Lace M.K. Padilla

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Education

May 2018	Ph.D. in Psychology, University of Utah
May 2015	M.S. in Psychology, University of Utah
May 2013	M.F.A. in Studio Arts, University of Utah
May 2009	B.F.A. in Multimedia, Pacific Northwest College of Art

Professional Experience

2023 - Current	Assistant Professor of Computer Science, Northeastern University
2019 - 2023	Assistant Professor of Cognitive & Information Sciences, UC Merced
2018 - 2019	Disaster Risk Management and Behavioral Science Consultant | The World Bank
2018 - 2019	NSF Postdoctoral Research Fellow, Northwestern University

Externally Funded Grants

Department of Energy, Visual Cognition in Support of Transmission Reliability, $99,998 subcontract total (role subcontract, PI Dr. Laura Matzen, Sandia National Laboratories), 2025-26

National Institutes of Health, R01 Grant: "SCH: Improving Early Prediction and Decision-Making for Sepsis with Human-AI Collaboration," $1,194,506 (role Co-PI, PI Dr. Ping Zhang, The University of Ohio), 2024-2029

National Science Foundation, Collaborative Research: HCC: Medium: Responsive Uncertainty Visualizations for Human-Centered Decision-Making, $600,000 (role Co-PI, PI Dr. Michael Correll, Northeastern University), 2024-27

National Science Foundation, Improved Measures of Data Visualization Literacy to Advance Research and Assessment in STEM Education, $803,673 (role CO-PI, PI Dr. Judith Fan, Stanford University), 2024-26

National Science Foundation, CAREER: HCC: Resolving Uncertainty Visualization Reasoning Errors with Mental Model Design and Training, $499,952 (role PI), 2023-28

National Science Foundation, 2122174, EAGER: SAI: Facilitating Restoration of Natural Infrastructure Using Uncertainty Communication, $300,000 (role PI), 2021-23

Department of Energy, Visual Cognition in Support of Transmission Reliability, $225,000 subcontract total (role subcontract, PI Dr. Laura Matzen, Sandia National Laboratories), 2021-23

National Science Foundation, 2028374, RAPID: Visualizing Epidemical Uncertainty for Personal Risk Assessment, $191,696 (role CO-PI, PI Dr. Enrico Bertini New York University), 2020-21

National Science Foundation, 1810498, Improving Equity in STEM via Visualization Literacy Cognition, $138,000 (role PI), 2018-20

NASA, administered by Gordon Research Conferences: Visionary Research Grant, S15-178-05, Improving Trust in Uncertain Science, $3,900, (role Co-PI with Steven Franconeri, Northwestern University and Hannah Fairfield, New York Times), 2018-20

Internally Funded Grants

Northeastern University TIER 1 - Mentored Award: Clarity in Complexity: AI-Human Teaming for Uncertainty Visualization of Multiple Forecasts - $50,000, 2024

University of California Merced R1 Fellowship - $45,000, 2022

University of Utah Graduate Research Fellowship, $24,000, 2017-18

Martin Harris Hiatt Memorial Graduate Fellowship, for work with underrepresented populations, $6,750, 2014

Honors

- Best Paper Honorable Mention (top 5%) at ACM CHI for *Examining interpretation strategies for multiple forecast visualizations with two and four forecasts*, *2026*
- Best Paper Honorable Mention (top 5%) at ACM CHI for *Empowering mental health clinicians with multimodal data insights through a narrative dashboard*, *2026*
- Visualization and Graphics Technical Community (VGTC) Significant New Researcher Award, 2025
- Best Paper Honorable Mention (top 5%) at IEEE VIS for *Average Estimates in Line Graphs are Biased Toward Areas of Higher Variability*, *2023*
- Best Paper Award (top 1%) at IEEE VIS for *Multiple Forecast Visualizations (MFVs): Trade-offs in Trust and Performance in Multiple COVID-19 Forecast Visualizations*, *2022*
- Best Poster Honorable Mention (top 5%) at IEEE VIS for *Processing Fluency Improves Trust in Scatterplot Visualizations*, *2022*
- Early Career Award from the Society for Experimental Psychology and Cognitive Science (Division 3 of the American Psychological Association) *2021*
- The Frederick T. Rhodewalt Award for Innovative Scholarship: $1,000, *2018*
- University of Utah Psychology All-Around Commendation (research, mentorship, and service): *2017*
- Carl Storm Underrepresented Minority Fellowship, Visualization in Science & Education: $600, *2017*
- Clayton Award for excellence in research with underrepresented populations: $2,000, *2014*
- Martin Harris Hiatt Memorial Graduate Fellowship, for excellence in research: $6,750, *2017*
- University of Utah Psychology Commendation in Research: *2015*

Journal Articles (*denotes authorship with graduate student mentee)

