novel Interventions to Create Common Ground. (2020). Annual Convention of the Society of Personality and Social Psychology, New Orleans, LA.

Rethinking anthropomorphism: The antecedents, unexpected consequences, and potential remedy for perceiving machines as humanlike. (2019). Technology, Mind & Society Conference, Washington, DC.

Rethinking anthropomorphism: The antecedents, unexpected consequences, and potential remedy for perceiving machines as humanlike. (2019). Association for Consumer Research, Atlanta, GA.

CONFERENCE PRESENTATIONS

Panel Discussion

Dobson, K., Schweitzer, S. J., Hardin, A. E., Ruttan, R. L., Schroeder, J., Workman, K. M., & Zhao, X. (2019, Aug). Exploring dehumanization and humanization in organizational contexts. Annual Meeting of the Academy of Management, Boston, MA.

Talks

Zhao, X., Caruso, H., & Risen, J. L. (2020, Feb). "Thank You, Because…": Discussing Disagreement while Finding Common Ground. Annual Convention of the Society of Personality and Social Psychology, New Orleans, LA.

Zhao, X., & Phillips, E., & Malle, B. F. (2019, Nov). From Human-Looking to Human-Minded. The Fourth Annual Conference of Psychology of Technology, Washington, DC.

Zhao, X., & Phillips, E., & Malle, B. F. (2019, Oct). Beyond anthropomorphism: Differentiated inferences about robot mind from appearance. Technology, Mind & Society Conference, Washington, DC.

Zhao, X., & Caruso, H. M, & Risen, J. L. (2019, Oct). "Thank You Because…": Can Gratitude Pave the Way to Inclusive Dialogue? Science of Diversity Initiative, Chicago, IL.

Zhao, X., & Phillips, E., & Malle, B. F. (2019, Oct). Inferring Robot Mind from Robot Appearance. Annual Meeting of the Society for Experimental Social Psychology, Toronto, ON, Canada.

Zhao, X., & Phillips, E., & Malle, B. F. (2019, Oct). Beyond anthropomorphism: Differentiated inferences about robot mind from appearance. Annual Meeting of the Association for Consumer Research, Atlanta, GA.

Bluvstein, S.*, Zhao, X.*, Barasch, A., & Schroeder, J. (2019, Oct). "Hello! How May I Helo You?" How Written Errors Can Humanize a Communicator. Annual Meeting of the Association for Consumer Research, Atlanta, GA.

Zhao, X., & Phillips, E., & Malle, B. F. (2019, Aug). Appearing Human: The landscape of humanlike robots and its influence on mind perception. SPSP Summer Psychology Forum: Big Data in Personality and Social Psychology, St. Louis, MI.

Zhao, X., & Epley, N. (2019, Aug). Why don't people give enough compliments? Cause and consequence of underestimating compliments' positive impact on their recipients. Annual Meeting of the Academy of Management, Boston, MA.

Zhao, X., & Phillips, E., & Malle, B. F. (2019, Apr). From Human-Looking to Human-Minded. The Inaugural Conference on the Intelligence of Things,

Zhao, X., & Epley, N. (2019, Feb). Why don't people give enough compliments? Cause and consequence of underestimating compliments' positive impact on their recipients. Annual Meeting of the Society of Judgment and Decision Making, Portland, OR.

Zhao, X., & Epley, N. (2018, Nov). Why don't people give enough compliments? Cause and consequence of underestimating compliments' positive impact on their recipients. Annual Meeting of the Society of Judgment and Decision Making, New Orleans, LA.

Zhao., X., Jung, M., Ong, D., Costa, J., FeldmanHall, O., & Malle, B. F. (2018, Mar). A Heart for Cooperation: Feeling Another Human's Heartbeat Promotes Prosocial and Cooperative Behaviors. Annual Convention of the Society of Personality and Social Psychology, Atlanta, GA.

Phillips, E.*, Zhao, X.*, Ullman, D., & Malle, B. F. (2018, Mar). What is human-like?: Decomposing robot human-like appearance using the Anthropomorphic roBOT (ABOT) Database. The 13th International Conference on Human-Robot Interaction, Chicago, IL.

Zhao., X., Jung, M., Ong, D., Costa, J., FeldmanHall, O., & Malle, B. F. (2017, Nov). A Heart for Cooperation: Feeling Another Human's Heartbeat Promotes Prosocial and Cooperative Behaviors. The 2nd Psychology of Technology Conference, Berkeley, CA.

