

# Stephen B. Broomell, Ph.D.

Department of Psychological Sciences

Purdue University, West Lafayette, IN

Email: broomell@purdue.edu or broomell@gmail.com

Last edited: January 26, 2026

## Research Interests

---

Judgment and decision making under uncertainty; Information environments; Information aggregation; Forecasting; Methodology; Risk perception and communication.

## Education

---

2010 Ph.D. Quantitative Psychology, University of Illinois at Urbana-Champaign

2007 M.A. Psychology, University of Illinois at Urbana-Champaign

2007 M.S. Statistics, University of Illinois at Urbana-Champaign

2004 B.S. double major in Mathematics and Psychology, The Ohio State University

## Academic Positions

---

### Associate Professor

Dept. of Psychological Sciences, Purdue University

*2022 – present*

Dept. of Social and Decision Sciences, A small technical university in western Pennsylvania

*2018 – 2022*

### Assistant Professor

Dept. of Social and Decision Sciences, A small technical university in western Pennsylvania

*2011 – 2018*

### Postdoctoral Research Fellow

College of Information Sciences and Technology, Pennsylvania State University

*2010 – 2011*

## Honors, Awards, and Fellowships

---

Next Generation of Hazards and Disasters Researchers Fellowship

*2014–2016*

Sponsor: National Science Foundation

Intelligence Community (IC) Postdoctoral Research Fellowship

*2010–2011*

Sponsor: National Geospatial-Intelligence Agency

Society for Multivariate Experimental Psychology Dissertation Award

*2009*

Invited participant at the Summer Institute on Bounded Rationality

*2008*

ABC Research Group

Berlin, Germany

Institutional National Research Service Award (NRSA) Pre-doctoral Fellow

*2007–2008*

Sponsor: National Institutes of Health (NIH)

Title: Quantitative Methods for Behavioral Research

## Research Grants

---

Sponsor: National Science Foundation 2024 – 2027

Title: SBE-UKRI: A novel theory of ordered judgment processes.

Amount: \$590,081. Role: PI.

Sponsor: New Frontiers in Research Fund Canada 2023 – 2029

Title: NFRF-Transformation grant on enabling novel cardiac therapies with pluripotent stem cells.

Amount: \$23,665,756. Role: Co-Applicant.

Sponsor: National Science Foundation 2020 – 2021

Title: RAPID: How uncertainty about risk and conflicting messages affect preventive behaviors against Covid-19.

Amount: \$199,000. Role: Co-PI.

Sponsor: McGill Interdisciplinary Initiative in Infection and Immunity 2020

Title: Expert and Lay Perceptions of Translation of COVID-19 Treatment and Vaccine Development.

Amount: \$35,000. Role: Co-PI.

Sponsor: National Oceanic and Atmospheric Administration 2016 – 2019

Title: Lay Judgments of Environmental Cues that Signal a Tornado.

Amount: \$150,000. Role: PI.

## Publications

---

\* = Papers written by a trainee under my supervision.

### Journal Articles

1. Broomell, S. B., Sloman, S., & He, L. (in press). Towards Generalizable Estimation of Behavioral Models with Parameter Dependencies. *Psychometrika*.
2. Drummond Otten, C., Anglin, S., & Broomell, S. B. (in press). Do individuals selectively apply their scientific reasoning ability when communicating about scientific evidence on polarized topics? *Journal of Experimental Psychology: Applied*.
3. \*Warren, A., Broomell, S. B., & Chen, J. (in press). Tactile Stimulus-Response Compatibility Effects: Differentiating Methodology and Frames of Reference. *American Journal of Psychology*.
4. \*Huang, S., Golman, R., & Broomell, S. B. (2024). Combining the Aggregated Forecasts: An Efficient Method for Improving Accuracy by Stacking Multiple Weighting Models. *Decision*.
5. \*Sloman, S. J., Cavagnaro, D., & Broomell, S. B. (2024). Knowing what to know: Implications of the choice of prior distribution on the behavior of adaptive design optimization. *Behavior Research Methods*.
6. \*Huang, S., Broomell, S. B., & Golman, R. (2024). A hypothesis test algorithm for determining when weighting individual judgments reliably improves collective accuracy or just adds noise. *Decision*, 11(1), 7–34. <https://doi.org/10.1037/dec0000187>

