

Heather Burte

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Department of Psychological & Brain Sciences
College Station, TX 77843-4235

EDUCATION

- Ph.D. Psychological & Brain Sciences, University of California-Santa Barbara, 2014
Emphasis in Cognitive Science
M.A. Department of Geography, University of California-Santa Barbara, 2011
B.A. Department of Psychology, University of Alberta, 2004

PROFESSIONAL EXPERIENCE

Academic

- 2019–Current Research Assistant Professor, Psychological & Brain Sciences, Texas A&M
Training Faculty, Texas A&M Institute for Neuroscience
2018–2019 Research Scientist, LINK Research Lab, University of Texas at Arlington
2015–2018 Postdoctoral Scholar, Department of Psychology, Tufts University

Industry

- Summer 2009 Research Assistant, Edmonton West Primary Care Network
2005–2008 Project Manager, Data Analyst, and Training Coordinator, Advanis Inc.
2004–2005 Psychological Assistant, Westgroup Solutions Inc.

GRANTS

- 2021–2023 Presidential Transformational Teaching Grant, Texas A&M, PI, \$20,000
“Using narrative, engagement, and transformation to support learning in cognitive psychology”
2021–2022 Innovation-X Grant, Texas A&M, Team Leader, \$20,000
“Human brain processes during complex locomotor navigation”

PUBLICATIONS

Peer Reviewed Articles

- 2021 Shaghaghian, Z., **Burte**, H., Song, D., and Yan, W. Learning Geometric Transformations for Parametric Design: An AR-Powered Approach. *CAAD Futures 2021 Springer Proceedings*.
2020 **Burte**, H., Gardony, A.L., Hutton, A., & Taylor, H. A. Elementary teachers’ attitudes and beliefs about spatial thinking and mathematics. *Cognitive Research: Principles and Implications*, 5(17). <https://doi.org/10.1186/s41235-020-00221-w>
2019 Zajac, L., **Burte**, H., Taylor, H. A., & Killiany, R. Self-reported navigation ability is associated with optic flow-sensitive regions’ functional connectivity patterns during visual path integration. *Brain and Behavior*, 9(e01236).
<https://doi.org/10.1002/brb3.1236>

- 2019 **Burte**, H., Gardony, A.L., Hutton, A., & Taylor, H. A. Make-A-Dice Test: Assessing the intersection of mathematical and spatial thinking. *Behavior Research Methods*, 51(2), 602–638. <https://doi.org/10.3758/s13428-018-01192-z>
- 2019 **Burte**, H., Gardony, A.L., Hutton, A., & Taylor, H. A. Knowing when to fold ‘em: Problem attributes and strategy differences in the Paper Folding test. *Personality & Individual Differences*, 146, 171–181. <https://doi.org/10.1016/j.paid.2018.08.009>
- 2018 **Burte**, H., Turner, B. O., Miller, M. B., & Hegarty, M. The neural basis of individual differences in directional sense. *Frontiers in Human Neuroscience*, 12(410). <https://doi.org/10.3389/fnhum.2018.00410>
- 2017 **Burte**, H., & Montello, D. R. How sense-of-direction and learning intentionality relate to spatial knowledge acquisition in the environment. *Cognitive Research: Principles and Implications*, 2(18). <https://doi.org/10.1186/s41235-017-0057-4>
- 2017 **Burte**, H., Gardony, A.L., Hutton, A., & Taylor, H. A. Think3d!: Improving mathematics learning through embodied spatial training. *Cognitive Research: Principles and Implications*, 2(13). <https://doi.org/10.1186/s41235-017-0052-9>
- 2015 Brunyé, T., **Burte**, H., Houck, L. A., & Taylor, H. A. The map in our head is not oriented north: Evidence from a real-world environment. *PLoS ONE*, 10(9), e0135803. <https://doi.org/10.1371/journal.pone.0135803>
- 2014 **Burte**, H., & Hegarty, M. Alignment effects and allocentric-headings within a relative heading task. In C. Freksa, B. Nebel, M. Hegarty, & T. Barkowsky (Eds.), *Spatial Cognition IX* (pp. 46–61). Berlin: Springer. https://doi.org/10.1007/978-3-319-11215-2_4
- 2013 **Burte**, H., & Hegarty, M. Individual and strategy differences in an allocentric-heading recall task. In M. Knauff, M. Pauen, N. Sebanz, & I. Wachsmuth (Eds.), *Proceedings of the 35th Annual Conference of the Cognitive Science Society* (pp. 1958–1963). Austin, TX: Cognitive Science Society. <https://escholarship.org/uc/item/4t92c5wh>
- 2012 **Burte**, H., & Hegarty, M. Revisiting the relationship between allocentric-heading recall and self-reported sense of direction. In N. Miyake, D. Peebles, & R. P. Cooper (Eds.), *Proceedings of the 34th Annual Conference of the Cognitive Science Society* (pp. 162–167). Austin, TX: Cognitive Science Society. <https://escholarship.org/uc/item/8dc6k7km>
- 2012 Friedman, A., Montello, D. R., & **Burte**, H. Location memory for dots in polygons versus cities in regions: Evaluating the category adjustment model. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 38(5), 1336–1351. <https://psycnet.apa.org/doi/10.1037/a0028074>

