

## Postdoctoral experience

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2018–2021      Postdoctoral Research Fellow  
University of Birmingham  
PI: Ole Jensen

## Education

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2018              Ph.D. in Psychology - Integrative Neuroscience  
University of Chicago  
PI: Daniel Casasanto

2017-18          Visiting student at Cornell University

2013              M.A. in Experimental Psychology  
The New School for Social Research  
PI: Daniel Casasanto

2009              B.A. with honors in Psychology  
University of California – Berkeley  
PI: Rich Ivry

## Grants and awards

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2022              NIH grant 1R44AG080940 (\$2.5M award; co-investigator)  
NIH grant 1R41AG078039-01A1 (\$300k award; co-investigator)

2016              William Orr Dingwall Foundation Neurolinguistics Fellowship  
Center for Gesture, Sign and Language Research Grant

2014              Arts, Science, & Culture Graduate Collaboration Grant

2013              Norman H. Anderson Research Fund  
New School for Social Research Outstanding M.A. Graduate award

2011–2013      New School for Social Research Dean's Scholarship

2012              National Science Foundation GRFP Honorable Mention

2011	Robert J. Glushko & Pamela Samuelson Foundation Student Travel Grant
2009	Highest distinction in general scholarship, UC Berkeley
2008–2009	Robert & Colleen Haas Scholar
2005	Flinn Foundation Scholarship Finalist

## Publications

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- Yoder, K. J., Brookshire, G., Glatt, R. M., Merrill, D. A., Gerrol, S., Quirk, C., & Lucero, C. (2024). Fractal Dimension Distributions of Resting-State Electroencephalography (EEG) Improve Detection of Dementia and Alzheimer's Disease Compared to Traditional Fractal Analysis. *Clinical and Translational Neuroscience*, 8(3), 27.
- Brookshire, G., Kasper, J., Blauch, N., Wu, Y.C., Glatt, R., Merrill, D.A., Gerrol, S., Yoder, K.J., Quirk, C., Lucero C. (2024) Data leakage in deep learning studies of translational EEG. *Frontiers in Neuroscience*, DOI: 10.3389/fnins.2024.1373515
- Brookshire, G. (2023). Distinguishing between periodicity and consistency over trials: Reply to Re, Tosato, Fries, and Landau. *PsyArXiv*, DOI: 10.31234/osf.io/km7e9
- Brookshire, G. (2022). Putative rhythms in attentional switching can be explained by aperiodic temporal structure. *Nature Human Behaviour*, DOI: 10.1038/s41562-022-01364-0
- Brookshire, G., Mangelsdorf, H.H., Sava-Segal, C., Reis, K., Nusbaum, H., Goldin-Meadow, S., Casasanto, D. (2021). Expertise modulates neural stimulus-tracking. *ENeuro* 8(4), 0065-21.2021. DOI: 10.1523/ENEURO.0065-21.2021
- Lucero, C., Brookshire, G., Sava-Segal, C., Bottini, R., Goldin-Meadow, S., Vogel, E. K., & Casasanto, D. (2020.) Unconscious number discrimination in the human visual system. *Cerebral Cortex* 30(11), 5821-5829.
- Brookshire, G. & Casasanto, D. (2018). Approach motivation in human cerebral cortex. *Philosophical Transactions of the Royal Society B*. DOI: 10.1098/rstb.2017-0141
- Brookshire, G., Lu, J., Nusbaum, H. C., Goldin-Meadow, S., & Casasanto, D. (2017). Visual cortex entrains to sign language. *Proceedings of the National Academy of Sciences*, 114(24), 6352-6357.
- Gray, S. J., Brookshire, G., Casasanto, D., & Gallo, D. (2015). Electrically Stimulating Prefrontal Cortex at Retrieval Improves Recollection Accuracy. *Cortex*, 73, 188-194.
- Casasanto, D., Brookshire, G., & Ivry, R. (2015). Meaning is not a reflex: Context dependence of motor-meaning congruity effects. *Cognitive Science*, 39(8), 1979-1986.
- Casasanto, D., Jasmin, K., Brookshire, G. & Gijssels, T. (2014). The QWERTY Effect: How typing shapes word meanings and baby names. In P. Bello, M. Guarini, M. McShane, & B. Scassellati (Eds.), *Proceedings of the 36th Annual Conference of the Cognitive Science Society* (pp. 296–301). Austin, TX: Cognitive Science Society.
- Brookshire, G., Graver, C., & Casasanto, D. (2013). Motor Asymmetries Predict Neural Organization of

Emotion. In M. Knauff, M. Pauen, N. Sebanz, & I. Wachsmuth (Eds.), *Proceedings of the 35th Annual Conference of the Cognitive Science Society* (pp. 245–250). Austin, TX: Cognitive Science Society.