7. Broomell, S. B., & Davis-Stober, C. (2024). The Strengths and Weaknesses of Crowds to Address Global Problems. *Perspectives on Psychological Science*, 19(2), 465-476.
8. Smithson, M. & Broomell, S. B. (2024). Compositional Data Analysis Tutorial. *Psychological Methods*, 29(2), 362-378. <https://doi.org/10.1037/met0000464>
9. Anglin, S. M., Drummond Otten, C., & Broomell, S. B. (2023). Hypothesis Testing Preferences in Research Decision Making. *Collabra: Psychology*, 9(1), 73029. <https://doi.org/10.1525/collabra.73029>
10. Kane, P. B., Ward, B., Papenburg, J., Moyer, H., MacPherson, A., Broomell, S. B., & Kimmelman, J. (2022). Relationship between Lay and Expert Perceptions of COVID-19 Vaccine Development Timelines in Canada and USA. *PLOS ONE*, 17(2). <https://doi.org/10.1371/journal.pone.0262740>
11. Broomell, S. B. & Kane, P. B. (2021). Perceiving a Pandemic: Global-local Incompatibility and COVID-19 Superspreading Events. *Decision*, 8(4), 227–236. <https://doi.org/10.1037/dec0000155>
12. \*Kane, P. B. & Broomell, S. B. (2021). Investigating Lay Evaluations of Predictive Models. *Thinking & Reasoning*. <https://doi.org/10.1080/13546783.2021.1999327>
13. Ellerby, Z., Broomell, S. B., McCulloch, J. & Wagner, C. (2021). Capturing Richer Information—On Establishing the Validity of an Interval-Valued Survey Response Mode. *Behavior Research Methods*. <https://doi.org/10.3758/s13428-021-01635-0>
14. Broomell, S. B. (2020). Global-Local Incompatibility: The Misperception of Reliability in Judgment Regarding Global Variables. *Cognitive Science*, 44(4), e12831. <https://doi.org/10.1111/cogs.12831>
15. Broomell, S. B., Wong-Parodi, G., Morss, R., & Demuth, J. (2020). Do We Know Our Own Tornado Season? A Psychological Investigation of Tornado Risk Perception in the Southeast U.S. *Weather, Climate, and Society*, 12(4), 771–788. <https://doi.org/10.1175/WCAS-D-20-0030.1>
16. Broomell, S. B., Chapman, G., & Downs, J. (2020). Psychological Correlates of Prevention Behaviors During the COVID-19 Pandemic. *Behavioral Science & Policy*, 6(2), 1–8.
17. \*Kane, P. B. & Broomell, S. B. (2020). Applications of the Bias-Variance Decomposition to Human Forecasting. *Journal of Mathematical Psychology*, 98, 102417. <https://doi.org/10.1016/j.jmp.2020.102417>
18. \*Dryden, R., Morgan, M. G., & Broomell, S. B. (2020). Lay Detection of Unusual Patterns in the Frequency of Hurricanes. *Weather, Climate, and Society*, 12(3), 597–609. <https://doi.org/10.1175/WCAS-D-19-0132.1>
19. Fischhoff, B. & Broomell, S. B. (2020). Judgment and Decision Making. *Annual Review of Psychology*, 71, 331–355. <https://doi.org/10.1146/annurev-psych-010419-050747>.
20. Kane, P. B., Moyer, H., MacPherson, A., Ward, B., Papenburg, J., Broomell, S. B., & Kimmelman, J. (2020). Expert Forecasts of COVID-19 Vaccine Development Timelines. *Journal of General Internal Medicine*, 35(12), 3753–3755. <https://doi.org/10.1007/s11606-020-06244-9>.
21. Broomell, S. B., Sloman, S., Blaha, L. M., & Chelen, J. (2019). Interpreting Model Comparison Requires Understanding Model-Stimulus Relationships. *Computational Brain & Behavior*, 2(3), 233–238. <https://doi.org/10.1007/s42113-019-00052-z>.

22. Dewitt, B., Fischhoff, B., Davis, A. L., Broomell, S. B., Roberts, M., & Hanmer, J. (2019). Exclusion criteria as measurements I: Identifying invalid responses. *Medical Decision Making*, 39(6), 693–703.
23. Dewitt, B., Fischhoff, B., Davis, A. L., Broomell, S. B., Roberts, M., & Hanmer, J. (2019). Exclusion criteria as measurements II: Effects on utility and health policy implications. *Medical Decision Making*, 39(6), 704–716.
24. \*Silver, E., Broomell, S. B., Davis, A., White, D. & Krishnamurtim, T. (2019). Communicating a Prognosis: A Randomized Trial of Survival Rate Language. *Journal of General Internal Medicine*, 34(10), 1990–1991. DOI: 10.1007/s11606-019-05056-w.
25. Broomell, S. B., Winkles, J.F., & Kane, P. B. (2017). The Perception of Daily Temperatures as Evidence of Climate Change. *Weather, Climate, and Society*, 9, 563–574.
26. Broomell, S. B. & Kane, P. B. (2017). Public Perception and Communication of Scientific Uncertainty. *Journal of Experimental Psychology: General*, 146(2), 286–304.
27. Harris, A., Por, H., & Broomell, S. B. (2017). Anchors and the Interpretation of the Intergovernmental Panel on Climate Changes Verbal Probability Expressions. *Climatic Change*, 140, 387–398.
28. Dewitt, B., Fischhoff, B., Davis, A., & Broomell, S. B. (2015). Environmental risk perception from visual cues: Caution and sensitivity in evaluating tornado risks. *Environmental Research Letters*, 10(12), 124009.
29. Davis-Stober, C. P., Budescu, D. V., Broomell, S. B. & Dana, J. (2015). The composition of optimally wise crowds. *Decision Analysis*, 12(3), 130–143. <http://dx.doi.org/10.1287/deca.2015.0315>.
30. Broomell, S. B., Budescu, D. V., & Por, H. H. (2015). Personal experience with climate change predicts intentions to act. *Global Environmental Change*, 32, 67–73. DOI: 10.1016/j.gloenvcha.2015.03.001.
31. Broomell, S. B. & Bhatia, S. (2014). Parameter Recovery for Decision Modeling Using Choice Data. *Decision*, 1, 252–274.
32. Budescu, D. V., Por, H., Broomell, S. B. & Smithson, M. (2014). The Interpretation of IPCC Probabilistic Statements Around the World. *Nature Climate Change*, 4, 508–512.
33. Budescu, D. V., Broomell, S. B., Lempert, R., & Keller, K. (2014). Aided and unaided decision making with imprecise probabilities. *EURO Journal on Decision Processes*, 2, 31–62. DOI: 10.1007/s40070-013-0023-4.
34. Davis-Stober, C. P., Budescu, D. V., Dana, J., & Broomell, S. B. (2014). When is a crowd wise? *Decision*, 1, 79–101.
35. †R. H. Moss, G. A. Meehl, M. C. Lemos, J. B. Smith, J.R. Arnold, J.C. Arnott, D. Behar, G.P. Brasseur, S.B. Broomell, A. J. Busalacchi, S. Dessai, K. L. Ebi, J.A. Edmonds, J. Furlow, L. Goddard, H. C. Hartmann, J. W. Hurrell, J.W. Katzenberger, D.M. Liverman, P. Mote, S. C. Moser, A. Kumar, R. S. Pulwarty, E. A. Seyller, B. L. Turner, W. M. Washington, & T. J. Wilbanks (2013). Hell and High Water: Practice-Relevant Adaptation Science. *Science*, 342, 696–698.
- †Authorship order starts with primary authors followed by secondary authors ordered alphabetically.
36. Roy, M. M., Liersch, M. J. & Broomell, S. B. (2013). People believe that they are prototypically good and bad. *Organizational Behavior and Human Decision Processes*, 122(2), 200–213. Doi: 10.1016/j.obhdp.2013.07.004.

