

Department of Psychological & Brain Sciences
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Academic Appointments

2024– Associate Professor, Department of Psychological & Brain Sciences
Johns Hopkins University

2017–2023 Assistant Professor, Department of Psychological & Brain Sciences
Johns Hopkins University

Secondary appointments, Department of Cognitive Science, Department of Philosophy
Johns Hopkins University

Education

2017	Yale University	Ph.D.	Cognitive Psychology
2011	Brown University	A.M.	Philosophy
2010	Brown University	Sc.B.	Cognitive Neuroscience, Philosophy

Academic Awards and Honors

Stanton Prize (2022)
Society for Philosophy and Psychology

Rising Star (2021)
Association for Psychological Science

Dean's Teaching Award (2018)
Johns Hopkins University, Krieger School of Arts & Sciences

Robert J. Glushko Prize (2018)
Cognitive Science Society

James B. Grossman Dissertation Prize (2017)
Yale University, Graduate School of Arts & Sciences

William James Prize (2013)
Society for Philosophy and Psychology

Publications

Journal Articles

- Sun, Z., Han, S., & Firestone, C. (in press). Caricaturing shapes in visual memory. *Psychological Science*.
- Firestone, C., & Phillips, I. (2023). Chasing an equation for awareness [book review]. *Science*, 382, 1251.
- Croom, S., Zhou, H., & Firestone, C. (2023). Seeing and understanding epistemic actions. *Proceedings of the National Academy of Sciences*, 120, e2303162120.
- Hafri, A., Green, E. J., & Firestone, C. (2023). Compositionality in visual perception [commentary]. *Behavioral and Brain Sciences*, 46, e277.
- Nartker, M., Firestone, C., Egeth, H., & Phillips, I. (2023). Six ways of failing to see (and why the differences matter). *i-Perception*, 14(5), 1–6.
- Goh, R. Z., †Phillips, I., & †Firestone, C. (2023). The perception of silence. *Proceedings of the National Academy of Sciences*, 120, e2301463120.
- Morales, J., & Firestone, C. (2023). Philosophy of perception in the psychologist's laboratory. *Current Directions in Psychological Science*.
- Firestone, C., & Phillips, I. (2023). Seeing fast and thinking slow [book review]. *Science*, 379, 1196.
- *Nartker, M., *Zhou, Z., & Firestone, C. (2023). When will AI misclassify? Intuiting failures on natural images. *Journal of Vision*, 23(4):4, 1–15.
- Morales, J., & Firestone, C. (2023). Empirical evidence for perspectival similarity. *Psychological Review*.
- Phillips, I., & Firestone, C. (2023). Visual adaptation and the purpose of perception. *Analysis*, 83, 555–575.
- *Hafri, A., *Boger, T., & Firestone, C. (2022). Melting ice with your mind: Representational momentum for physical states. *Psychological Science*, 33, 725–735.
- Mandelbaum, E., Dunham, Y., Feiman, R., Firestone, C., Green, E. J., Harris, D., Kibbe, M. M., Kurdi, B., Mylopoulos, M., Shepherd, J., Wellwood, A., Porot, N., & Quilty-Dunn, J. (2022). Problems and mysteries of the many languages of thought. *Cognitive Science*, 46, e13225.
- Morales, J., & Firestone, C. (2022). A new perspective on mental rotation. *Current Biology*, 32, 1281–1283.
- Sun, Z., & Firestone, C. (2022). Beautiful on the inside: Aesthetic preferences and the skeletal complexity of shapes. *Perception*, 51, 904–918.
- Lepori, M. A., & Firestone, C. (2022). Can you hear me *now*? Sensitive comparisons of human and machine perception. *Cognitive Science*, 46, e13191.
- Groh, M., Epstein, Z., Firestone, C., & Picard, R. (2022). Deepfake detection by human crowds, machines, and machine-informed crowds. *Proceedings of the National Academy of Sciences*, 119, e2110013119.
- Sun, Z., & Firestone, C. (2022). Seeing and speaking: How verbal 'description length' encodes visual complexity. *Journal of Experimental Psychology: General*, 151, 82–96.

- Won, I., Gross, S., & Firestone, C. (2021). “Impossible” somatosensation and the (ir)rationality of perception. *Open Mind*, 5, 30–41.
- Morales, J., Bax, A., & Firestone, C. (2021). Perspectival interference up close. *Proceedings of the National Academy of Sciences*, 118, e2025440118.
- Hafri, A., & Firestone, C. (2021). The perception of relations. *Trends in Cognitive Sciences*, 25, 475–492.
- Little, P. C., & Firestone, C. (2021). Physically implied surfaces. *Psychological Science*, 32, 799–808.
- Rivera-Aparicio, J., Yu, Q., & Firestone, C. (2021). Hi-def memories of Lo-def scenes. *Psychonomic Bulletin & Review*, 28, 928–936.
- Sun, Z., & Firestone, C. (2021). Curious objects: How visual complexity guides attention and engagement. *Cognitive Science*, 45, e12933.
- Firestone, C. (2020). Performance vs. competence in human–machine comparisons. *Proceedings of the National Academy of Sciences*, 117, 26562–26571.
- Sun, Z., & Firestone, C. (2020). Optimism and pessimism in the predictive brain. *Trends in Cognitive Sciences*, 23, 683–685.
- Morales, J., Bax, A., & Firestone, C. (2020). Sustained representation of perspectival shape. *Proceedings of the National Academy of Sciences*, 117, 14873–14882.
- Sun, Z., & Firestone, C. (2020). The dark room problem. *Trends in Cognitive Sciences*, 24, 346–348.
- Mandelbaum, E., Won, I., Gross, S., & Firestone, C. (2020). Can resources save rationality? “Anti-Bayesian” updating in cognition and perception [commentary]. *Behavioral & Brain Sciences*, 43, e16.
- Guan, C., & Firestone, C. (2020). Seeing what’s possible: Disconnected visual ‘parts’ are confused for their potential ‘wholes’. *Journal of Experimental Psychology: General*, 143, 590–598.
- Valenti, J. J., & Firestone, C. (2019). Finding the “odd one out”: Memory color effects and the logic of appearance. *Cognition*, 191, 103934.
- Zhou, Z., & Firestone, C. (2019). Humans can decipher adversarial images. *Nature Communications*, 10, 1334.
- Lowet, A. S., Firestone, C., & Scholl, B. J. (2018). Seeing structure: Shape skeletons modulate perceived similarity. *Attention, Perception, & Psychophysics*, 80, 1278–1289.
- Firestone, C., & Scholl, B. J. (2017). Seeing and thinking in studies of embodied “perception”: How (not) to integrate vision science and social psychology. *Perspectives on Psychological Science*, 12, 341–343.
- Firestone, C., & Scholl, B. J. (2016). Cognition does not affect perception: Evaluating the evidence for ‘top-down’ effects. *Behavioral & Brain Sciences*, 39, e229.
- Firestone, C., & Keil, F. C. (2016). Seeing the tipping point: Balance perception and visual shape. *Journal of Experimental Psychology: General*, 145, 872–881.