Zhao., X., Jung, M., Ong, D., Costa, J., FeldmanHall, O., & Malle, B. F. (2017, Sept). A Heart for Cooperation: Feeling Another Human's Heartbeat Promotes Prosocial and Cooperative Behaviors. The 2017 Science of Philanthropy Initiative, Chicago, IL.

Zhao, X., Malle, B.F., & Gweon, H. (2016, Jun). "When to take the other's viewpoint? Prosocial and selective perspective taking in adults and four-year-olds." Annual Meeting of the Society of Philosophy and Psychology, Austin, TX.

Zhao, X. & Cusimano, C. & Malle, B.F. (2016, Mar). Do People Spontaneously Take a Robot's Perspective? The 11th ACM/IEEE International Conference on Human-Robot Interaction, Christchurch, New Zealand.

Zhao, X., & Malle, B.F. (2016, Oct). Do people take robots' perspectives? New Directions in the Psychology of Technology Research Conference, Los Angeles, CA.

Zhao, X. & Cusimano, C. & Malle, B.F. (2015, Jul). Activating Spontaneous Visual Perspective Taking: Actions, Space, and the Mind. The 6th Joint Action Meeting. Budapest, Hungary.

Zhao, X. & Cusimano, C. & Malle, B.F. (2015, Jul). In Search of Triggering Conditions for Spontaneous Visual Perspective Taking. Annual Conference of the Cognitive Science Society. Pasadena, CA.

Posters

Zhao, X., & Phillips, E., & Malle, B. F. (2018, Nov). From Human-Looking to Human-Minded: The Appearance-Mind Link in Perceiving Robots. The 3rd Psychology of Technology Conference, Stanford, CA.

Zhao., X., Jung, M., Ong, D., Costa, J., FeldmanHall, O., & Malle, B. F. (2018, Mar). A Heart for Cooperation: Feeling Another Human's Heartbeat Promotes Prosocial and Cooperative Behaviors. The Preconference on Intervention Science, Annual Convention of the Society of Personality and Social Psychology, Atlanta, GA.

Zhao., X., Jung, M., Ong, D., Costa, J., FeldmanHall, O., & Malle, B. F. (2017, Nov). A Heart for Cooperation: Feeling Another Human's Heartbeat Promotes Prosocial and Cooperative Behaviors. Annual Meeting of Society for Judgment and Decision Making, Vancouver, Canada.

Zhao, X., & Malle, B.F. (2017, Jan). Do people take robots' visual perspectives? Annual Meeting of the Society of Personality and Social Psychology, San Antonio, TX.

Zhao, X., & Malle, B.F. (2017, Jan). Do people take robots' visual perspectives? The Psychology of Technology Preconference at the Annual Convention of the Society of Personality and Social Psychology, San Antonio, TX.

Zhao, X., Malle, B.F., & Gweon, H. (2016, Aug). Is it a nine, or a six? Prosocial and selective perspective taking in four-year-olds. The 38th Annual Conference of the Cognitive Science Society, Philadelphia, PA.

Zhao, X., Malle, B.F. & Gweon, H. (2016, Jan). When (or when not) to adopt her view? Adults and children consider others' epistemic states to selectively take their visual perspectives. Annual Convention of the Society of Personality and Social Psychology, San Diego, CA.

Zhao, X., Malle, B.F. & Gweon, H. (2016, Jan). To adopt or not to adopt her viewpoint? Selective visual perspective taking in prosocial context in preschoolers and adults. Social Cognition Preconference, Annual Convention of the Society of Personality and Social Psychology, San Diego, CA.

Zhao, X., Malle, B.F. & Gweon, H. (2015, Oct). When (or when not) to adopt her view? Adults and children consider others' epistemic states to selectively take their visual perspectives. The 9th Biennial Meeting of the Cognitive Development Society, Columbus, OH.

Zhao, X. & Cusimano, C. & Malle, B.F. (2015, Mar). Do People Spontaneously Take a Robot's Perspective? Late-breaking report at the 10th ACM/IEEE International Conference on Human-Robot Interaction, Portland, OR.

Zhao, X. & Cusimano, C. & Malle, B.F. (2015, Feb). When people see 9 as 6: Triggers of Spontaneous Level-2 Visual Perspective Taking. Annual Convention of the Society of Personality and Social Psychology, Long Beach, CA.

Zhao, X. & Malle, B.F. (2014, Jul). When another person's perspective interferes with one's own: Evidence for automatic spatial perspective taking. Annual Meeting of the Cognitive Science Society, Quebec City, Quebec, Canada.