37. Smithson, M., Budescu, D. V., Broomell, S. B., & Por, H. (2012). Never say “not:” Impact of negative wording in probability phrases on imprecise probability judgments. *International Journal of Approximate Reasoning*, 53(8), 1262–1270. DOI:10.1016/j.ijar.2012.06.019.
38. Budescu, D. V., Por, H., & Broomell, S. B. (2012). Effective Communication of Uncertainty in the IPCC Reports. *Climatic Change*, 113(2), 181–200. DOI: 10.1007/s10584-011-0330-3.
39. Broomell, S. B., Budescu, D. V., & Por, H. (2011). Pair-wise Comparisons of Multiple Models. *Judgment and Decision Making*, 6, 821–831.
40. Broomell, S. B., & Budescu, D. V. (2009). Why are experts correlated? Decomposing correlations between judges. *Psychometrika*, 74(3), 531–553.
41. Budescu, D. V., Broomell, S. B., & Por, H. (2009). Improving communication of uncertainty in the reports of the intergovernmental panel on climate change. *Psychological Science*, 20, 299–308.

## Invited Papers and Book Chapters

42. Broomell, S. B., Ho, E., Benjamin, D. M., & Budescu, D. V. (2025). Expert Judgment and Communication of Uncertainty. In L. Mearns, C. Forest, H. Fowler, R. Lempert, & R. Wilby (Eds.), *Uncertainty in Climate Change Research: An Integrated Approach*. Springer.
43. Broomell, S. B. & Chapman, G. B. (2021). Looking Beyond Cognition for Risky Decision Making: COVID-19, the Environment, and Behavior. *Journal of Applied Research in Memory and Cognition*.
44. Broomell, S. B. (2020). Using a Bifocal Lens Model to Identify Global-Local Incompatibility. *The Brunswick Society Newsletter*, 35, 5–7.

## Refereed Conference Papers

45. Broomell, S. B., & Wagner, C. (2024). The Joint Weighted Average (JWA) Operator. *The 11th International Conference on Soft Methods in Probability and Statistics*. September 3-6, Salzburg, Austria.
46. \*Buffum, D., Broomell, S. B., Wagner, C., & Anderson, D. (2024). The Compositional Nature of Weights. *The 20th International Conference on Information Processing and Management of Uncertainty in Knowledge-Based Systems*. July 22nd-26th, Lisbon, Portugal.  
<https://ipmu2024.inesc-id.pt/files/paper3em>
47. \*Sloman, S. J., Oppenheimer, D. O., Broomell, S. B., & Shalizi, C. R. (2022). Characterizing the robustness of Bayesian adaptive experimental designs to active learning bias. *The ICML2022 Workshop on Adaptive Experimental Design and Active Learning in the Real World*: Baltimore, USA.
48. \*Sloman, S. J., Broomell, S. B., & Kusuma, T. (2020). Diagnosing pervasive issues with parameter estimation. *The 42nd Annual Conference of the Cognitive Science Society*.  
<https://cognitivesciencesociety.org/cogsci20/papers/0467/0467.pdf>
49. Hibshi, H., Breaux, T., & Broomell, S. B. (2015, August). Assessment of Risk Perception in Security Requirements Composition. In 2015 IEEE 23rd International Requirements Engineering Conference (RE) (pp. 146–155). IEEE.

## Working Papers

---

Broomell, S. B., Sommer, J., Anglin, S., & Drummond Otten, C. (in preparation). Reconsidering Belief Updating from a Measurement Perspective.

## Invited Talks - Presenter in Boldface

---

**Broomell, S. B.** (2025). *Environments and Collective Judgment Accuracy*. Invited talk presented at the NSF funded Collective Learning Workshop at the Complexity Science Hub, Vienna, Austria.