1. *Zou, R., Wu, S., Fygenson, R., Yao, B., Wang, D., & **Padilla, L.** (2026). Striking a Balance: Evaluating How Aggregations of Multiple Forecasts Impact Decision Making. In *2026 IEEE Pacific Visualization Symposium (PacificVis)*. IEEE.
2. *Fygenson, R., Bertini, E., & **Padilla, L.** (2026). Croissant Charts: Modulating the Performance of Normal Distribution Visualizations with Affordances. In *EuroVis 2026 - The Eurographics Conference on Visualization*. The Eurographics Association.
3. *Zou, R., Xu, S., Morris, M. E., Ryu, J., Becker, T. D., Allen, N., ... Xu, X. (2026). MIND: Empowering Mental Health Clinicians with Multimodal Data Insights through a Narrative Dashboard. In *Proceedings of the 2026 CHI Conference on Human Factors in Computing Systems*. Barcelona, Spain: Association for Computing Machinery. (⋆ **ACM CHI Honorable Mention Award, top 5%.**)
4. Yao, B., Zhao, M., Zhang, Z., Wang, P., Chester, E. G., Yin, C., ... Wang, D. (2026). Exploring Collaboration Breakdowns Between Provider Teams and Patients in Post-Surgery Care. In *Proceedings of the 2026 CHI Conference on Human Factors in Computing Systems*. Barcelona, Spain: Association for Computing Machinery.
5. **Padilla, L.**, *Fygenson, R., Wilson, C., Potter, K., & Castro, S. C. (2026). Examining Interpretation Strategies for Multiple Forecast Visualizations with Two and Four Forecasts. In *Proceedings of the 2026 CHI Conference on Human Factors in Computing Systems*. Barcelona, Spain: Association for Computing Machinery. (⋆ **ACM CHI Honorable Mention Award, top 5%.**)

6. *Fygenson, R., **Padilla, L.**, & Bertini, E. (2025). Cognitive Affordances in Visualization: Related Constructs, Design Factors, and Framework. *IEEE Transactions on Visualization and Computer Graphics*. (TVCG-only journal article.)
7. Stokes, C., *Arunkumar, A., Hearst, M. A., & **Padilla, L.** (2025). An Analysis of Text Functions in Information Visualization. *IEEE Transactions on Visualization and Computer Graphics*. (IEEE VIS conference paper; published in TVCG.)
8. *Xu, W. & **Padilla, L.** (2025). Shifting Expectations for Encoding Rules Mitigates Misinterpretation of Connected Scatterplots. *IEEE Transactions on Visualization and Computer Graphics*. (IEEE VIS conference paper; published in TVCG.)
9. Elhamdadi, H., Seo, S., **Padilla, L.**, & Bearfield, C. X. (2025). Processing Fluency Mediates Trust in Data Visualizations. *Journal of Vision*, *25*(9), 1847–1847.
10. *Arunkumar, A., **Padilla, L.**, & Bryan, C. (2025a). Modeling and Measuring the Chart Communication Recall Process. In *Computer Graphics Forum* (e70099). Wiley Online Library.
11. Ayompe, L. M., **Padilla, L.**, Eriksson, M., Egoh, B. N., & Bales, R. C. (2025). Overcoming barriers and uncertainties to investing in forested watershed restoration in California. *Frontiers in Forests and Global Change*, *8*, 1587763.
12. *Arunkumar, A., **Padilla, L.**, & Bryan, C. (2025b). Lost in Translation: How Does Bilingualism Shape Reader Preferences for Annotated Charts? In *Proceedings of the 2025 CHI Conference on Human Factors in Computing Systems* (pp. 1–22). Association for Computing Machinery.
13. Brockbank, E., Verma, A., Lloyd, H., Huey, H., **Padilla, L.**, & Fan, J. E. (2025). Evaluating convergence between two data visualization literacy assessments. *Cognitive Research: Principles and Implications*, *10*(1), 15.
14. *Arunkumar, A., **Padilla, L.**, & Bryan, C. (2024). Mind Drifts, Data Shifts: Utilizing Mind Wandering to Track the Evolution of User Experience with Data Visualizations. *IEEE Transactions on Visualization and Computer Graphics*. (IEEE VIS conference paper; published in TVCG.)
15. *Fygenson, R. & **Padilla, L.** (2024). Impact of Vertical Scaling on Normal Probability Density Function Plots. *IEEE Transactions on Visualization and Computer Graphics*. (IEEE VIS conference paper; published in TVCG.)
16. Holder, E. & **Padilla, L.** (2024). Must Be a Tuesday: Affect, Attribution, and Geographic Variability in Equity-Oriented Visualizations of Population Health Disparities. In *2024 IEEE Visualization and Visual Analytics (VIS)* (pp. 66–70). IEEE. IEEE. (IEEE VIS conference paper.)
17. Zhang, S., Yu, J., Xu, X., Yin, C., Lu, Y., Yao, B., … Zhang, P., et al. (2024). Rethinking human-ai collaboration in complex medical decision making: A case study in sepsis diagnosis. In *Proceedings of the 2024 CHI Conference on Human Factors in Computing Systems* (pp. 1–18). Association for Computing Machinery.
18. Wall, E., Matzen, L., El-Assady, M., Masters, P., Hosseinpour, H., Endert, A., … **Padilla, L.** (2024). Trust Junk and Evil Knobs: Calibrating Trust in AI Visualization. In *2024 IEEE 17th Pacific Visualization Conference (PacificVis)* (pp. 22–31). IEEE. IEEE.
19. *Hosseinpour, H., Matzen, L. E., Divis, K. M., Castro, S. C., & **Padilla, L.** (2024). Examining Limits of Small Multiples: Frame Quantity Impacts Judgments with Line Graphs. *IEEE Transactions on Visualization and Computer Graphics*. (TVCG-only journal article.)
20. Eriksson, M., Safeeq, M., **Padilla, L.**, Pathak, T., O'Geen, T., Egoh, B., … Bales, R. (2023). Drivers of social acceptance of natural-resource management: A comparison of the public and professionals in California. *Journal of Environmental Management*, *345*, 118605.
21. Moritz, D., **Padilla, L.**, Nguyen, F., & Franconeri, S. (2023). Average Estimates in Line Graphs Are Biased Toward Areas of Higher Variability. *IEEE Transactions on Visualization and Computer Graphics*. (IEEE VIS conference paper; published in TVCG. ⋆ **IEEE VIS Honorable Mention Award, top 5%.**)
22. *Arunkumar, A., **Padilla, L.**, Bae, G.-Y., & Bryan, C. (2023). Image or Information? Examining the Nature and Impact of Visualization Perceptual Classification. *IEEE Transactions on Visualization and Computer Graphics*. (IEEE VIS conference paper; published in TVCG.)
23. **Padilla, L.**, *Fygenson, R., Castro, S., & Bertini, E. (2022). Multiple Forecast Visualizations (MFVs): Trade-offs in Trust and Performance in Multiple COVID-19 Forecast Visualiza-

