

ADAM J. BARNAS

CONTACT INFORMATION

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 University of Florida
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 Gainesville, FL 32611

ACADEMIC APPOINTMENTS

2021-present **Postdoctoral Associate**
 Department of Psychology
 University of Florida (Gainesville, FL)
 Mentors: Steven Weisberg, Natalie Ebner

2020-2021 **Postdoctoral Research Associate**
 Department of Psychology
 University of Wisconsin-Madison (Madison, WI)
 Mentor: Emily Ward

EDUCATION

2019 **Ph.D., Experimental Psychology – Cognitive Neuroscience**
 University of Wisconsin-Milwaukee (Milwaukee, WI)
 Dissertation: *Reexamining object-based visual attention: Understanding the nature of direction-dependent attention shifts*
 Mentor: Adam Greenberg
 Committee: Deborah Hannula, Christine Larson, Wendy Huddleston, Edgar DeYoe

2014 **M.A., General Psychology**
 University of Dayton (Dayton, OH)
 Thesis: *Emotional responses evoked by paintings and classical music in artists, musicians, and non-experts*
 Advisor: Susan Davis
 Committee: Benjamin Kunz, Ronald Katsuyama, Gregory Elvers

2011 **B.S., Psychology; Molecular & Cellular Biology**
 University of Illinois at Urbana-Champaign (Urbana, IL)

AWARDS, HONORS, AND FELLOWSHIPS

2023 Center for Vital Longevity Sallie P. Asche Travel Award, Dallas Aging & Cognition Conference, University of Texas at Dallas
 2022 National Eye Institute Early Career Scientist Travel Award, Vision Sciences Society
 2020 McPherson Eye Research Institute COVID Trainee Assistance, University of Wisconsin-Madison
 2019-2020 R1 Distinguished Dissertator Fellowship, University of Wisconsin-Milwaukee
 2018-2019 Graduate Student Excellence Fellowship, University of Wisconsin-Milwaukee
 2017 Travel Award, The Workshop on Object Perception, Attention, and Memory (OPAM)
 2015 Graduate Student Summer Research Fellowship, University of Wisconsin-Milwaukee
 2013 Graduate Student Summer Fellowship, University of Dayton

2012 Graduate Student Summer Fellowship, University of Dayton
 2011 Honorary Senior 100, University of Illinois
 2007-2011 Dean's List, University of Illinois

GRANTS AND FUNDING

*Direct Costs; †Total Costs

- Pending **Ruth L. Kirschstein National Research Service Award (NRSA) Individual Postdoctoral Fellowship (Parent F32)**, National Institutes of Health (NIH/NIA 1F32AG092070-01; †\$149,824)
Visual attentional mechanisms of navigation and walking deficits in aging and ADRD: A cognitive neuroscience approach.
 Role: **PI** (Mentors: Julia Choi, Natalie Ebner, Steven Weisberg)
- 2024 **Scientific Research Network on Decision Neuroscience and Aging Pilot Grant**, University of Texas at Dallas (NIH/NIA 1R24AG076847; †\$24,000)
Exploring risk tolerance and decision-making across contexts: Implications for healthy cognitive aging and Alzheimer's disease.
 Role: **Co-I** (PI: Eliany Perez, Co-PI: Steven Weisberg)
- 2022-2024 **Ed and Ethel Moore Alzheimer's Disease Research Program**, Florida Department of Health (FDOH 22A12; †\$100,000)
Novel behavioral and neural markers of Alzheimer's disease progression: A case for visual orienting.
 Role: **PI** (Mentors: Dawn Bowers, Natalie Ebner, Steven Weisberg)

PUBLICATIONS

Published or in press

Barnas, A. J., & Greenberg, A. S. (2024). The object-based shift direction anisotropy is modulated by the horizontal visual field meridian. *Quarterly Journal of Experimental Psychology*. doi:10.1177/17470218241230988 [\[link\]](#)

Barnas, A. J., Ebner, N. C., & Weisberg, S. M. (2024). Allocation of space-based attention is guided by efficient comprehension of spatial direction. *Journal of Cognition*, 7, 1-23. doi:10.5334/joc.325 [\[link\]](#)

Barnas, A. J., & Ward, E. J. (2022). Meta-cognitive judgments of change detection predict change blindness. *Cognition*, 227, 1-13. doi:10.1016/j.cognition.2022.105208 [\[link\]](#)