Book Chapters

- 2018 Hegarty, M., **Burte**, H., Boone, A. Individual Differences in Spatial Abilities and Strategies. In D. R. Montello (Ed.) *Handbook of Behavioral and Cognitive Geography* (pp. 231–246). Northampton, MA: Edward Elgar Publishing. <https://doi.org/10.4337/9781784717544.00022>

Conference & Workshop Proceedings

- 2016 Barkowsky, T., **Burte**, H., Hölscher, C., & Schultheis, H. (Eds.) *Spatial Cognition X: Proceedings for Spatial Cognition and KogWis 2016 conferences*. Berlin, Germany: Springer Lecture Notes in Artificial Intelligence. <https://doi.org/10.1007/978-3-319-68189-4>

- 2015 **Burte**, H., Kauppinen, T. & Hegarty, M. (Eds.) *Proceedings of the Workshop on Teaching Spatial Thinking from Interdisciplinary Perspectives (TSTIP 2015)* at COSIT 2015 in Santa Fe, NM: CEUR-WS.org. <http://ceur-ws.org/Vol-1557/>

INVITED TALKS

- 2016 How can improving spatial thinking contribute to elementary-level math learning and instruction?, Boston College, Newton MA, November 14.

CONFERENCE ACTIVITY

Workshops & Special Groups Organized

- 2021 **Burte**, H., Hong, J. E., & DeMers, M. N. *Developing Geospatial Expertise (DGES 2021)*. Symposium at Spatial Cognition 2021 in Riga, Latvia, August 1–4.
- 2017 **Burte**, H., Atit, K., & Jaeger, A. *Enhancing STEM learning using Spatial Thinking*. Special Group Session at Psychonomic Society Annual Meeting, Vancouver, Canada, November 9–12.
- 2015 **Burte**, H., Kauppinen, T., & Hegarty, M. *Teaching spatial thinking from interdisciplinary perspectives*. Workshop at Conference on Spatial Information Theory (COSIT) in Santa Fe, NM, October 12–16.

Spoken Presentations

- 2017 **Burte**, H., Taylor, H. A., & Hutton, A. *Three years of Think3d!: Impacting elementary students' math learning through embodied spatial training*. Psychonomic Society Annual Meeting, Vancouver, Canada, November 9–12.
- 2015 Hegarty, M., **Burte**, H., Boone, A., Tarampi, M., & Heydari, N. *Individual differences in spatial abilities across different scales of space*. International Conference on Spatial Cognition in Rome, Italy, September 7–11.
- 2015 **Burte**, H., Kauppinen, T., & Hegarty, M. *Teaching spatial thinking from interdisciplinary perspectives*. In “Geospatial thinking: Research, educational and societal aspects” workshop at the International Conference on Geographic Information Science (AGILE) in Lisbon, Portugal, June 9–12.
- 2014 **Burte**, H., & Hegarty, M. *Alignment effects and allocentric-headings within a relative heading task*. Spatial Cognition Conference in Bremen, Germany, September 15–19.
- 2013 **Burte**, H., & Hegarty, M. *Individual and strategy differences in an allocentric-heading recall task*. Psychonomic Society Annual Meeting, Toronto, Canada, November 14–17.
- 2013 **Burte**, H., & Hegarty, M. *Individual and strategy differences within large-scale familiar environments*. International Spatial Cognition Summer Institute (ISCSI), Santa Barbara, CA, August 11–25.
- 2012 **Burte**, H., & Hegarty, M. *Revisiting the relationship between allocentric-heading recall and self-assessed sense of direction*. Cognitive Science Conference, Sapporo, Japan, August 1–4.