tions. *IEEE Transactions on Visualization and Computer Graphics*. (IEEE VIS conference paper; published in TVCG. ⋆ **IEEE VIS Best Paper Award, top 1%.**)

24. **Padilla, L.**, *Hosseinpour, H., *Fygenson, R., Howell, J., Chunara, R., & Bertini, E. (2022). Impact of COVID-19 Forecast Visualizations on Pandemic Risk Perceptions. *Scientific reports*, *12*(1), 1–14.
25. Simpson, M., **Padilla, L.**, Keller, K., & Klippel, A. (2022). Immersive storm surge flooding: Scale and risk perception in virtual reality. *Journal of Environmental Psychology*, 101764.
26. Castro, S. C., Quinan, P. S., *Hosseinpour, H., & **Padilla, L.** (2022). Examining Effort in 1D Uncertainty Communication Using Individual Differences in Working Memory and NASA-TLX. *IEEE Transactions on Visualization and Computer Graphics*, *28*(1), 411–421. doi:10.1109/TVCG.2021.3114803. (IEEE VIS conference paper; published in TVCG.)
27. Franconeri, S. L., **Padilla, L.**, Shah, P., Zacks, J. M., & Hullman, J. (2021). The Science of Visual Data Communication: What Works. *Psychological Science in the Public Interest*, *22*(3), 110–161.
28. **Padilla, L.**, Dryhurst, S., *Hosseinpour, H., & Kruczkiewicz, A. (2021). Multiple Hazard Uncertainty Visualization Challenges and Paths Forward. *Frontiers in Psychology*, 1993.
29. Wooden, G., Winter, B., & **Padilla, L.** (2021). Conceptual Metaphor and Graphical Convention Influence the Interpretation of Line Graphs. *IEEE Transactions on Visualization and Computer Graphics*, *28*(2), 1209–1221.
30. Zhang, Y., Sun, Y., **Padilla, L.**, Barua, S., Bertini, E., & Parker, A. G. (2021). Mapping the landscape of COVID-19 crisis visualizations. In *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems* (pp. 1–23). Association for Computing Machinery.
31. Zhao, J., Simpson, M., Sajjadi, P., Wallgrün, J. O., Li, P., Bagher, M. M., ... Klippel, A. (2021). Crowdxr-pitfalls and potentials of experiments with remote participants. In *2021 IEEE International Symposium on Mixed and Augmented Reality (ISMAR)* (pp. 450–459). IEEE. IEEE.
32. Ivy, S., Rohovit, T., Lavelle, M., **Padilla, L.**, Stefanucci, J., Stokes, D., & Drew, T. (2021). Through the eyes of the expert: Evaluating holistic processing in architects through gaze-contingent viewing. *Psychonomic Bulletin & Review*, 1–9.
33. **Padilla, L.**, *Powell, M., Kay, M., & Hullman, J. (2020). Uncertain about Uncertainty: How Qualitative Expressions of Forecaster Confidence Impact Decision Making with Uncertainty Visualizations. *Frontiers in Psychology*, *11*, 3747.
34. Lobato, E. J. C., Powell, M., **Padilla, L.**, & Holbrook, C. (2020). Factors Predicting Willingness to Share COVID-19 Misinformation. *Frontiers in Psychology*, *11*, 2413. doi:10.3389/fpsyg.2020.566108
35. **Padilla, L.**, Creem-Regehr, S. H., & Thompson, W. (2020). The Powerful Influence of Marks: Visual and Knowledge-Driven Processing in Hurricane Track Displays. *Journal of Experimental Psychology: Applied*. (⋆ **APA Early Career Award, top 1%.**)
36. **Padilla, L.**, Castro, S. C., Quinan, P. S., Ruginski, I. T., & Creem-Regehr, S. H. (2019a). Toward Objective Evaluation of Working Memory in Visualizations: A Case Study Using Pupillometry and a Dual-Task Paradigm. *IEEE Transactions on Visualization and Computer Graphics*, *26*(1), 332–342. (IEEE VIS conference paper; published in TVCG.)
37. Quinan, P. S., **Padilla, L.**, Creem-Regehr, S. H., & Meyer, M. (2019). Examining implicit discretization in spectral schemes. In *Computer Graphics Forum* (Vol. 38, *3*, pp. 363–374). Wiley Online Library.
38. Liu, L., **Padilla, L.**, Creem-Regehr, S., & House, D. (2018). Visualizing Uncertain Tropical Cyclone Predictions using Representative Samples from Ensembles of Forecast Tracks. *IEEE Transactions on Visualization and Computer Graphics*, *25*(1), 882–891. doi:10.1109/TVCG.2018.2865193. (IEEE VIS conference paper; published in TVCG.)
39. **Padilla, L.**, Creem-Regehr, S. H., Hegarty, M., & Stefanucci, J. K. (2018). Decision making with visualizations: A cognitive framework across disciplines. *Cognitive Research: Principles and Implications*, *3*(1), 29. doi:10.1186/s41235-018-0120-9
40. Liu, L., Boone, A. P., Ruginski, I. T., **Padilla, L.**, Hegarty, M., Creem-Regehr, S. H., ... House, D. (2017). Uncertainty Visualization by Representative Sampling from Prediction Ensembles. *IEEE Transactions on Visualization and Computer Graphics*, *23*(9), 2165–2178. (TVCG-only journal article.)