**Broomell, S. B.** (2023). *Global-Local Incompatibility: The Misperception of Reliability in Judgment Regarding Global Variables*. Invited talk presented at the 2023 Digital Futures *Humanizing the Sustainable Smart City Workshop* at the KTH Royal Institute of Technology, Stockholm, Sweden.

**Broomell, S. B.** (2023). *Global-Local Incompatibility: The Misperception of Reliability in Judgment Regarding Global Variables*. Invited talk presented at *Decisions, Cognition, and the Climate Crisis* at The Ohio State University, Columbus, OH.

**Broomell, S. B.** (2023). *Global-Local Incompatibility: The Misperception of Reliability in Judgment Regarding Global Variables*. Invited talk presented at the Rutgers University Department of Psychological Sciences, New Brunswick, NJ.

**Broomell, S. B.** (2021). *Global-Local Incompatibility: The Misperception of Reliability in Judgment Regarding Global Variables*. Invited talk presented at the Center for Adaptive Rationality, Berlin, Germany.

**Broomell, S. B.** (2021). *Global-Local Incompatibility: The Misperception of Reliability in Judgment Regarding Global Variables*. Invited talk presented at the University of Illinois Department of Psychology, Urbana-Champaign, IL.

**Broomell, S. B.** (2020). *Global-Local Incompatibility: The Misperception of Reliability in Judgment Regarding Global Variables*. Invited talk for the Decision Processes Colloquia at the University of Pennsylvania, Wharton School: Philadelphia, PA.

**Broomell, S. B.** (2020). *A Psychological Investigation of Tornado Risk Perceptions*. Invited talk for the Earth System Science Seminar at Stanford University: Stanford, CA.

**Broomell, S. B.** (2018). *The Connection Between Uncertainty, Personal Experience, and Mitigation Intentions for Global Warming*. Invited talk at the University of Pennsylvania, Wharton Risk Management and Decision Processes Center: Philadelphia, PA.

**Broomell, S. B.** (2018). *Studies of Uncertainty and Science*. Invited talk at the University of Warwick for the Warwick Business School (WBS): Coventry, United Kingdom.

**Broomell, S. B.** (2018). *Studies of Uncertainty and Science*. Invited talk at the University of Nottingham Department of Computer Science: Nottingham, United Kingdom.

**Broomell, S. B.** (2018). *Studies of Uncertainty and Science*. Invited talk at the University College London Department of Experimental Psychology: London, United Kingdom.

**Broomell, S. B.** (2018). *The Perception of Daily Temperatures as Evidence of Climate Change*. Invited talk at the University of Oklahoma Department of Psychology: Norman, Oklahoma.

**Broomell, S. B.** (2016). *Risk Perception and Communication*. Invited talk for the Executive Short Course: Risk, Network Analysis, and Geopolitics held by the Institute for Strategic Analysis:

October, Washington D.C.

**Broomell, S. B.**, Budescu, D. V., Por, H. (2016). *Personal Experience with Climate Change Predicts Intentions to Act*. Invited talk organized at Georgetown University McDonough School of Business: Washington D.C.

**Broomell, S. B.** (2016). *Risk Perception and Communication*. Invited talk for the Executive Short Course: Decision Science, Risk, and Network Analytics held by the Institute for Strategic Analysis: May, Washington D.C.

**Broomell, S. B.** (2015). *The Psychology of Meteorology*. Invited talk at the 43rd Conference on Broadcast Meteorology and the 3rd Conference on Weather Warnings and Communication: Raleigh, NC.

**Broomell, S. B.** (2015). *Risk Perception and Communication*. Invited talk for the Executive Short Course on Risk held by the Institute for Strategic Analysis: October, Washington D.C.

**Broomell, S. B.** (2014). *Risk communication under uncertainty: Climate Change*. Invited talk presented at the 13th Annual Social Equity Leadership Conference: Pittsburgh, PA.

**Broomell S. B.** (2013). *The Psychology of Risk Communication*. Invited talk presented at the Center for Advancing Risk Assessment Science and Policy: Washington, D.C.

**Broomell, S.** (2012). *Methods for Communicating Uncertainty: Levels of Confidence vs. Numerical Ranges*. Invited talk presented at the meeting on Science for Climate Change Adaptation at the Aspen Global Change Institute: Aspen, CO.

**Broomell, S.**, & Budescu, D. V. (2009). *Why are Experts Correlated? Understanding Inter-Judge Correlations*. Invited talk presented at the University of Illinois Department of Psychology: The Knowledge for All Lecture Series.

**Budescu, D. V.**, & Broomell, S. B. (2005). *The effects of presentation format and decision aids on decisions under deep uncertainty*. Invited presentation at the Meeting on Abrupt Climate Change: Aspen Global Change Institute.

## **Competitive Conference Talks - Presenter in Boldface**

---

**Drummond Otten, C.**, Anglin, S. & Broomell, S. B. (2024). Drawing Different Conclusions from the Same Evidence: Belief in Hydroxychloroquine During COVID-19. Talk presented as part of the Division 3 Symposium: *Psychological Factors Related to Public Misunderstanding and Mistrust of Science* at the American Psychological Association Convention, Seattle, WA.