Posters

- 2021 Deshpande, T., Park, S., & **Burte**, H. *Pointing north online: Using photographs of known environments to evaluate north pointing accuracy*. Cognitive Science, Virtual, July 26–29.
- 2021 Park, S., Watanabe, B., & **Burte**, H. *Reference frames for spatial and social thinking: Individual difference in strategy use*. Spatial Cognition in Riga, Latvia, August 1–4.
- 2021 Hawthorne, C., Myers, M., Quintero, S., & **Burte**, H. *Directional sense in familiar environments misaligned with the cardinal directions*. Spatial Cognition in Riga, Latvia, August 1–4.
- 2020 **Burte**, H., Gardony, A. L., Hutton, A., & Taylor, H. A. *What are Elementary Teachers' Attitudes and Beliefs about Spatial Thinking and Math?* Psychonomic Society Annual Meeting, Virtual, November 19–22.
- 2019 **Burte**, H., McCall, E. C., Hutton, A. & Taylor, H. A. *Think3d!: How spatial visualization impacts elementary students' math learning*. Psychonomic Society Annual Meeting, Montreal, Canada, November 14–19.
- 2018 **Burte**, H., Taylor, H. A., & Hutton, A. *Impacting elementary students' math learning using a spatial training program*. Psychonomic Society Annual Meeting, New Orleans, LA, November 15–18.
- 2018 Kaszowska, A., **Burte**, H., Hutton, A., & Taylor, H. A. *Strategy use in paper folding: An eye tracking study using the Mental Unfolding Task*. Psychonomic Society Annual Meeting, New Orleans, LA, November 15–18.
- 2018 Harwood, J., **Burte**, H., & Eton, C. M. *Transition analysis: A new method for tracking changes in student understanding using concept inventories*. Physics Education Research Conference, Washington, DC, August 1–2.
- 2017 Kaszowska, A., **Burte**, H., Hutton, A., & Taylor, H. A. *There's more to mental paper folding than spatial visualization*. Psychonomic Society Annual Meeting, Vancouver, Canada, November 9–12.
- 2017 **Burte**, H., Gardony, A.L., Hutton, A., & Taylor, H. A. *Think3d!: Improving Mathematics Learning Through Embodied Spatial Training*. Association for Psychological Science Annual Convention, Boston, MA, May 25–28.
- 2016 **Burte**, H., Gardony, A. L., Hutton, A., & Taylor, H. A. *Folding the Dice: Strategy and individual differences in the Make-A-Dice test*. Psychonomic Society Annual Meeting, Boston, MA. November 17–20.
- 2016 **Burte**, H., Taylor, H. A., & Gardony, A. L. *A new approach to the paper folding test*. Spatial Cognition Conference, Philadelphia, PA, August 2–5.
- 2015 **Burte**, H., Gardony, A.L., Hutton, A., & Taylor, H. A. *Knowing when to fold 'em: Strategy and individual differences in paper folding*. Psychonomic Society Annual Meeting, Chicago, IL, November 19–22.
- 2015 Brunyé, T., **Burte**, H., Houck, L. A., & Taylor, H. A. *The map in our head is not oriented north: Evidence from a real-world environment*. Psychonomic Society Annual Meeting, Chicago, IL, November 19–22.
- 2014 **Burte**, H., Hegarty, M., Turner, B. O., & Miller, M. B. *Neural basis of individual differences in a relative heading task*. Psychonomic Society Annual Meeting, Long Beach, CA. November 20–23.

- 2014 **Burte**, H., Hegarty, M., Turner, B. O., & Miller, M. B. *Neural basis of individual differences in a relative heading task*. Society for Neuroscience Conference, Washington, DC, November 15–19.
- 2013 **Burte**, H., & Hegarty, M. *Individual and strategy differences in an allocentric-heading recall task*. Cognitive Science Conference, Berlin, Germany, July 31–August 3.

TEACHING EXPERIENCE

Texas A&M University, Psychological & Brain Sciences

Research Methods (Fall 2019, Fall 2020)
 Sensation & Perception (Fall 2019, Spring 2021)
 Honors Sensation & Perception (Spring 2020)
 Human Cognitive Processing (Spring 2020, Fall 2020, Spring 2021)
 Honors Human Cognitive Processing (upcoming in Fall 2021)
 Graduate Experimental Psychology (upcoming in Fall 2021)

UC Santa Barbara, Psychological & Brain Sciences, Instructor of Record

Laboratory in Advanced Research Methods (Summer 2012, Summer 2014)

Teaching Qualifications

Certificate in College & University Teaching, UC Santa Barbara, 2014
 Certificate in Adult and Continuing Education, University of Alberta Extension, 2007

MENTORING EXPERIENCE

Mentorship of Graduate Students

2020–current Sungjoon Park, Committee Chair, Psychological & Brain Sciences, Texas A&M
 2020–current Zohreh Shaghaghian, Committee Member, Architecture, Texas A&M