Brookshire, G. & Casasanto, D. (2012). Motivation and Motor Control: Hemispheric Specialization for Approach Motivation Reverses with Handedness. *PLoS ONE* 7(4): e36036.  
doi:10.1371/journal.pone.0036036

Brookshire, G. & Casasanto, D. (2011). Motivation and Motor Control: Hemispheric Specialization for Motivation Reverses with Handedness. In L. Carlson, C. Hölscher, & T. Shipley (Eds.), *Proceedings of the 33rd Annual Conference of the Cognitive Science Society* (pp. 2610-2615). Austin, TX: Cognitive Science Society.

Brookshire, G., Ivry, R., & Casasanto, D. (2010). Modulation of motor-meaning congruity effects for valenced words. In S. Ohlsson & R. Catrambone (Eds.), *Proceedings of the 32nd Annual Conference of the Cognitive Science Society* (pp. 1940-1945). Austin, TX: Cognitive Science Society.

## Talks

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### \* Invited talks

- 2022      \* Beijing Normal University
- 2021      \* CEA NeuroSpin – INSERM Cognitive Neuroimaging Unit
- 2020      \* Psycholinguistics group meeting, University of Birmingham, UK
- 2018      \* Chang lab, UCSF
- \* Meetings on Methodology for MEEG, University of Birmingham, UK
- \* Speech and Language Consortium meeting, University of Westminster, UK
- 2017      89<sup>th</sup> annual meeting of the Midwestern Psychological Association, Chicago, IL
- Human Development Brown Bag talk, Cornell
- 2015      Art, Science and Culture Initiative at UChicago
- University of Chicago Neuroscience Annual Retreat
- Humanities Day at UChicago
- 2014      Cognitive Workshop, University of Chicago
- NEURO chats, University of Chicago
- 2013      35<sup>th</sup> annual meeting of the Cognitive Science Society, Berlin, Germany
- 2011      33<sup>rd</sup> annual meeting of the Cognitive Science Society, Boston, MA

## Posters

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Yoder, K.J., Brookshire, G., Gerrol, S., Quirk, C., Taylor, J.-P., Lucero C. (2023). Differential diagnosis

- of Lewy body dementias using multivariate EEG classifiers. Poster presented at the 2023 Alzheimer's Association International Conference.
- Yoder, K.J., Brookshire, G., Gerrol, S., Quirk, C., Lucero C. (2023). Identifying and differentiating dementias with EEG fractal dimension distributions. Poster presented at the 2023 Alzheimer's Association International Conference.
- Brookshire, G., Wu, Y. C., Quirk, C., Gerrol, S., Merrill, D. A., Caselli, R. J, Lucero, C. (2022). Alzheimer's disease status can be predicted using a novel fractal-based metric computed from resting-state EEG. Poster presented at the 2022 Alzheimer's Association International Conference.
- Quirk, C., Brookshire, G., Wu, Y.C., Lucero, C. (2022). Building an EEG-based Alzheimer's Diagnostic: What is the Optimal Cross-Validation Method? Poster presented at the 2022 Alzheimer's Association International Conference.
- Wu, Y. C., Quirk, C., Brookshire, G., Gerrol, S., Merrill, D. A., Caselli, R. J, Lucero, C. (2022). A novel machine learning technique using resting-state EEG to assess and monitor cognitive impairment. Poster presented at the 2022 Alzheimer's Association International Conference.
- Brookshire, G., Mangelsdorf, H.H., Sava-Segal, C., Reis, K., Nusbaum, H., Goldin-Meadow, S., Casasanto, D. (2021). Expertise modulates neural tracking of dance and sign language. Poster presented at the 2021 meeting of the Cognitive Science Society.
- Brookshire, G., Mangelsdorf, H.H., Sava-Segal, C., Reis, K., Nusbaum, H., Goldin-Meadow, S., Casasanto, D. (2020). Cortical stimulus-tracking depends on expertise. Poster presented at the 2020 meeting of the Society for the Neurobiology of Language.
- Brookshire, G., Landau, A., & Jensen, O. (2019). Investigating rhythmic attentional sampling using rapid frequency-tagging in MEG. Poster presented at the MEG UK Conference in Cardiff, UK.
- Brookshire, G. & Casasanto, D. (2018). Cortex can entrain to predictable sequences even in the absence of periodicity. Poster presented at the 25<sup>th</sup> annual meeting of the Cognitive Neuroscience Society in Boston, MA.
- Lucero, C., Brookshire, G., Quirk, C., Goldin-Meadow, S., Vogel, E., & Casasanto, D. (2018). Unconscious number discrimination in the human visual system. Poster presented at the 25<sup>th</sup> annual meeting of the Cognitive Neuroscience Society, Boston, MA.
- Brookshire, G. & Casasanto, D. (2018). Cortical phase-locking to predictable temporal sequences in the absence of periodicity. Poster presented at the 31<sup>st</sup> annual CUNY Sentence Processing Conference, Davis, CA.
- Yap, D. F., Brookshire, G., & Casasanto, D. (2018). Beat gestures encode spatial semantics. Poster presented at the 31<sup>st</sup> annual CUNY Sentence Processing Conference, Davis, CA.
- Brookshire, G. & Casasanto, D. (2017). Cortical entrainment depends on temporal predictability, not periodicity. Poster presented at the 9<sup>th</sup> annual meeting of the Society for the Neurobiology of Language, Baltimore, MD. (Selected for presentation as a poster slam.)
- Brookshire, G., Lu, J., Nusbaum, H., Goldin-Meadow, S., & Casasanto, D. (2017). Visual cortex entrains