Barnas, A. J., & Greenberg, A. S. (2019). Object-based attention shifts are driven by target location, not object placement. *Visual Cognition*, 27, 768-791. doi:10.1080/13506285.2019.1680587 [\[link\]](#)

Barnas, A. J., & Greenberg, A. S. (2016). Visual field meridians modulate the reallocation of object-based attention. *Attention, Perception, & Psychophysics*, 78, 1985-1997. doi:10.3758/s13414-016-1116-5 [\[link\]](#)

Submitted or in prep

Weisberg, S. M., **Barnas, A. J.**, Abid, H., Kumar, S., Sahoo, A., & Yüksel, E. (in prep). Drawing down: The structure of spatial direction representations in drawing and categorization

Barnas, A. J., Kunath, J., Perez, E., Boogaart, Z., Bowers, D., Ebner, N. C., & Weisberg, S. M. (in prep). Modifying spatial navigation strategy through task instruction in younger and older adults

Barnas, A. J., Bowers, D., Ebner, N. C., & Weisberg, S. M. (in prep). Selective impairments in visual attention correlate with spatial navigation impairments in older adults

Perez, E., Kunath, J., **Barnas, A. J.**, Boogaart, Z., Ebner, N. C., & Weisberg, S. M. (in prep). Neural correlates of strategy shifts in navigation behavior.

Hughes, D. J., **Barnas, A. J.**, & Greenberg, A. S. (in prep). Anisotropic spread of object-based attention is mediated by differences between inter- and intra-hemispheric boundaries

INVITED TALKS AND PRESENTATIONS

Barnas, A. J. (January 2021). *Constraints on object-based attentional selection and change blindness*. Department of Psychology, University of Florida.

Barnas, A. J. (July 2019). *Reexamining object-based attention: Disentangling shift direction and object selection yields a new, consistent object-based effect*. Department of Psychology, University of Wisconsin-Madison.

Barnas, A. J. (March 2017). *Visual hemifields affect the distribution of object-based visual attention*. Psychological Science Department, Carthage College.

Barnas, A. J., & Kunz, B. R. (November 2014). *Manipulating context and the biomechanics of locomotion during blind-walking tasks*. Department of Psychology, University of Dayton.

Barnas, A. J. (May 2013). *Aesthetic evaluations evoked by paintings and classical music in artists, musicians, and non-experts*. Department of Psychology, University of Dayton.

CONFERENCE PRESENTATIONS

*Undergraduate or post-baccalaureate student

2021-present

Hughes, D. J., **Barnas, A. J.**, & Greenberg, A. S. (May 2024). fMRI reveals a modulatory role of visual field meridians on object-based selective attention. *Poster presentation at the Vision Sciences Society (St. Pete Beach, FL)*

Kunath, J.*, **Barnas, A. J.**, Perez, E., Boogaart, Z., Ebner, N. C., & Weisberg, S. M. (November 2023). Modifying spatial navigation strategy through task instruction in younger and older adults. *Poster presentation at the Psychonomic Society (San Francisco, CA)*

Barnas, A. J., Ebner, N. C., & Weisberg, S. M. (November 2023). Allocating space-based attention with schemas, words, and scenes. *Poster presentation at the Psychonomic Society (San Francisco, CA)*

Barnas, A. J., Bowers, D., Ebner, N. C., & Weisberg, S. M. (November 2023). Individual differences in visual attention correlate with spatial navigation behavior in aging. *Poster presentation at the Symposium for Individual Differences in Cognition (San Francisco, CA)*

Hughes, D. J., **Barnas, A. J.**, & Greenberg, A. S. (November 2023). Shifts of object-based attention show a horizontal direction advantage in PPC reflecting limitations on intra-hemispheric exchange of attention information. *Poster presentation at the Society for Neuroscience (Washington, DC)*

Barnas, A. J., Bowers, D., Ebner, N. C., & Weisberg, S. M. (September 2023). Novel behavioral and neural markers of Alzheimer's disease progression: A case for visual orienting. *Poster presentation at the 2023 Ed and Ethel Moore Alzheimer's Disease Research Symposium (University of Central Florida)*

Perez, E., Kunath, J.*, **Barnas, A. J.**, Boogaart, Z., Ebner, N. C., & Weisberg, S. M. (July 2023). Neural correlates of strategy shifts in navigation behavior. *Poster presentation at the Organization for Human Brain Mapping (Montréal, QC)*