Poster Presentations by Undergraduate Research Assistants

- 2018 Liu, A., **Burte**, H., & Eton, C. M. *Optimizing problem solving and strategy questionnaire*. Wesleyan University Summer Research Poster Session, Middletown, CT.
- 2017 Block, A., **Burte**, H., Kaszowska, A., & Taylor, H. A. *Using Make-A-Dice tasks to observe changes in spatial cognition and math skills*. Tufts Undergraduate Research and Scholarship Symposium, Medford, MA.
- 2017 Lyncee, M. A., Kaszowska, A., **Burte**, H., & Taylor, H. A. *Seeing is believing: Using fixation frequency and duration to assess difficulty*. Tufts Undergraduate Research and Scholarship Symposium, Medford, MA.
- 2017 Naborn, J., Kaszowska, A., **Burte**, H., & Taylor, H. A. *Strategy is in the eye of the beholder: Approaches to spatial tasks*. Fenway Psychology Research Conference, Boston & Tufts Undergraduate Research and Scholarship Symposium, Medford, MA.
- 2017 Nicholson, O. E., **Burte**, H., Kaszowska, A., & Taylor, H. A. *Think3d!: How spatial training impacts mathematics learning*. Tufts Undergraduate Research and Scholarship Symposium, Medford, MA.
- 2017 O'Brien, M. K., Kaszowska, A., **Burte**, H., & Taylor, H. A. *What can gaze switching reveal about spatial thinking strategies in a paper folding task?*. Fenway Psychology

- Research Conference, Boston & Tufts Undergraduate Research and Scholarship Symposium, Medford, MA.
- 2017 Salcido White, M. O., **Burte**, H., Kaszowska, A., & Taylor, H. A. *Paper folds and hole-punches: Assessing the impact of spatial training*. Tufts Undergraduate Research and Scholarship Symposium, Medford, MA.
- 2017 Zhang, L. Y., Kaszowska, A., **Burte**, H., & Taylor, H. A. *Does paper folding lead to spatial thinking?*. Fenway Psychology Research Conference, Boston & Tufts Undergraduate Research and Scholarship Symposium, Medford, MA.

Mentorship of Undergraduate Students

- 2021–2022 Will be mentoring 8 undergraduate research assistants, 2 honors students, and 1 teaching scholar, Psychological & Brain Sciences, Texas A&M
- 2020–2021 Mentoring 12 undergraduates research assistants, 4 honors students, and 7 teaching scholars, Psychological & Brain Sciences, Texas A&M
Mentoring 3 undergraduates, Texas A&M Institute for Neuroscience
- 2019–2020 Mentored 10 undergraduate research assistants, 2 honors students, and 5 teaching scholars, Psychological & Brain Sciences, Texas A&M
- 2018–2019 Mentored 2 undergraduates, Department of Psychology, Tufts University
- 2017–2018 Mentored 2 undergraduates, Department of Psychology, Tufts University
- 2016–2017 Mentored 10 undergraduates, Department of Psychology, Tufts University
- 2015–2016 Mentored 6 undergraduates, Department of Psychology, Tufts University
- 2011–2014 Mentored 7 undergraduates, Psychological & Brain Sciences, UC Santa Barbara
- 2009–2011 Mentored 4 undergraduates, Department of Geography, UC Santa Barbara

PROFESSIONAL SERVICE

Peer Review

- Asia Pacific Education Review* (2021)
- Cartography & Geographic Information Science* (2017, 2019, 2021)
- Cognition* (2016–2017)
- Cognition & Instruction* (2020, 2021)
- Discourse Processes* (2017)
- Experimental Brain Research* (2021)
- Intelligence* (2017)
- Journal of Cognitive Psychology* (2019)
- Journal of Engineering Education* (2017, 2019)
- Journal of Environmental Psychology* (2017, 2018, 2020)
- Journal of Experimental Psychology: Learning, Memory, and Cognition* (2016–2018)
- Learning and Individual Differences* (2020, 2021)
- Psychological Research* (2017–2018)
- Research in Science & Technological Education* (2020)
- Spatial Cognition & Computation* (2016, 2021)
- <https://publons.com/author/1205781/heather-burte#profile>

To Profession

Retention & Recruitment of BIPOC Undergraduate Students committee member,
Psychological & Brain Sciences, Texas A&M, 2020–current
Workshop/Tutorial Committee Member, Spatial Cognition, Germany, 2017–2018
Submissions Chair, Spatial Cognition, Philadelphia, PA, 2015–2016
Assistant, International Spatial Cognition Summer Institute, UCSB, 2013
Organizer, Spatial Cognition Research Group, UCSB, 2010–2013

PROFESSIONAL DEVELOPMENT

2021 Faculty Mentoring Academy, Texas A&M University
2021 Green Dot & STAND UP Training, Texas A&M University
2020 Kognito At Risk Program, Texas A&M University
2017 FreeSurfer Workshop, Boston, MA
2017 Open Science Workshop, Center for Open Science, Tufts University
2016–2017 Mentee, Association for Women in Science Mentoring Circle, Boston, MA
2015–2017 Peer Mentor, Post-Doctoral Mentoring Group, Tufts University

PROFESSIONAL ASSOCIATIONS

2014–2021 Psychonomic Society
2011–2021 Cognitive Science Society
2017–2018 Association for Psychological Science
2016–2017 Association for Women in Science
2014–2015 Society for Neuroscience