to low-frequency amplitude variability in sign language. Poster presented at the 24<sup>th</sup> annual meeting of the Cognitive Neuroscience Society, San Francisco, CA.

Brookshire, G., Turk-Browne, N.B., & Casasanto, D. (2016). Top-down predictions in statistical learning carried by alpha oscillations. Poster presented at the 8<sup>th</sup> annual meeting for the Society for the Neurobiology of Language, London.

Brookshire, G. & Casasanto, D. (2016). Top-down predictions in statistical learning are carried by alpha oscillations. Poster presented at the 28<sup>th</sup> annual convention of the Association for Psychological Science, Chicago, IL.

Brookshire, G. & Casasanto, D. (2015). Associative networks learn grammatical categories from sequential order alone. Poster presented at the 56th annual meeting of the Psychonomic Society, Chicago, IL.

Brookshire, G. & Casasanto, D. (2015). Associative networks learn abstract grammatical categories. Poster presented at the 7th annual meeting of the Society for the Neurobiology of Language, Chicago, IL.

Brookshire, G. & Casasanto, D. (2013). Manual motor asymmetries predict hemispheric lateralization of emotion. Poster presented at the 3rd annual meeting of the Society for Social Neuroscience (S4SN), San Diego, CA.

Brookshire, G. & Casasanto, D. (2013). Brief Motor Experience Reverses Visual Hemifield Effects for Emotional Faces. Poster presented at the 25th annual convention of the Association for Psychological Science, Washington, DC.

Brookshire, G. & Casasanto, D. (2013). Manual motor asymmetries predict neural organization of emotion. Poster presented at the 20th annual meeting of the Cognitive Neuroscience Society, San Francisco, CA.

Brookshire, G. & Casasanto, D. (2011). Brief motor experience reverses visual hemifield effects. Poster presented at the 18th annual meeting of the Cognitive Neuroscience Society, San Francisco, CA.

Brookshire, G. & Casasanto, D. (2010). Motor Fluency Predicts Space-Valence Associations. Poster presented at The Embodied Mind: Perspectives & Limitations, Nijmegen, Netherlands.

Brookshire, G., Ivry, R., & Casasanto, D. (2010). Modulation of motor-meaning congruity effects for valenced words. Poster presented at the FENS Forum of European Neuroscience, Amsterdam, Netherlands.

## **Service and memberships**

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*Ad hoc reviewer:* Acta Psychologica; Attention, Perception & Psychophysics; Brain and Language; Cerebral Cortex; Cognition; Cognitive Processing; Cognitive Science; Cognitive Science Society conference proceedings; Emotion; European Journal of Neuroscience; Frontiers in Psychology; Journal of Cognitive Psychology; Journal of Neuroscience; Nature Neuroscience; NeuroImage;

*Memberships:* Association for Psychological Science, Cognitive Neuroscience Society, Cognitive Science Society, Psychonomic Society, Society for the Neurobiology of Language, Society for Neuroscience

*Departmental service:* Presented on applying for postdoctoral positions in the “What next?” Workshop on career advice after the PhD (2019); Co-organize cognitive neuroscience workshop between the University of Birmingham and Oxford University (2019); Organized PhD/postdoc symposium for visiting speaker Sabine Kastner (2018); Student mentor for a first-year PhD student (2014–2017); Host visiting prospective students (2014–2017); Committee to select departmental colloquium speakers (2014–2015)