**Broomell, S. B.** & Davis-Stober, C. p. (2024). The Strengths and Weaknesses of Crowds to Address Global Problems. Talk presented as part of the Division 3 Symposium: *Psychological Factors Related to Public Misunderstanding and Mistrust of Science* at the American Psychological Association Convention, Seattle, WA.

**Broomell, S. B.**, Sloman, S., & He, L. (2023). Sampling Distributions for Cognitive Models. Talk presented at Subjective Probability, Utility, and Decision Making, Vienna, Austria.

**Drummond Otten, C.**, Anglin, S. & Broomell, S.B. (2023). Do individuals selectively engage their analytical reasoning abilities? Talk presented at the Society for Risk Analysis, Washington, DC.

**Drummond Otten, C.**, Anglin, S., & Broomell, S. (2022). Drawing Different Conclusions from the Same Evidence: Belief in Hydroxychloroquine During the COVID-19 Pandemic. Paper presented at the Society for Risk Analysis, Tampa, FL.

**Broomell, S. B.** & Kane, P. B. (2021). *Perceiving a Pandemic: Global-local Incompatibility and COVID-19 Superspreading Events.* Talk presented at the 27th International Meeting of the Brunswik Society, Virtual.

**Broomell, S. B.** & Kane, P. B. (2021). *Perceiving a Pandemic: Global-local Incompatibility and COVID-19 Superspreading Events..* Talk presented at the Society for Mathematical Psychology, Virtual.

**Sloman, S. J.**, Broomell, S. B., & Oppenheimer, D. (2020). *Using parameter contours to achieve more robust model estimation.* Talk presented at the Society for Mathematical Psychology, Virtual.

**Huang, S.**, Broomell, S. B., & Golman, R. (2020). *Getting More Wisdom from the Crowd: When Weighting Individual Judgments Reliably Improves Accuracy or Just Adds Noise.* Talk presented at the 57th Edwards Bayesian Research Conference at California State University: Fullerton, CA.

**Kane P.** & Broomell, S. B. (2019). *Applications of the Bias-Variance Decomposition to Human Forecasting.* Talk presented at the Society for Judgment and Decision Making: Montreal, Canada.

**Broomell, S. B.**, He, L., & Bhatia, S. (2019). A numerical investigation of parameter correlations in choice models. Talk presented at Subjective Probability, Utility, and Decision Making: Amsterdam, The Netherlands.

**Broomell, S. B.** (2019). *Global-Local Incompatibility: The Misperception of Reliability in Judgment Regarding Global Variables.* Talk presented at the Society for Mathematical Psychology: Montreal, Canada.

**Huang, S.**, Golman, R., & Broomell, S. B. (2019). *Getting More Wisdom from the Crowd: When Weighting Individual Judgments Reliably Improves Accuracy or Just Adds Noise.* Talk presented at the 14th Tinbergen Institute Conference: Bayesian Crowd. Rotterdam, Netherlands.

**Broomell, S. B.**, Winkles, J. F., & Kane, P. B. (2017). *The Perception of Daily Temperatures as Evidence of Climate Change.* Talk presented at Subjective Probability, Utility, and Decision Making 26: Haifa, Israel.

**Kane, P.** & Broomell, S. B. (2015). *Predicting Clinical Forecasting Errors with Local Estimators.* Talk presented at the Society for Judgment and Decision Making: Chicago, IL.

**Broomell, S. B.**, Budescu, D. V., Por, H. (2015). *Personal Experience with Climate Change Predicts Intentions to Act* presented as part of the *Psychological Responses to Climate Change Symposium.* Talk presented at the Association for Psychological Science 27th Annual Convention: New York, NY.

**Davis-Stober, C. P.**, Budescu, D. V., Dana, J., & Broomell, S. B. (2014). *When is a crowd wise?* Talk presented at the Collective Intelligence Conference: Cambridge, MA.

**Broomell, S. B.** & Bhatia, S. (2013). *Parameter Recovery for Decision Modeling Using Choice Data.* Talk presented at the Society for Judgment and Decision Making: Toronto, Canada.

**Budescu, D. V.**, Por, H., Broomell, S., & Smithson, M. (2013). *A cross-national study of un-*

*certainty and perceptions of global climate change.* Talk presented at the Society of Multivariate Experimental Psychology: St. Petersburg, FL.

**Broomell, S. B.** & Bhatia, S. (2013). *Parameter Recovery for Decision Modeling Using Choice Data.* Talk presented at Subjective Probability, Utility, and Decision Making 24: Barcelona, Spain.

**Broomell, S. B.**, Budescu, D. V., & Por, H. (2013). *Predicting mitigation action: A cross-national analysis.* Talk presented at Subjective Probability, Utility, and Decision Making 24: Barcelona, Spain.

**Budescu, D. V., Por, H.**, Balassiano, M., Barbopoulos, I., Broomell, S., Fuller, J., Gonzalez-Vallejo, C., Hadar, L., Hansla, A., Hoelzl, E., Hichy, Z., Juanchich, M., Maydeu-Olivares, A., Nakamura, K., Onkal, D., Sirota, M., Smithson, M., Sokolowska, J., Villejoubert, G., & Witteman, C. (2013). *The 2012 cross-national study of uncertainty and perceptions of Global Climate Change.* Talk presented at Subjective Probability, Utility, and Decision Making 24: Barcelona, Spain.