Zhao, X. & Malle, B. F. (2014, Feb). Altercentrism? Spontaneous perspective taking biases one's own spatial judgments. Annual Convention of the Society of Personality and Social Psychology, Austin, TX.

INVITED TALKS

University of Chicago, Booth School of Business, Center for Decision Research Workshop Series (Apr, 2019)

University of Chicago, Department of Psychology, Developmental Psychology Brown Bag (Apr, 2018)

University of Chicago, Booth School of Business, Center for Decision Research Workshop Series(Sept, 2017)

Boston College, Department of Psychology, Morality Lab (May, 2017)

ShanghaiTech University, School of Entrepreneurship and Management (Mar, 2017)

Zhejiang University, College of Education (Mar, 2017)

Zhejiang University, Department of Psychology and Behavioral Sciences, Colloquium (Mar, 2017)

Yale University, Comparative Cognition Lab (Sept, 2016)

Harvard University, Boston Area Moral group (BAM) (Feb, 2016)

Brown University, CLPS, Social Cognitive Science Brown Bag (Dec, 2015)

Stanford University, Department of Psychology, Developmental Brown Bag (Nov, 2015)

Brown University, CLPS, Social Cognitive Science Brown Bag (May, 2014)

PUBLIC PRESENCE

Public Speaking

"Wired to Connect" (Jan, 2019), University of Chicago Booth School of Business

"Through the Eyes of a Robot…" (Jan, 2017), Brown University Division of Advancement

"Through the Eyes of a Robot…" (Nov, 2016), "Research Matters!", Brown University. [Youtube]

Media

SPSP Character & Context, Monitor on Psychology, SPSP Member Updates, Brown University Graduate School Youtube channel, Brown University School of Professional Studies Annual Report.

TEACHING EXPERIENCE

Instructor – Leadership Institute, Brown University

Summer 2017	CEPY0946: "Leading with Empathy in the 21st Century"
Summer 2016	CEPY0946: "Leading with Empathy in the 21st Century"
Summer 2015	CEPY0946: "Leading with Empathy in the 21st Century"

* Reginald D. Archambault Award for Teaching Excellence, Honorable Mention for teaching with distinction in Pre-College education.
* Course materials and exercises available at: http://www.leading-with-empathy.com

Guest Lecturer

Fall 2016	Other Minds (in *Social Psychology*)
Spring 2017	The Limits of Empathy (in *The Social Self*)

Teaching Assistant – CLPS, Brown University

Fall 2016	CLPS0700: "Social Psychology" (Instructor: Bertram Malle & Oriel FeldmanHall)
Fall 2014	CLPS1780: "Clinical and Personality Assessment" (Instructor: Jack Wright)
Spring 2014	CLPS0900: "Quantitative Methods in Psychology" (Instructor: Jack Wright)
Fall 2013	CLPS0900: "Quantitative Methods in Psychology" (Instructor: Leslie Welch)
Spring 2013	CLPS0700: "Social Psychology" (Instructor: Fiery Cushman)
Fall 2012	CLPS0020: "Introduction to Cognitive Science" (Instructor: David Sobel)

Teaching Assistant – Graduate School of Business, Stanford University

Spring 2015	OB333: "Acting with Power" (Instructor: Deborah H. Gruenfeld)

PROFESSIONAL AFFILIATION

Society of Personality and Social Psychology (SPSP)
Society of Judgment and Decision Making (SJDM)
Academy of Management (AOM)
Association for Consumer Research (ACR)
Society of Philosophy and Psychology (SPP)
Cognitive Development Society (CDS)
Association for Computing Machinery (ACM)

SERVICE

Conference organizing:

- Program Committee Member, the 14th Annual Conference on Human-Robot Interaction (the premier conference in the field of HRI)

Ad hoc reviewing:

- Academic journals: Organization Science; Journal of Experimental Psychology: General; Journal of Experimental Social Psychology
- Peer-reviewed, achieved conference proceedings: Academy of Management (2018), Human-Robot Interaction Annual Conference (2017, 2018), Cognitive Science Society (2016, 2017, 2018), IEEE International Symposium on Robot and Human Interactive Communication (RO-MAN, 2017)
- Peer-reviewed, non-achieved conferences: Academy of Management OB Division (2018)

Mentoring:

- Master's student at University of Chicago: Dante Chao (thesis: *When Does Social Influence Become Manipulative?*)
- Undergraduate research assistants at Brown and Stanford: Nina Diepenbrock, Matthew Dang, Jenny (Xiyu) Fu, Jo-Ann Huynh, Fue Vue, Alyssa Lombardo, Mandana Ali

School/Department Service:

2014-2016	Organizer, Social Brown Bag Talk Series, CLPS, Brown University
2015	Library Advisory Committee, Brown University
2014	CareerLAB Director Search Committee, Brown University
2013-2014	Department Representative, Graduate Student Council, Brown University
2011-2013	Alumni Association Board of Directors, Semester At Sea, Institute for Shipboard Education

GRANTS AND FUNDING

University of Chicago Booth School of Business, Postdoctoral Research Funds, $15,000; 2017-2020. (PI)

Society of Personality and Social Psychology, Bonding in a Heartbeat: Can Feeling Others' Heartbeat Increase Empathy and Prosocial Behavior? $5,000; 2017-2018. (PI)

Brown University Graduate School, Doctoral Research and Conference Travel Grant, $7,337; 2014-2016.

Institute for Shipboard Education, Semester At Sea, $15,500; 2011.

Ministry of Education of the People's Republic of China, National Undergraduate Student Research & Innovation Competition, An Investigation into the Computational Representation of Depth Perception, $1,800; 2009-2011. (co-PI, with Yeqin Shentu and Yi Ji)

TRAINING IN TEACHING/COMMUNICATION/ACTING

Conflict Resolution, Brown University Ombuds Office

Academic Teaching Certificate I, The Sheridan Center for Teaching and Learning in Higher Education, Brown University

Stage Acting, Department of Theatre Arts and Performance Studies, Brown University

- Served as a TA for "Acting" (TAPS0230).
- Enrolled in "Style and Performance" (TAPS1160). Class training includes modern plays, British comedy, Shakespeare tragedy, musical and farce, and monologues

Persuasive Communication, Department of Theatre Arts and Performance Studies, Brown University

REFERENCES

Nicholas Epley – Collaborator; Postdoc advisor
Booth School of Business
The University of Chicago
5807 S Woodlawn Avenue, Chicago, IL 60637
Nicholas.Epley@chicagobooth.edu

Jane Risen – Collaborator
Booth School of Business
The University of Chicago
5807 S Woodlawn Avenue, Chicago, IL 60637
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Bertram Malle – Collaborator; PhD advisor
Brown University, CLPS Department
190 Thayer St., Providence, RI 02912
bfmalle@brown.edu

Hyowon Gweon – Collaborator; PhD co-advisor
Stanford University, Department of Psychology
450 Serra Mall, Stanford, CA 94305
hyo@stanford.edu

APPENDIX: SELECTED ABSTRACTS

Xuan Zhao and Nicholas Epley, "Insufficiently Complimentary?: Underestimating the Positive Impact of Compliments Creates a Barrier to Expressing Them," *working paper, targeting at JPSP.*

Compliments increase the well-being of both expressers and recipients, yet people report giving fewer compliments than they should give, or would like to give. Seven experiments suggest that a reluctance to express genuine compliments may stem from underestimating the positive impact that compliments will have on recipients. Participants in three experiments wrote genuine compliments and then predicted how happy and awkward those compliments would make recipients feel. Participants consistently underestimated how positive the recipients would feel while overestimating how awkward recipients would feel (Experiments 1, 2, 6), an effect that may be driven by an egocentric bias in which expressers primarily misunderstand how competent—compared to warm—their compliments will be perceived by recipients (Experiments 1 and 2). This creates an empathy gap between those who imagine how a compliment will be received compared to those who actually receive one (Experiments 3a and 3b). Undervaluing a compliment serves as a barrier to expressing them because people's interest in expressing a compliment is at least partly driven by their expectations of the recipient's reaction (Experiments 4 and 5). As a result, informing people about a compliment's surprisingly positive impact encourages them to express more compliments (Experiment 6). We believe our findings reflect a more general tendency for people to underestimate the positive impact of their prosocial actions on others, leading people to be less prosocial than would be optimal for both their own and others' well-being.

Xuan Zhao, Elizabeth Phillips, and Bertram F. Malle, "How People Infer a Humanlike Mind from a Robot Body," *submitted to Science*.