41. **Padilla, L.**, Creem-Regehr, S. H., Stefanucci, J. K., & Cashdan, E. A. (2017). Sex differences in virtual navigation influenced by scale and navigation experience. *Psychonomic Bulletin & Review*, *24*(2), 582–590.
42. **Padilla, L.**, Quinan, P. S., Meyer, M., & Creem-Regehr, S. H. (2017). Evaluating the impact of binning 2D scalar fields. *IEEE Transactions on Visualization and Computer Graphics*, *23*(1), 431–440. (IEEE VIS conference paper; published in TVCG.)
43. **Padilla, L.**, Ruginski, I. T., & Creem-Regehr, S. H. (2017a). Effects of Ensemble and Summary Displays on Interpretations of Geospatial Uncertainty Data. *Cognitive Research: Principles and Implications*, *2*(1), 40.
44. Cashdan, E., Kramer, K. L., Davis, H. E., **Padilla, L.**, & Greaves, R. D. (2016). Mobility and Navigation Among the Yucatec Maya. *Human Nature*, *27*(1), 35–50.
45. Ruginski, I. T., Boone, A. P., **Padilla, L.**, Liu, L., Heydari, N., Kramer, H. S., … Creem-Regehr, S. H. (2016). Non-expert interpretations of hurricane forecast uncertainty visualizations. *Spatial Cognition & Computation*, *16*(2), 154–172.
46. Vashro, L., **Padilla, L.**, & Cashdan, E. (2016). Sex differences in mobility and spatial cognition. *Human Nature*, *27*(1), 16–34.
47. **Padilla, L.**, Hansen, G., Ruginski, I. T., Kramer, H. S., Thompson, W. B., & Creem-Regehr, S. H. (2015). The influence of different graphical displays on nonexpert decision making under uncertainty. *Journal of Experimental Psychology: Applied*, *21*(1), 37.

Edited Books

1. Szafir, D. A., Borgo, R., Chen, M., Edwards, D. J., Fisher, B., & **Padilla, L.** (2023). *Visualization Psychology*. Springer Nature.

Book Chapters

1. Bancilhon, M., **Padilla, L.**, & Ottley, A. (2023). Improving Evaluation Using Visualization Decision-Making Models: A Practical Guide. In *Visualization Psychology* (pp. 85–107). Springer.
2. **Padilla, L.**, Kay, M., & Hullman, J. (2022). Uncertainty Visualization. In W. W. Piegorsch, R. A. Levine, H. H. Zhang, & T. C. M. Lee (Eds.), *Computational Statistics in Data Science* (Chap. 21, pp. 405–421). Oxford: Wiley.
3. Kruczkiewicz, A., Braun, M., McClain, S., Greatrex, H., **Padilla, L.**, Hoffman-Hernandez, L., … Flamig, Z. (2021). Flood Risk and Monitoring Data for Preparedness and Response: From Availability to Use. *Global Drought and Flood: Observation, Modeling, and Prediction*, 289–306.
4. **Padilla, L.**, Castro, S. C., & *Hosseinpour, H. (2021). A review of uncertainty visualization errors: Working memory as an explanatory theory. In K. D. Federmeier (Ed.), *The Psychology of Learning and Motivation* (Vol. 74, pp. 275–315). Psychology of Learning and Motivation. Academic Press. doi:https://doi.org/10.1016/bs.plm.2021.03.001