**Broomell, S.**, Budescu, D. V., & Por, H. (2012) *The Impact of Beliefs, Ideology, and Understanding of Climate Change on Mitigation Action.* Talk presented at the Society for Judgment and Decision Making: Minneapolis, MI.

**Smithson, M.**, Budescu, D. V., Broomell, S. B., & Por, H. (2011) *Never Say “Not”: Impact of Negative Wording in Probability Phrases on Imprecise Probability Judgments.* Talk presented at the Seventh International Symposium on Imprecise Probability: Theories and Applications: Innsbruck, Austria.

**Por, H.**, Budescu, D. V., & Broomell, S. B. (2010). *Effective Communication of Uncertainty in the Intergovernmental Panel on Climate Change (IPCC) Reports.* Talk presented at the Society for Judgment and Decision Making: St. Louis, MO.

**Broomell, S. B.**, Por, H., & Budescu, D. V. (2009). *Understanding of Global Climate Change: Beliefs vs. Actions.* Talk presented at the Society for Judgment and Decision Making: Boston, MA.

**Budescu, D. V.** & Broomell, S. B. (2008). *Why are Experts Correlated? Decomposing Inter-judge Correlations.* Talk presented at Behavioral Decision Research in Management Conference: San Diego, CA.

**Broomell, S.**, & Budescu, D. V. (2007). *Why are Experts Correlated? Understanding Inter-judge Correlations.* Talk presented at the Society for Judgment and Decision Making: Long Beach, CA.

Budescu, D. V., Broomell, S., **Lempert, R.**, & Keller, K. (2007). *Effects of Presentation Format on Judgments and Decisions Under Deep Uncertainty.* Talk presented at the Society for Judgment and Decision Making: Long Beach, CA.

**Budescu, D. V.** & Broomell, S. B. (2007). *Why are Experts Correlated? Decomposing Inter-judge Correlations.* Talk Presented at annual meeting of the Society of Multivariate Experimental Psychology: Chapel Hill, NC.

**Broomell, S. B.**, & Budescu, D. V. (2007). *Why are Experts Correlated? Understanding Inter-judge Correlations.* Talk presented at the Society for Mathematical Psychology: Irvine, CA.

Budescu, D. V., **Broomell, S. B.**, Lempert, R., & Keller, K. (2007). *Decisions with Imprecise Probabilities: Confronting models with data.* Talk presented at Subjective Probability, Utility, and Decision Making 21: Warsaw, Poland.

Budescu, D. V., Broomell, S., **Lempert, R.**, & Keller, K. (2007). *Effects of Presentation Format on Judgments and Decisions Under Deep Uncertainty*. Talk presented at the Society for Judgment and Decision Making: Long Beach, CA.

## Poster Presentations - Presenter in Boldface

---

**Warren, A.D.**, Broomell, S.B., Chen, J., & Proctor, R.W. (2024). Competing frames of reference using vibrotactile stimuli for the Simon effect. Poster presented at the Psychonomic Society Annual Meeting, New York, NY.

**Drummond Otten, C.**, Anglin, S. & Broomell, S.B. (2023). Do individuals selectively engage their analytical reasoning abilities? Poster presented at the Society for Judgment and Decision-Making, San Francisco, CA.

**Sloman, S. J.**, Oppenheimer, D. O., Broomell, S. B., & Shalizi, C. R. (2022). Characterizing the robustness of Bayesian adaptive experimental designs to active learning bias. Poster presented at the ICML2022 Workshop on Adaptive Experimental Design and Active Learning in the Real World: Baltimore, USA.

**Drummond Otten, C.**, Anglin, S., & Broomell, S. (2022, November). Drawing Different Conclusions from the Same Evidence: Belief in Hydroxychloroquine During the COVID-19 Pandemic. Poster presented at the Society for Judgment and Decision Making, San Diego, CA.

**Broomell, S. B.** & Kane, P. B. (2021). Perceiving a Pandemic: Global-local Incompatibility and COVID-19 Superspreading Events. Poster presented at the Society for Judgment and Decision Making: Virtual.

**Broomell, S. B.** & Kane, P. B. (2021). Perceiving a Pandemic: Global-local Incompatibility and COVID-19 Superspreading Events. Poster presented at Subjective Probability, Utility, and Decision Making: Virtual.

**Broomell, S. B.** (2019). *Global-Local Incompatibility: The Misperception of Reliability in Judgment Regarding Global Variables*. Poster presented at the Society for Judgment and Decision Making: Montreal, Canada.

**Drummond, C.**, Anglin, S., & Broomell, S. (2019). *Do individuals selectively engage their analytical reasoning abilities?* Poster presented at the Society for Judgment and Decision Making: Montreal, Canada.

Drummond, C., Anglin, S., & **Broomell, S.** (2019). *Do individuals selectively engage their analytical reasoning abilities?* Poster presented at Subjective Probability, Utility, and Decision Making: Amsterdam, The Netherlands.

**Ellerby, Z.**, McCulloch, J., Broomell, S. & Wagner, C. (2019). *The added-value of interval-values - capturing individual response uncertainty*. Poster presented at the Society for Mathematical Psychology: Montreal, Canada.