When encountering social agents, people infer their internal states and dispositions based on their physical appearances. This well-known psychological tendency, when applied to robots, has typically been formulated as straightforward anthropomorphism: the more humanlike a robot's body appears, the more humanlike a mind people will infer. Here we present a systematic investigation on how people infer mind from humanlike appearance. Using images of a broad range of real-world robots, we find that the widespread hypothesis of "more human-looking ⇒ more human-minded" is inadequate and must be replaced by three new insights. First, humanlike appearance is not a unitary construct; instead, a bottom-up, feature-based analysis of 251 real-world robots reveals that humanlike appearance consists of three distinct dimensions (Body-Manipulators, Face, and Surface), each consisting of a unique constellation of human appearance features. Second, people's representation of a robot mind is also not unidimensional; instead, it differentiates into at least three dimensions: Affect, Social-Moral Cognition, and Reality Interaction. Third, specific dimensions of robot appearance elicit inferences about the robot's mind on distinct dimensions: People infer robots' Reality Interaction capacities from their Body-Manipulator features, and their Affective and Moral capacities from Face and Surface features. Our findings shed light on how the appearance of a body gives rise to the impression of a mind, even for a robot.

Xuan Zhao and Bertram F. Malle, "Seeing Through a Robot's Eyes: Spontaneous Perspective Taking Toward Humanlike Machines," *under review at Psychological Science*.

As robots rapidly enter society, how does human social cognition respond to their novel presence? Focusing on one foundational social-cognitive capacity—visual perspective taking—six studies reveal that people spontaneously adopt a robot's unique perspective and do so with patterns of variation that mirror perspective taking toward humans. As with human agents, visual perspective taking of robots is enhanced when they display goal-directed actions (gaze and reaching vs. mere presence) and when the actions dynamically unfold over time (video vs. photograph). Importantly, perspective taking increases when the robot looks strikingly humanlike (an android) but is absent when the robot looks machine-like. This appearance-driven perspective taking is not due to inferences about the agent's mind, because it persists when the agent obviously lacks a mind (e.g., a mannequin). Thus, the sight of robots' superficial human resemblance may trigger and modulate social-cognitive responses in human observers originally evolved for human interaction.

Shirly Bluvstein*, Xuan Zhao*, Alexandra Barasch, and Juliana Schroeder, "Hello! How May I Helo You?": How (Corrected) Errors Humanize a Communicator," *under review at OBHDP.* [*equal authorship]

Today more than ever before, online writing (e.g., emails, texts, and social media posts) has become a primary means of communication. Because written communication lacks human nonverbal cues (e.g., voice), people frequently struggle to distinguish whether they are interacting with a human or chatbot online. The current research suggests a novel way to humanize writers: typographical errors ("typos"). Across four experiments (N = 1,253) that used ambiguous conversational counterparts (e.g., customer service agents that might be bots), communicators who made and subsequently corrected a typo, rather than making no typo or not correcting a typo, appeared more humanlike. Respondents consequently believed that the communicator was warmer and were more likely to disclose personal information to the communicator. These findings provide insight into when people are willing to share their personal data online. We discuss theoretical implications for humanization and practical implications for Internet privacy and building trust in organizations.

Guy Hoffman and Xuan Zhao, "A Primer for Empirical Studies in Human-Robot Interaction," *under review at ACM Transactions on Human-Robot Interaction.*

We provide guidelines for planning, executing, analyzing, and reporting empirical studies in Human-Robot Interaction (HRI). The intended audience are researchers from HRI disciplines outside the empirical domain, such as computational HRI, design, and theory, who are interested in using empirical studies to support their research. Following the chronological order of research activities and grounded in updated research practices, this primer covers recommended methods for defining research questions, identifying constructs and hypotheses, choosing appropriate study designs, operationalizing constructs as variables, planning and executing studies, sampling, choosing statistical tools for data analysis, and reporting.

Xuan Zhao and Bertram F. Malle, "Easing into Another Mind: Goal Inference Facilitates Perspective Taking," *working paper, targeting at JESP.*

Mental state inference is a ubiquitous but challenging component of social interaction. In this paper, we propose a facilitating relationship among mental state inferences: Engaging in an initial, easier mental inference makes people more likely to engage in a more difficult one. Drawing on previous evidence, we tested the possibility of a facilitating relationship between two mental state inferences that are known to vary in difficulty: inferring another person's goals and inferring that person's unique visual experiences (i.e., "Level-2 perspective taking"). Five studies provided evidence for the hypothesized facilitating relationship: Goal inference increased people's likelihood of adopting the actors' perspectives regardless of task complexity, time pressure, and presentation modality. This facilitating relationship suggests new venues for investigating the causal relationship among mental state inferences.