Peer Reviewed Workshop Proceedings/Psychology Conferences

1. Matzen, L. E., Stites, M. C., Divis, K. M., Bendeck, A. E., Stasko, J. T., & **Padilla, L.** (2024). Effects of Forecast Order, Cost, and Risk on Decision Making with Multiple Forecast Visualizations. In *2024 IEEE Workshop on Uncertainty Visualization: Applications, Techniques, Software, and Decision Frameworks* (pp. 28–37). IEEE. IEEE.
2. Lloyd, H., Huey, H., Brockbank, E., **Padilla, L.**, & Fan, J. E. (2023). What is graph comprehension and how do you measure it? In *Proceedings of the Annual Meeting of the Cognitive Science Society* (Vol. 45, *45*).
3. *Xiong, C., **Padilla, L.**, Grayson, K., & Franconeri, S. (2019). Examining the Components of Trust in Map-Based Visualizations. In *EuroVis Workshop on Trustworthy Visualization (TrustVis)*.
4. **Padilla, L.** (2018a). A case for cognitive models in visualization research. In *Proceedings of Workshop at Evaluation and Beyond - MethodoLogical Approaches for Visualization (BELIV) at IEEE Information Visualization*.

5. Creem-Regehr, S. H., **Padilla, L.**, Stefanucci, J. K., & Cashdan, E. (2015a). Effects of spatial abilities, cue-types, and scale on spatial memory in virtual natural landscapes. *Cognitive Processing*, *16*, S18–S18.
6. Quinan, S., **Padilla, L.**, Creem-Regehr, S., & Meyer, M. (2015a). Towards Ecological Validity in Evaluating Uncertainty. In *Proceedings of Workshop on Visualization for Decision Making Under Uncertainty, at IEEE Information Visualization*.

Government Reports

1. Llopis Abella, J., Perge, E. B., Afif, Z., Soto Orozco, C. R., **Padilla, L.**, & Hsu, J. (2020). *Using Behavioral Insights to Improve Disaster Preparedness, Early Warning and Response Mechanisms in Haiti*. The World Bank.

Other Publications

1. **Padilla, L.** (2022a). Know your experimental uncertainty. *ACM Interactions Magazine*, *29*(6), 21–23.
2. **Padilla, L.** (2022b). Understanding uncertainty on a map is harder than you think. *ACM Interactions Magazine*, *29*(3), 19–21.
3. **Padilla, L.** (2022c). How to understand your climate uncertainty. *ACM Interactions Magazine*, *29*(1), 30–32.
4. **Padilla, L.** (2013). The Art of Maps. *Western Humanities Review*, *67*(1), 18.

Invited Talks

1. **Padilla, L.** (2025a). Seeing the Unknown: Advanced Techniques for Communicating Uncertainty in Data. Invited MIT HCI Seminar. Boston, Massachusetts.
2. **Padilla, L.** (2025b). Uncertainty Visualization. Invited Topical Lecture at AAAS 2024. Boston, Massachusetts.
3. **Padilla, L.** (2023a). Making Uncertainty Cognitively Accessible. Invited Colloquium Talk in the Computer Science Department. Boulder, CA.
4. **Padilla, L.** (2022d). Making Uncertainty Cognitively Accessible. Invited panel presented at the Carnegie Mellon University Human-Computer Interaction Institute's Seminar Series. Pittsburgh, PA.
5. **Padilla, L.** (2022e). COVID-19 Forecast Visualizations and Trust. Invited panel presented at the Harvard Data Science Annual Conference. Cambridge, MA.
6. **Padilla, L.** (2022f). The Future of Decision Science. Invited panel presented at the American Psychological Association Convention. Minneapolis, MN.
7. **Padilla, L.** (2022g). Impacts of COVID-19 Uncertainty Visualizations. Invited talk presented at Marvin Zelen Memorial Symposium. Boston, MA.
8. **Padilla, L.** (2022h). Visualizing Our Uncertain World. Invited keynote presented at the Society of Information Risk Analysts. Virtual.
9. **Padilla, L.** (2022i). Visualizing Our Uncertain World. Invited talk presented at the UC Riverside's Cognition and Cognitive Neuroscience colloquium. Riverside, California.
10. **Padilla, L.** (2021b). Visualizing Our Uncertain World. Invited talk presented at the UC San Diego's Department of Psychology colloquium. San Diego, California.
11. **Padilla, L.** (2021c). Recommendations for communicating uncertainty in your data. Invited talk presented at the UC Irvine's CogSci colloquium. Irvine, California.
12. **Padilla, L.** (2020a). The cognitive science of uncertainty visualization. Invited talk presented at King's College London. London, UK.
13. **Padilla, L.** (2020b). Academic Careers in Psychology. Invited talk presented at the University of Utah. Salt Lake City, UT.
14. **Padilla, L.** (2020c). Visualizing Our Uncertain World. Invited talk presented at MIT HCI Department Seminar. Massachusetts, MA.
15. **Padilla, L.** (2020d). Visualizing Our Uncertain World. Invited talk presented at the Colorado State University Psychology Department Seminar. Fort Collins, Colorado.
16. **Padilla, L.** (2020e). How to read Uncertainty Visualizations. Invited talk presented at the Annual S-H-O-W Conference. Netherlands.