**Huang, S.**, Golman, R. & Broomell, S. B. (2019). *Getting More Wisdom from the Crowds: When Weighting Individual Judgments Reliably Improves Accuracy or Just Adds Noise*. Poster presented at the Collective Intelligence Conference: Pittsburgh, PA.

Kane P. & **Broomell, S. B.** (2018). *Application of the Bias-Variance Decomposition to Human Forecasting*. Poster presented at the Society for Judgment and Decision Making: New Orleans, LA.

**Anglin, S..** Broomell, S.B., Drummond, C. (2018). *Confirmatory vs. Disconfirmatory Hypothesis Testing Strategies*. Poster presented at the Society for Judgment and Decision Making: New Orleans, LA.

**Broomell, S. B.,** Moss, R., & Mearns, L. (2016). *An Empirical Test of Communicating Uncertain Geographic Climate Projections*. Poster presented at the Society for Judgment and Decision Making: Boston, MA.

**Broomell, S. B.,** Winkles, J.F., & Kane P. (2015). *The Perception of Daily Temperatures as Evidence of Climate Change*. Poster presented at the Society for Judgment and Decision Making: Chicago, IL.

**Dewitt, B.,** Fischhoff, B., Davis, A. & Broomell, S. B. (2015). *Tornado Risk Perception from Visual Cues*. Poster presented at the Society for Judgment and Decision Making: Chicago, IL.

**Broomell, S. B.,** & Kane P. (2013). *Public Perception of Scientific Uncertainty*. Poster presented at the Society for Judgment and Decision Making: Toronto, Canada.

**Broomell, S. B.,** Budescu, D. V., & Por, H. (2011). *Pair-wise comparisons of multiple decision models*. Poster presented at the Society for Judgment and Decision Making: Seattle, WA.

**Broomell, S. B. & McGill, W.** (2011). *A Social Network Simulation of Information Overlap and Confidence in Intelligence Correspondence*. Poster presented at the 11th Annual Intelligence Community Postdoctoral Research Fellowship Colloquium: Washington D.C.

**Broomell, S. B.** (2010). *Sampling Processes in Experience Based Decision Making*. Poster presented at the Society for Judgment and Decision Making: St. Louis, MO.

**Broomell, S. B.,** Budescu, D. V., & Por, H. (2009). *Attitudes Toward Global Climate Change*. Poster presentation at Planet U: The Human Story of Climate Change: Urbana-Champaign, IL.

**Broomell, S. B. & Budescu, D. V.** (2008). *Comparing Individual and Group Level Parameters of Choice Models*. Poster presentation at the Society for Judgment and Decision Making: Chicago, IL.

**Shaffer, V. A.,** Templin, S., Broomell, S. B., & Hulsey, L. (2008). *Perceptions of physicians using diagnostic support systems*. Poster presented at Society for Medical Decision Making: Philadelphia, PA.

**Broomell, S. B., & Budescu, D. V.** (2006). *Exploring Imprecise Probabilities*. Poster presented at the Society for Judgment and Decision Making: Houston, TX.

**Arkes, H. R.,** Shaffer, V. A., White, R., Broomell, S. B., Avner, N., & Anthony, E. (2004). *Debiasing the sunk cost effect by 'punctuating' mental accounts*. Poster presented at the Society for Judgment and Decision Making: Minneapolis, MN.

**Shaffer, V. A.,** Arkes, H. R., White, R., Broomell, S. B., Avner, N., Starrmann, A., Braun, A., & Anthony, E. (2004). *Preference reversals in cash versus non-cash incentives*. Poster presented at the Society for Judgment and Decision Making: Minneapolis, MN.

## **Students Advised**

---

Corey Nack - Doctoral Thesis

2024

Title: Escaping the Metacontrol Seesaw: Double dissociations between flexibility and stability

Purdue University, Department of Psychological Sciences

Ashley Warren - Masters Thesis

2024

Title: Competing Frames of Reference using Vibrotactile Stimuli for S-R Mapping Effects  
Purdue University, Department of Psychological Sciences

Li Xin Lim - Doctoral Thesis

2023

Title: The Interaction of Working Memory and Uncertainty (Mis)Estimation in Context-dependent  
Outcome Estimation  
Purdue University, Department of Psychological Sciences

Sabina Sloman - Doctoral Thesis

2022

Title: Towards robust Bayesian adaptive design methods for the study of human behavior  
Carnegie Mellon University, Department of Social and Decision Sciences

Shu Huang - Doctoral Thesis

2022

Title: Harnessing the Wisdom of Crowds

Carnegie Mellon University, Department of Social and Decision Sciences

Lt. Col. Ryan Kenny - Doctoral Thesis

2022

Title: Why Some are Better Than Others at Detecting Social Bots: Comparing Baseline Performance to Performance with Aids and Training  
Carnegie Mellon University, Department of Engineering and Public Policy

Erin Bugbee - Masters Thesis

2022

Title: Deciding When to Stop: Cognitive Models of Sequential Decisions in Optimal Stopping Tasks  
Carnegie Mellon University, Department of Social and Decision Sciences

Keela Thomson - Doctoral Thesis

2021

Title: The other half of human intelligence: Individual differences in type 1 cognitive ability  
Carnegie Mellon University, Department of Social and Decision Sciences