Xin Zhao, Xuan Zhao, Tamar Kushnir, and Hyowon Gweon, "Leaving a Choice for Others: Children's Social Evaluations of Considerate Actions," *under review at Child Development.*

Humans live in an interdependent world where even actions that are primarily self-serving (i.e., intended to fulfill one's own needs) can have direct or indirect consequences for others. Thus, it seems critical that one be able to read these nuanced social signals and evaluate actions that are primarily self-serving based on the consequences those actions have for others. Over three studies (N = 566 children between ages 4 and 6 and N = 222 adults, from the U.S. and China), we investigated the mentalistic nature, developmental origins, and cultural dependency of such evaluations. We found that, by age 6 but not younger, both U.S. and Chinese children positively evaluate someone who takes something for themselves (a self-serving action) in a way that leaves a choice for another agent over someone who leaves no choice. We also found that these evaluations reflect a genuine understanding of the agent's considerate intention, rather than a mere preference for item diversity. Furthermore, in light of the similar developmental patterns across cultures, we conclude that evaluations for others' considerateness in self-serving actions may rely on the critical development of social-cognitive capacities between 4 and 6 years old independent from cultural influences.

Xuan Zhao, Heather Caruso, and Jane L. Risen, " 'Thank You Because…': Can Gratitude Pave the Way to Inclusive Dialogue?," *in preparation for Psychological Science*.

For individuals in diverse communities, engaging one another in open conversation can sometimes be quite difficult. Intending to promote harmony, many are simply taught to avoid initiating or pursuing discussion of differing viewpoints altogether. When such discussions arise, people tend to negate one other's viewpoints in advocating for their own, creating a combative atmosphere where people feel misunderstood and undervalued. Seeking a conversational technique that would allow a more inclusive dialogue about differences to arise, we developed a novel procedure called "Thank You Because" (TYB). Inspired by the collaborative spirit in improvisational theater, TYB encourages people who have different perspectives to engage gratefully—by identifying and acknowledging value of dialogue. We tested the impact of TYB in lab and field settings, where pairs of strangers engaged in face-to-face conversations about various interpersonal differences (e.g., in personal preferences, or in support for public policies). Compared to a "No, Because" technique, which encouraged the common conversational instinct of poking holes in one another's arguments, participants using the "Thank You, Because" technique engaged in more inclusive conversations, felt more heard and valued, and perceived more common ground (Studies 1 & 2). Furthermore, compared to a "I Hear That…" technique (Study 2), where participants aimed to show their partner that they understood their viewpoint accurately, the "Thank You, Because" technique showed unique advantages in eliciting the perception of common ground.

Xuan Zhao and Nicholas Epley, "Others are surprisingly happy to help: How underestimating prosociality creates a misplaced barrier to help seeking," *in preparation for Psychological Science.*

At some point, even the best of us need help. Yet people may struggle asking for help, partly out of the concern that others are unwilling and unhappy to do so. Five experiments conducted in field, laboratory, and online settings demonstrate that this concern is misplaced: Potential help-seekers systematically underestimated how willing strangers would be to help, how prosocially motivated the helpers were, and how happy the helpers felt after helping, while overestimating how much helpers felt coerced and inconvenienced by helping. In one experiment, participants underestimated how willing, interested, and happy others would be to take a picture of them in a park, while also overestimating how inconvenienced others would feel. Those in need of help seem to underestimate others' prosociality—a mistake that creates a barrier to asking for help that improve outcomes for both those in need and for those who would be surprisingly happy to help.

Xuan Zhao, Bertram F. Malle, and Hyowon Gweon, "Is it a Nine, or a Six? Prosocial and Selective Perspective Taking in Four-Year-Olds," *published in Proceedings of the 38th Annual Conference of the Cognitive Science Society, working paper, targeting at JESP*.

To successfully navigate the complex social world, people often need to solve the problem of perspective selection: Between two conflicting viewpoints of the self and the other, whose perspective should one take? In two experiments, we show that four-year-olds use others' knowledge and goals to decide when to engage in visual perspective taking. Children were more likely to take a social partner's perspective to describe an ambiguous symbol when she did not know numbers and wanted to learn than when she knew numbers and wanted to teach. These results were shown in children's own responses (Experiment 1) and in their evaluations of others' responses (Experiment 2). By preschool years, children understand when perspective taking is appropriate and necessary and selectively take others' perspectives in social interactions. These results provide novel insights into the nature and the development of perspective taking.