17. **Padilla, L.** (2019a). Visualizing Our Uncertain World. Invited talk presented at Psychological & Brain Sciences Brown Bag. Santa Barbara, CA.
18. **Padilla, L.** (2019b). How They Lied with Data Visualization and Why It Worked. Invited talk presented at UC Merced Developmental Brown Bag. Merced, CA.
19. **Padilla, L.** (2019c). Visualizing Our Uncertain World. Invited talk presented at Mind Brain and Society Meeting. Merced, CA.
20. **Padilla, L.** (2019e). Cognitive Sources of Reasoning Errors with Uncertainty Visualization. Invited talk presented at Joint Statistical Meeting 2019. Denver, CO.
21. de Sherbinin, A. & **Padilla, L.** (2019). Data Visualization and Cognition: The Challenge of Future Scenario Development. Invited talk present at the Forum on Scenarios for Climate and Societal Futures. Denver, CO.
22. **Padilla, L.** (2019f). The state of the art in uncertainty visualization. Invited symposium co-chair, Joint Statistical Meeting 2019. Denver, CO.
23. **Padilla, L.** (2018d). Psychology of Data Visualization. Keynote presented at the Pac-12 Tableau User Group meeting, University of Utah. Salt Lake City, UT.
24. **Padilla, L.** (2018e). Reasoning with Meteorology Displays. Invited talk presented at Columbia University. New York City, NY.
25. **Padilla, L.** (2018f). Selecting the best satellite-derived risk tool: Mining the sky for decision-making. Panel talk presented at the 2018 Understanding Risk Forum. Mexico City, MX.
26. **Padilla, L.** (2018g). Visualization Biases and Risk Assessment. Session chair at the 2018 Understanding Risk Forum. Mexico City, MX.
27. **Padilla, L.** (2017b). Reasoning with Hurricane Forecast Visualizations. Invited talk presented at the University of Utah Dean's Research Leadership Luncheon. Salt Lake City, UT.
28. **Padilla, L.** (2017c). Visualization Decision Making for UX Designers. Invited talk presented at Adobe Systems. Lehi, UT.
29. **Padilla, L.**, Quinan, P. S., Meyer, M., & Creem-Regehr, S. (2016a). Evaluating the impact of binning 2D scalar fields. Invited talk presented at the Scientific Computing and Imaging Institute Visualization group meeting. Salt Lake City, UT.

Paper Talks and Conference Panels

1. **Padilla, L.** (2025c). What Does Psychology Really Mean to Visualization Research? Towards PsychXVis and VisXPsych. Invited Panelist on PsychXVis and VisXPsych Panel at IEEE VIS 2025. Vienna, Austria.
2. **Padilla, L.** (2024). Uncertainty Visualization. Invited Panelist on Uncertainty Visualization Panel at IEEE VIS 2024. Tampa, Florida.
3. **Padilla, L.** (2023b). Being a Successful Researcher. Invited Panelist on Student Volunteer Panel at IEEE VIS 2023. Melbourne, Australia.
4. **Padilla, L.** (2019g). Visualizing Flood Risk and Uncertainty. Invited panelist at Earth from Space Institute (EfSI) Symposium, on Making Communities More Resilient to Extreme Flooding. Baltimore, MD.
5. **Padilla, L.** (2021e). What is the Role of VIS in Combating COVID-19? Panels discussion presented at IEEE Visualization & Visual Analytics (VIS). Virtual.
6. [*]Wooden, G., Winter, B., & **Padilla, L.** (2021c). Conceptual metaphor and graphical convention influence the interpretation of line graphs. Talk presented at Embodied Situated Language Processing Conference. Virtual.
7. House, D., **Padilla, L.**, Liu, L., & Creem-Regehr, S. (2018). Visualizing Uncertain Tropical Cyclone Predictions using Representative Samples from Ensembles of Forecast Tracks. Talk presented at IEEE Information Visualization. Berlin, DE.
8. Bartholomew, B., **Padilla, L.**, & Cashdan, E. (2016). Mobility, Risk-Preference, and Genetics. Talk presented at Undergraduate Research Symposium. Salt Lake City, UT.
9. Dixon, L., **Padilla, L.**, Stefanucci, J., Johnstone, A., Creem-Regehr, S., & Cashdan, E. (2016b). A Comparison of Female Gamers and Non-Gamers on Spatial Cognitive Abilities. Talk presented at the Undergraduate Research Symposium. Salt Lake City, UT.

10. Cashdan, E., Barhorst, E., **Padilla, L.**, Stefanucci, J., & Creem-Regehr, S. (2015). Sex differences in range size: When is travel worth the risk? Talk presented at the Human Behavior and Evolution Society Annual Meeting. Columbia University.
11. Creem-Regehr, S., **Padilla, L.**, Stefanucci, J., & Cashdan, E. (2015b). Effects of Spatial Abilities, Cue-Types, and Scale on Spatial Memory in Virtual Natural Landscape. Talk presented at the 6th International Conference on Spatial Cognition. Rome, ITA.
12. Quinan, P. S., **Padilla, L.**, Creem-Regehr, S., & Meyer, M. (2015b). Towards Ecological Validity in Evaluating Uncertainty. Talk presented at the Workshop on Visualization for Decision Making Under Uncertainty at IEEE Information Visualization. Chicago, IL.
13. Ruginski, I., Boone, A., **Padilla, L.**, Kramer, H., Hegarty, M., Thompson, W., ... Creem-Regehr, S. (2015b). Non-expert interpretations of hurricane forecast uncertainty visualizations. Talk presented at Annual Meeting of the Rocky Mountain Psychological Association. Boise, ID.
14. **Padilla, L.** (2014b). Uncertainty Computation Workshop. Talk presented at the Computing Community Consortium (CCC). Baltimore, MD.