Hughes, D. J., **Barnas, A. J.**, & Greenberg, A. S. (May 2023). Differential allocation of object-based attention across interhemispheric and intrahemispheric boundaries. *Poster presentation at the Vision Sciences Society (St. Pete Beach, FL)*

Barnas, A. J.[†], Ebner, N. C., & Weisberg, S. M. (February 2023). Spatial navigation behavior correlates with specific components of attentional function. *Poster presentation at the Dallas Aging & Cognition Conference (Dallas, TX)*

†Center for Vital Longevity Sallie P. Asche Travel Award

Perez, E., Kunath, J.*, **Barnas, A. J.**, Boogaart, Z., Ebner, N. C., & Weisberg, S. M. (February 2023). Neural correlates of strategy shifts in navigation behavior. *Poster presentation at the Dallas Aging & Cognition Conference (Dallas, TX)*

Perez, E., Kunath, J.*, **Barnas, A. J.**, Boogaart, Z., Ebner, N. C., & Weisberg, S. M. (June 2022). Neural correlates of strategy shifts in navigation behavior. *Poster presentation at the Interdisciplinary Navigation Symposium (virtual)*

Barnas, A. J.[†], Ebner, N. C., & Weisberg, S. M. (May 2022). Spatial attention is modulated by representational formats of spatial direction. *Poster presentation at the Vision Sciences Society (St. Pete Beach, FL)*

†National Eye Institute Early Career Scientist Travel Award

Hughes, D. J., **Barnas, A. J.**, & Greenberg, A. S. (May 2022). Horizontal shift efficiency underlies the object-based shift direction anisotropy. *Poster presentation at the Vision Sciences Society (St. Pete Beach, FL)*

Hughes, D. J., **Barnas, A. J.**, & Greenberg, A. S. (November 2021). Shift direction anisotropy is mediated by object location and target position uncertainty. *Poster presentation at the Workshop on Object Perception, Attention, and Memory (virtual)*

Barnas, A. J., & Ward, E. J. (May 2021). Meta-cognitive judgments of change detection predict change blindness. *Poster presentation at the Vision Sciences Society (virtual)*

2016-2020

Barnas, A. J., & Greenberg, A. S. (June 2020). Disentangling shift direction, object orientation, and object selection yields a large, reliable metric of object-based attention. *Poster presentation at the Vision Sciences Society (virtual)*

Barnas, A. J., & Greenberg, A. S. (May 2019). Independent attentional resources explain the object-based shift direction anisotropy. *Poster presentation at the Vision Sciences Society (virtual)*

Bieniewski, D. G.*, **Barnas, A. J.**, & Greenberg, A. S. (April 2019). Local judgment effects on object-based attention anisotropies. *Poster presentation at the Association for Graduate Students in Psychology Research Symposium (University of Wisconsin-Milwaukee)*

VandenBosch, E. G.*[†], **Barnas, A. J.**, & Greenberg, A. S. (April 2019). Mixture distribution analysis on object-based attention anisotropies. *Poster presentation at the UWM Undergraduate Research Symposium (University of Wisconsin-Milwaukee)*

†Awarded Outstanding Undergraduate Presentation

Barnas, A. J., & Greenberg, A. S. (November 2018). Emphasizing the horizontal meridian eliminates the object-based attention shift direction anisotropy. *Poster presentation at the Workshop on Object Perception, Attention, and Memory (New Orleans, LA)*

Shakir, S. A.*, **Barnas, A. J.**, & Greenberg, A. S. (August 2018). The effect of visual field quadrants on anisotropic attention shifts with meridian enhancements. *Poster presentation at the UR@UWM Summer Convocation (University of Wisconsin-Milwaukee)*

Barnas, A. J., & Greenberg, A. S. (May 2018). Object-based attention is modulated by shift direction and visual field quadrant. *Poster presentation at the Vision Sciences Society (St. Pete Beach, FL)*

VandenBosch, E. G.*, **Barnas, A. J.**, & Greenberg, A. S. (April 2018). Manipulating the perceptual visibility of the visual field meridians modulates the object-based attention shift direction anisotropy. *Poster presentation at the UWM Undergraduate Research Symposium (University of Wisconsin-Milwaukee)*

Barnas, A. J.[†], & Greenberg, A. S. (November 2017). Separable effects of object-based attention: The same-object advantage and the shift direction anisotropy. *Poster presentation at the Workshop on Object Perception, Attention, and Memory (Vancouver, BC)*