*Outreach and community:* General-audience presentations at Brain Awareness Week, Birmingham (2019); Judge for the Chicago Area Undergraduate Research Symposium (2016–17); Presentations for the general public at the UChicago Humanities Day (2015) and Art, Science and Culture Initiative (2015); Cognitive science demonstrations for college students with the Think Tank (2015–16, [thinktank.uchicago.edu](http://thinktank.uchicago.edu))

## Teaching and academic supervision

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### *Teaching*

2020	Workshop: Introduction to Psychopy for masters students (Birmingham)
2017	Teaching assistant, Cognitive psychology (undergrad), UChicago TA, Cognitive diversity (undergrad), UChicago Guest lecture for Cognitive Diversity: Bodily relativity of affective motivation Guest lectures Experimental Methods in Linguistics: Mixed effects models in R Workshop: Cognitive science for American Sign Language interpreters
2016	TA, Biological psychology (undergrad), UChicago TA, Sensation and perception (undergrad), UChicago
2012	TA, Body and cognition (graduate), The New School

### *Supervision*

2017–2018	Cornell University: Research supervisor for undergraduates (Rachel Mattessich)
2014–2017	University of Chicago: Research supervisor for masters students (Srishti Goel), undergraduates (Chelsea Rapoport, Amritpal Singh, Jahn Madlangbayan, Clara Sava-Segal, Varun Joshi), and high-schoolers (Ben Grobman, Juliana Berlin).
2011–2013	The New School for Social Research: Research supervisor for undergraduates (Heila Paulino, Rose Hendricks, Tyler Alterman) and masters students (Cleve Graver, Daisy

## Academic research experience

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2018–2021	The University of Birmingham PI: Ole Jensen
2013–2018	The University of Chicago PI: Daniel Casasanto
2011–2013	The New School for Social Research PI: Daniel Casasanto
2009–2011	Max Planck Institute for Psycholinguistics, Nijmegen, NL Research assistant PIs: Peter Hagoort, Jos van Berkum, and Daniel Casasanto
2007–2009	University of California - Berkeley Research assistant PI: Richard Ivry
2006	University of California - Berkeley Research assistant PI: Laura Sterponi

## Press

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NSF.gov, The Rhythms of Sign Language, July 14, 2017. Stanley Dambroski & Madeline Beal, [https://www.nsf.gov/discoveries/disc\\_summ.jsp?cntn\\_id=242300&WT.mc\\_id=USNSF\\_1](https://www.nsf.gov/discoveries/disc_summ.jsp?cntn_id=242300&WT.mc_id=USNSF_1)

ScienceDaily.com, Human brain tunes into visual rhythms in sign language, June 8, 2017. Tina A. Cormier, <https://www.sciencedaily.com/releases/2017/06/170608145521.htm>

HuffingtonPost.com, How Left-Handed People Think And Feel Differently, November 30, 2016. Carolyn Gregoire, [http://www.huffingtonpost.com/entry/left-handed-personality-psychology\\_us\\_58331757e4b058ce7aac163a](http://www.huffingtonpost.com/entry/left-handed-personality-psychology_us_58331757e4b058ce7aac163a)

ScienceMag.com, *Brain-zapping therapies might be hitting lefties on the wrong side of the head*, February 29, 2016. Nala Rogers, <http://www.sciencemag.org/news/2016/02/brain-zapping-therapies-might-be-hitting-lefties-wrong-side-head>

PopularScience.com, *The Keyboard's Strange Impact On Your Baby's Name*, September 11, 2014. Kate Gammon, <http://www.popsoci.com/blog-network/kinderlab/keyboard%E2%80%99s-strange-impact->

[your-baby%E2%80%99s-name](#)

Time.com, *Study: Keyboards Are Influencing What You Name Your Baby*, May 10, 2014. Katy Steinmetz.

<http://time.com/94945/keyboards-baby-names/>

ScienceDaily.com, *Emotion reversed in left-handers' brains*, May 2, 2012.

<http://www.sciencedaily.com/releases/2012/05/120502184836.htm>

PsychologyToday.com, *Emotion Is Reversed in Left-Handers' Brains*, May 3, 2012. Daniel Casasanto.

<http://www.psychologytoday.com/blog/malleable-mind/201205/emotion-is-reversed-in-left-handers-brains>

## **Citizenship**

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USA