Poster presentations

1. Hosseinpour, H., Aguirre-Munoz, Z., Spivey, M., Castro, S. C., Ryskin, R., & **Padilla, L.** (2025). Eye Movement Patterns Influence Investment Decision Making. Poster presented at the Annual Meeting - Psychonomic Society.
2. *Sharma, R., Tomson, A., Lobato, E., Kallmann, M., & **Padilla, L.** (2020). Data Driven Multi-Hazard Risk Visualization. In J. Byška & S. Jänicke (Eds.), *EuroVis 2020 - Posters*. The Eurographics Association. doi:10.2312/eurp.20201117
3. Castro, S., *Hosseinpour, H., Quinan, P. S., & **Padilla, L.** (2021a). Examining Effort in 1D Uncertainty Communication Using Individual Differences in Working Memory and NASA-TLX. Poster presented at the Annual Meeting - Psychonomic Society. Virtual.
4. **Padilla, L.**, Castro, S., Sam, Q., Ruginski, I., & Creem-Regehr, S. (2019). Toward Objective Evaluation of Working Memory in Visualizations: A Case Study Using Pupillometry and a Dual-Task Paradigm. Poster presented at the Annual Meeting - Psychonomic Society. Montreal, Quebec.
5. Ruginski, I., Gill, D., **Padilla, L.**, & Cashdan, E. (2017). The Effects of Sex and Parenthood on Perceived Distances to Objects. Poster presented at the CSBS Research Day. Salt Lake City, UT.
6. Barhorst-Cates, E., Schug, M., **Padilla, L.**, Creem-Regehr, S., Stefanucci, J., & Cashdan, E. (2017). Navigation and Mental Rotation: Examining Effects of Childhood and Life-Long Mobility Experience in the U.S. and Faroe Islands. Poster presented at the Rocky Mountain Psychological Association. Salt Lake City, UT.
7. Dixon, L., Pointon, G., **Padilla, L.**, Stefanucci, J., Creem-Regehr, S., & Johnstone, A. (2017). Development of a New Gaming Questionnaire to Assess the Influence of Game Genre on Spatial Cognitive Abilities in Males and Females. Poster presented at the Rocky Mountain Psychological Association. Salt Lake City, UT.
8. **Padilla, L.**, Creem-Regehr, S., Hegarty, M., & Stefanucci, J. (2017). Decision Making with Visualizations: A Selective Review. Poster presented at the Visualization in Science and Education Gordon Research Conference. Lewiston, ME.
9. **Padilla, L.**, Ruginski, I., & Creem-Regehr, S. (2017b). Exploring Decision Biases with Ensemble Display Visualizations. Poster presented at the Annual Meeting - Psychonomic Society. Vancouver, BC.
10. Ruginski, I., Gill, D., **Padilla, L.**, & Cashdan, E. (2016). The Effects of Sex and Parenthood on Perceived Distances to Objects. Poster presented at Psychonomics 2016. Boston, MA.
11. **Padilla, L.**, Ruginski, I., & Creem-Regehr, S. (2016). Interpretations of ensemble versus summary displays of uncertainty in hurricane forecasts: size and intensity judgments. Poster presented at Spatial Cognition 2016. Philadelphia, PA.
12. Creem-Regehr, S., **Padilla, L.**, Stefanucci, J., & Cashdan, E. (2016). The Influence of Realistic Textures and Shading on Mental Rotation of 3D Objects. Poster presented at Spatial Cognition 2016. Philadelphia, PA.

13. Dixon, L., **Padilla, L.**, Stefanucci, J., Creem-Regehr, S., & Johnstone, A. (2016). Relating Video Gaming and Spatial Cognition in Women. Poster presented at Psychonomics 2016. Boston, MA.
14. Dixon, L., **Padilla, L.**, Stefanucci, J., Johnstone, A., Creem-Regehr, S., & Cashdan, E. (2016a). A Comparison of Female Gamers and Non-Gamers on Spatial Cognitive Abilities. Poster presented at College of Social & Behavioral Science Student Research Day 2016. Salt Lake City, UT.
15. **Padilla, L.**, Bergmann, T., & Creem-Regehr, S. (2016). Uncertainty in Weather Forecast Phrasing. Poster presented at Psychonomics International 2016. Granda, Spain.
16. **Padilla, L.**, Creem-Regehr, S., Stefanucci, J., & Cashdan, E. (2015). Influence of instructions on female performance on a virtual Morris Water Maze. Poster presented at Psychonomics 2015. Chicago, IL.
17. **Padilla, L.**, Stefanucci, J., & Cashdan, E. (2015). Sex differences in virtual navigation influenced by scale, visual cue-types, spatial memory and lifetime mobility. Poster presented at Annual Conference of the Cognitive Science Society. Long Beach, CA.
18. Ruginski, I., Boone, A., **Padilla, L.**, Kramer, H., Hegarty, M., Thompson, W., ... Creem-Regehr, S. (2015a). Understanding the cone of uncertainty: Non-expert interpretations of hurricane forecast uncertainty visualizations. Poster presented at the Annual Conference of the Cognitive Science Society. Pasadena, CA.
19. **Padilla, L.**, Creem-Regehr, S., Stefanucci, J., & Cashdan, E. (2014). Effects of spatial abilities cue types and scale on spatial memory in virtual natural landscape. Poster presented at Psychonomics 2014. Long Beach, CA.
20. **Padilla, L.**, Creem-Regehr, S., & Thompson, W. (2013a). Uncertainty cognition of glyphs. Poster presented at the Center for Spatial Studies. Santa Barbara, CA.
21. **Padilla, L.**, Creem-Regehr, S., & Thompson, W. (2013b). Understanding uncertainty visualizations. Poster presented at the International Spatial Cognition Summer Institute. Santa Barbara, CA.