[†]**OPAM Graduate Student Travel Award**

VandenBosch, E. G.*, **Barnas, A. J.**, & Greenberg, A. S. (August 2017). Attention shift efficiency varies by visual field quadrant. *Poster presentation at the UR@UWM Summer Convocation (University of Wisconsin-Milwaukee)*

Greenberg, A. S., Al-Janabi, S., & **Barnas, A. J.** (August 2017). Object-based attention is strategic and dependent on perceptual organization. *Oral presentation at the Cognitive Science Association for Interdisciplinary Learning (Hood River, OR)*

Barnas, A. J., & Greenberg, A. S. (May 2017). Target location, rather than object location, drives the object-based attention shift direction anisotropy. *Poster presentation at the Vision Sciences Society (St. Pete Beach, FL)*

Barnas, A. J., & Greenberg, A. S. (March 2017). Attention affects cortical magnification estimates of human auditory cortex. *Poster presented at the Neuroscience Spring Symposium (University of Wisconsin-Milwaukee)*

Barnas, A. J., & Greenberg, A. S. (November 2016). The object-based shift direction anisotropy may depend on expectations about shifting across visual field meridians. *Poster presentation at the Workshop on Object Perception, Attention, and Memory (Boston, MA)*

Barnas, A. J., & Greenberg, A. S. (May 2016). Object-based attention shift direction efficiency: Behavior and a model. *Poster presentation at the Vision Sciences Society (St. Pete Beach, FL)*

Barnas, A. J., & Greenberg, A. S. (April 2016). Visual field meridians modulate the reallocation of object-based attention. *Oral presentation at the Association of Graduate Students in Psychology Research Symposium (University of Wisconsin-Milwaukee)*

Barnas, A. J., Potthoff, J., & Greenberg, A. S. (March 2016). Effects of attention on cochleotopic mapping of human auditory cortex at 7 Tesla. *Poster presented at the Neuroscience Spring Symposium (University of Wisconsin-Milwaukee)*

2011-2015

Barnas, A. J., & Greenberg, A. S. (November 2015). Object-based attention is oriented more efficiently along the horizontal meridian than the vertical meridian. *Poster presentation at the Workshop on Object Perception, Attention, and Memory (Chicago, IL)*

Barnas, A. J., & Greenberg, A. S. (May 2015). Shifts of object-based attention differ across visual field meridians. *Poster presentation at the Vision Sciences Society (St. Pete Beach, FL)*

Barnas, A. J., & Kunz, B. R. (May 2014). Decoupling the biomechanics of locomotion and the direction of spatial updating during blind-walking tasks. *Poster presentation at the Vision Sciences Society (St. Pete Beach, FL)*

Barnas, A. J., & Davis, S. T. (April 2014). Emotional responses evoked by paintings and classical music in artists, musicians, and non-experts. *Oral presentation at the Brother Joseph W. Stander Symposium (University of Dayton)*

Barnas, A. J., & Davis, S. T. (April 2013). Characteristics of emotion for paintings and classical music. *Poster presentation at the Brother Joseph W. Stander Symposium (University of Dayton)*

Barnas, A. J., & Davis, S. T. (April 2013). Aesthetic evaluations and emotional responses evoked by paintings and classical music in artists, musicians, and non-experts. *Poster presentation at the Brother Joseph W. Stander Symposium (University of Dayton)*

+20 additional poster presentations at the Brother Joseph W. Stander Symposium (University of Dayton)

PROFESSIONAL ACTIVITIES

Ad Hoc Reviewer

- *Attention, Perception, & Psychophysics* (3)
- *Experimental Brain Research* (1)
- *Journal of Experimental Psychology: Human Perception and Performance* (2)
- *Journal of Vision* (1)
- *Memory and Cognition* (1)
- *Psychonomic Bulletin & Review* (1)
- *Quarterly Journal of Experimental Psychology* (1)
- *Vision Research* (1)

Society Memberships

- Vision Sciences Society
- Psychonomic Society
- North Central Florida Society for Neuroscience Chapter
- Society for Neuroscience (inactive)
- Association for Psychological Science (inactive)
- Society for Music Perception and Cognition (inactive)

Mentoring

Undergraduate or Post-baccalaureate students (*Honors Student)

University of Florida (2021-present) – Sophie Jacquemin, Jeffrey Kunath, Rory McKemey, Ty Roche, Lachyn Almazova*