Yanran Yang - Doctoral Thesis

2021

Title: Graphic communication about scientific uncertainties: Examples from influenza and COVID-19 forecasts  
Carnegie Mellon University, Department of Engineering and Public Policy

Erin McCormick - Doctoral Thesis

2021

Title: Adaptation to change in decision making

Carnegie Mellon University, Department of Social and Decision Sciences

Timothy Kusuma - Undergraduate Honors Thesis

2021

Title: Goals in Misinformation

Carnegie Mellon University, Department of Economics; Statistics and Data Science

Shu Huang - Masters Thesis

2019

Title: Getting More Wisdom from the Crowd: When Weighting Individual Judgments Reliably Improves Accuracy or Just Adds Noise  
Carnegie Mellon University, Department of Social and Decision Sciences

Hanan Hibshi - Doctoral Thesis

2018

Title: Composite Security Requirements in the Presence of Uncertainty  
Carnegie Mellon University, School of Computer Science

- Patrick Kane - Doctoral Thesis 2017  
 Title: Investigating Lay Evaluations of Predictive Models  
 Carnegie Mellon University, Department of Social and Decision Sciences
- Caitlin Drummond - Doctoral Thesis 2017  
 Title: How Do Nonscientists Reason about Scientific Evidence? Development, Validation, and Application of the Scientific Reasoning Scale  
 Carnegie Mellon University, Department of Social and Decision Sciences
- Casey Canfield - Doctoral Thesis 2016  
 Title: Using Vigilance to Quantify Human Behavior for Phishing Risk  
 Carnegie Mellon University, Department of Engineering and Public Policy
- Barry Dewitt - Masters Thesis 2015  
 Title: Tornado Risk Perception from Visual Cues  
 Carnegie Mellon University, Department of Engineering and Public Policy
- Nathanial R. Peterson - Doctoral Thesis 2015  
 Title: A Behavioral Decision Research Approach to College Graduation Risk  
 Carnegie Mellon University, Department of Social and Decision Sciences
- Erin McCormick - Masters Thesis 2015  
 Title: Now Reverse Everything: Detecting Deception with a Response Conflict-Based Cognitive Load Manipulation  
 Carnegie Mellon University, Department of Social and Decision Sciences
- Patrick Kane - Masters Thesis 2014  
 Title: Clinical Versus Actuarial Forecasting: Predicting Errors with Local Estimators  
 Carnegie Mellon University, Department of Social and Decision Sciences
- Caitlin Drummond - Masters Thesis 2014  
 Title: How Capable are Laypeople of Assessing the Validity of Scientific Evidence? Development and Validation of The Critical Scientific Thinking Scale  
 Carnegie Mellon University, Department of Social and Decision Sciences
- Tamar Feigenbaum - Undergraduate Honors Thesis 2014  
 Title: Consumer Decision Making and Price Partitioning  
 Carnegie Mellon University, Department of Social and Decision Sciences
- Alycia Chin - Masters Thesis 2012  
 Title: The effect of readability on responses to probability questions  
 Carnegie Mellon University, Department of Social and Decision Sciences

## Teaching Experience

---

Purdue University.		2022–present
Psychology 39200	Judgment and Decision Making	
Psychology 60601	ANOVA	

University of Illinois at Urbana-Champaign.		2008–2009
Psychology 406	Introductory Graduate Statistics I	
Psychology 407	Introductory Graduate Statistics II	
Psychology 235	Introductory Undergraduate Statistics	

## Professional Service

---

### Associate Editor

<i>Thinking &amp; Reasoning</i> - Taylor & Francis	2024 – present
--	----------------

### Editorial Board Member

<i>Decision</i> - American Psychological Association	2015 – present
<i>Thinking &amp; Reasoning</i> - Taylor & Francis	2020 – 2024

### External Committees

Author Committee		
United Nations Global Assessment Report (GAR 22) on Disaster Risk		2022
www.undrr.org/GAR2022		
Planning Committees		
The Society of Judgment and Decision Making & European Association for Decision Making		
Virtual Symposium Committee	2024 - present	
National Academies of Sciences Engineering and Medicine		2018
Exploring Medical and Public Health Preparedness for a Nuclear Incident: A Workshop		
Technical Advisory Committee		
Consortium for Resilient Gulf Communities	2015 – 2017	

### Purdue University Committees

College of Health and Human Sciences Faculty Affairs Committee	2024 - present
Psychological Sciences Graduate Education Committee	2026 - present
Psychological Sciences Faculty Recruiting Committee	2022, 2024
Psychological Sciences Undergraduate Education Committee	2022

### Conference Referee

Society for Judgment and Decision Making	2014, 2019, 2024
--	------------------

### Journal Referee

*American Political Science Review; Applied Cognitive Psychology; British Journal of Mathematical and Statistical Psychology; Cognition; Cognitive Psychology; Cognitive Science; Computational Brain & Behavior; Decision; Global Environmental Change; Journal of Experimental Psychology: Applied; Journal of Experimental Psychology: General; Journal of Mathematical Psychology; Journal of Risk Research; Judgment and Decision Making; Management Science; Medical Decision Making; Nature Climate Change; Operations Research; Perspectives on Psychological Science; PLOS One;*

*PNAS; Psychological Methods; Psychological Review; Psychological Science; Risk Analysis; Science; Social Psychology and Personality Science; Thinking & Reasoning; Weather, Climate, & Society.*