Professional Activity and Service

IEEE VIS General Chair *2026*

IEEE VIS Open Practices Committee *2024 - 2025*

IEEE VIS Publicity Committee *2022 - 2024*

IEEE VIS Diversity and Equity Committee *2020 - 2022*

NSF panel reviewer *2021-2025*

Workshop Co-chair, Visualization Psychology, IEEE VIS, Salt Lake City, UT. *2020*

IEEE VIS Program Committee, *2019, 2020, 2023, 2024*

EuroVis Program Committee, *2020*

iLRN Program Committee, *2020*

Poster Chair, Spatial Cognition Conference, Tuebingen, *2018*

Founder: University of Utah Diversity Scholars Award, *2017 - 2018*.

The National Science Foundation, STEM Ambassador, *2017 - 2018*

Editorial services, Peters CRC Press Computer Graphics, Vision and Visualization, *2013*

Teaching

Courses taught at the Northeastern University:

DS 4200 Information Presentation & Visualization | *Summer 2025*

PSYC 3466 Cognition | *S 2025*

CS 7250 Info Viz Theory and Application | *F 2023, S 2025*

CS 5340 Human-Computer Interaction | *S 2024*

CS 7295 Special Topics: HCI and VIS for Decision Making | *F 2024*

Courses taught at the University of California, Merced:

COGS 214 Global Good Studio, Data Visualization | *SP 2020, F 2021, F 2022*
COGS 170 Judgment and Decision Making | *SP 2020, SP 2021, F 2021, F 2022*
COGS 269 Professional Development, Websites-Grants-Talks | *F 2021*
COGS 01 | Introduction to Cognitive Science | *SP 2022*

Guest Lecturer:

6/11.C35/85: Interactive Data Visualization and Society, MIT, *April 2024*
DMUY 4913 Climate and Design, New York University, *March 2019*
EESC GU5407 Applications in Climate + Society, Columbia University, *March 2019*
IEMS 365: Analytics for Social Good, Northwestern University, *January 2019*
EESC GU5407 Applications in Climate + Society, Columbia University, *March 2018*
PSY 2015: Skepticism and Scientific Thinking: Defense Against the Pseudosciences, University of Utah, *January 2018*
PSY 2010: Orientation to Psychology as a Science and Profession, University of Utah, *October 2016*
PSY 3150: Sensation and Perception, University of Utah, *January 2015*
PSY 3150: Sensation and Perception, University of Utah, *November 2014*
PSY 3960: Explorations Through Psychology and the Arts, University of Utah, *March 2013*

Ph.D. Students

Kai Nylund, *2025 - ongoing (Northeastern)*

Wen Xu, *2024 - ongoing (Northeastern)*

Racquel Fygenson, *2023 - ongoing (Northeastern)*

Helia Hosseinpour, *2020 - ongoing (UC Merced)*

Editorial Positions

- Associate Editor of IEEE Transactions on Visualization and Computer Graphics (TVCG) *2025 - ongoing*
- Associate Editor of the Journal of Visualization and Interaction (JoVI) *2022- 2025*
- Guest Editor, Frontiers in Psychology and Frontiers in Computer Science, Special topic on Uncertainty Visualization *2019-2020*

Ad hoc reviewer

TVCG, IEEE VIS, ACM CHI, Euro VIS, PB&R, CRPI, JEP:Applied, Cognition

Membership

IEEE Computer Society
Psychonomic Society
Women Tech Council
Association for Women in the Sciences (AWIS)
Society for the Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS)

Press

- American Psychological Association. (2023 January). Speaking of Psychology: How psychology can help people make better decisions, with Lace Padilla, PhD, and Hannah Perfecto, PhD. Episode 223 [Podcast Interview]
- Mission Unstoppable. CBS TV Show. (2021, May 18). How Can Perception Save Lives? [Feature Segment on Dr. Padilla's research].
- Pop, R. (2020, June 19). The Difference Between Teaching and Doing Data Visualization—and Why One Helps the Other [Article Interview]

- Bertini, E. and Stefaner, M. (2019, October 23). Cognitive Science for Data Visualization [Podcast Interview]

- Hullman, J. (2019, September 1). How to Get Better at Embracing Unknowns. Scientific American [Magazine]

- Lewandowsky, S. (2017, October 4). Preparing for Nate and Ophelia: How people process hurricane forecasts. Psychonomic Society [Online Research Feature]

- Bartels, M. (2017, October 7). Hurricane Nate: no one knows how to read hurricane forecasts - here's why. Newsweek [Online Article]

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