University of Wisconsin-Madison (2020-2021) – Jessie Hwang

University of Wisconsin-Milwaukee (2014-2019) – Sana Shakir, Dominic Bieniewski, Mary Liz Kim, Grace Nicora, Erin VandenBosch, Nicole Kashian, Souriyu Dishak, Richard Dubbelde III

University of Dayton (2011-2013) – Jeremy Schwob, Lauren Pytel, Graham Lang, Kristen Kemp, Kar Yen Chai, Daniel Hurlburt, Giuseppe Miranda, Jamie Flannery, Katherine Peters, Paulina Rosequist, Catherine Devlin, Natalie Anderson, Megan Dailey, Eric Gammarino, Kristen Key, Nnimnoabasi Essien,

Jessica James, Arianna Arnett, Natalya Lynn, Peter Oduwole, Ashley Adamcik, Ellen Hart, Margaret Wedell, Lauren Ellinghausen, Ellen Snyder, Kevin Longacre, Joseph Pauzek, Ryan Robie, Zachary Vidic, Peter Sismour, Christian Sutphin, Brittany Bernard, Josh Moran, Cara O'Grady, Adam Sitz, Laura Janosko, Hannah Lieber, Shea Tolson, Steven Bare

DEPARTMENT/UNIVERSITY SERVICE AND COMMUNITY OUTREACH

- 2024 Volunteer, Kanapaha Middle School Science Night (Gainesville, FL)
- 2023-present Brain Awareness Week, North Central Florida Society for Neuroscience (Gainesville, FL)
- 2023-present Reviewer, Cluff Awards for Aging Research (University of Florida)
- 2022-present Member, Postdoctoral Affairs Advisory Committee (University of Florida)
- 2022 Volunteer, Cultural Arts Coalition – After school science clubs (Gainesville, FL)
- 2021-present Organizer/Facilitator, Postdoc Community Writing Retreats (University of Florida)
- 2020 Organizing committee member, Postdoc Research Symposium (University of Wisconsin-Madison)
- 2017-2019 Vice-President, Cognition, Learning, Attention, and Memory Society (University of Wisconsin-Milwaukee)
- 2015-2018 Volunteer, Workshop on Object Perception, Attention, and Memory
- 2014-2019 Organizer, Future Success and Upward Bound summer education programs (University of Wisconsin-Milwaukee)
- 2014-2019 Organizer, Meet Milwaukee and Go Milwaukee campus preview programs (University of Wisconsin-Milwaukee)

TEACHING EXPERIENCE

University of Florida

Guest Lecturer

Introduction to Cognitive Neuroscience – Attention

Research Colloquium in Developmental Psychology – Spatial attention and navigation in Alzheimer's disease

University of Wisconsin-Milwaukee

Graduate Teaching Assistant

Introduction to Psychology (in-person)

Perception (in-person and online)

Perceptual Processes (online lab)

Psychological Statistics (in-person)

Research Methods in Psychology (in-person and online)

Teaching Areas

Introductory Psychology, Statistics, Research Methods, Experimental Psychology, Sensation and Perception, Cognitive Psychology, Visual Cognition, Attention and Memory, Cognitive Neuroscience

PRESENT POSITION

2021-present **Postdoctoral Associate**, Department of Psychology, University of Florida
Mentors: Steven Weisberg, Natalie Ebner

PREVIOUS POSITIONS

- 2020-2021 **Postdoctoral Research Associate**, Department of Psychology, University of Wisconsin-Madison
Mentor: Emily Ward
- 2014-2019 **Graduate Student**, Department of Psychology, University of Wisconsin-Milwaukee,
Mentor: Adam Greenberg
- 2011-2013 **Lab Manager and Graduate Assistant**, Department of Psychology, University of Dayton
Advisors: Susan Davis, Benjamin Kunz
- 2009-2011 **Undergraduate Research Assistant**, Department of Psychology, University of Illinois at Urbana-Champaign
Advisors: Diane Beck, Susan Garnsey

SPECIAL TRAINING AND CERTIFICATIONS

- 2022 Responsible Conduct of Research (University of Florida)
Great Teaching Certificate (University of Florida)
Preparing Future Faculty Program (University of Florida)
Certificate in Multicultural Mentoring (University of Florida)

TECHNICAL SKILLS

Programming languages: R, Python, Matlab, Javascript, Bash

Stimulus presentation and design: PsychoPy, Psychtoolbox, jsPsych, Qualtrics, Testable

Data analysis and visualization: R, Matlab, SPSS, Prism, ggplot

Neuroimaging analysis: FSL, fmripred, Nipype, Nilearn