Firestone, C., & Scholl, B. J. (2016). 'Moral perception' reflects neither morality nor perception. *Trends in Cognitive Sciences*, 20, 75–76.

Firestone, C., & Scholl, B. J. (2015). When do ratings implicate perception vs. judgment? The “overgeneralization test” for top-down effects. *Visual Cognition*, 23, 1217–1226.

Firestone, C., & Scholl, B. J. (2015). Enhanced visual awareness for morality and pajamas? Perception vs. memory in ‘top-down’ effects. *Cognition*, 136, 409–416.

Firestone, C., & Scholl, B. J. (2015). Can you *experience* ‘top-down’ effects on perception?: The case of race categories and perceived lightness. *Psychonomic Bulletin & Review*, 22, 694–700.

Firestone, C., & Scholl, B. J. (2014). “Please tap the shape, anywhere you like”: Shape skeletons in human vision revealed by an exceedingly simple measure. *Psychological Science*, 25, 377–386.

Firestone, C., & Scholl, B. J. (2014). “Top-down” effects where none should be found: The El Greco fallacy in perception research. *Psychological Science*, 25, 38–46.

Firestone, C. (2013). On the origin and status of the “El Greco fallacy”. *Perception*, 42, 672–674.

Firestone, C. (2013). How ‘paternalistic’ is spatial perception? Why wearing a heavy backpack doesn’t—and *couldn’t*—make hills look steeper. *Perspectives on Psychological Science*, 8, 455–473.

Book Chapters

Firestone, C. (2016). Embodiment in perception: Will we know it when we see it? In H. Kornblith & B. McLaughlin (Eds.), *Alvin Goldman and His Critics* (pp. 318-334). Wiley Blackwell.

Manuscripts Under Review

Baker, A. A., Morales, J., & Firestone, C. (under review). “You’re my doctor?”: Stereotype-incongruent identities impair recognition of incidental visual features.

Croom, S., & Firestone, C. (under revision). Tangled physics: Knots strain intuitive physical reasoning.

Mazor, M., Firestone, C., & Phillips, I. (under review). Pretending not to know reveals a powerful capacity for self-simulation

Nartker, M., Firestone, C., Egeth, H., & Phillips, I. (under view). Awareness survives inattention.

Hafri, A., Bonner, M., Landau, B., & Firestone, C. (under revision). A phone in a basket looks like a knife in a cup: Role-filler independence in automatic visual processing.

Yu, Q., Firestone, C., Flombaum, J. I., & Halberda, J. (under revision). Working memory is more than sensory recruitment: Evidence from (non-)interference.

Invited Colloquia

Rutgers-New Brunswick	<i>RuCCS Colloquium</i>	February 2024
University of Glasgow	<i>PPN Seminar</i>	October 2023
University College London	<i>Consciousness Club</i>	October 2023
University of Maryland	<i>Cognitive Science Colloquium</i>	October 2023
University of Victoria	<i>Cognition & Brain Science Colloquium</i>	October 2023
Washington University in St. Louis	<i>Psychology Colloquium</i>	March 2023
University of Turin	<i>Neural Mechanisms Online</i>	March 2023
New York University	<i>Cognition & Perception Colloquium</i>	February 2023
CUNY Graduate Center	<i>Philosophy Colloquium</i>	February 2023
University of California-Los Angeles	<i>Cognitive Psychology Forum</i>	January 2023
University of Southern California	<i>Mind & Language Series</i>	September 2022
University of California-Santa Barbara	<i>Psychology Colloquium*</i>	April 2022
Washington University in St. Louis	<i>Philosophy Colloquium</i>	April 2022
Franklin & Marshall College	<i>Cognitive Science Colloquium</i>	April 2022
Dalhousie University	<i>Graham Goddard Lecture</i>	March 2022
Humboldt-University of Berlin	<i>Science of Intelligence Series</i>	March 2022
CUNY Graduate Center	<i>Cognitive Science Speaker Series</i>	September 2021
National Academy of Sciences	<i>Distinctive Voices Series</i>	June 2021
VU Amsterdam	<i>Cognitive Psychology Colloquium</i>	April 2021
Central European University	<i>Cognitive Development Center Colloquium</i>	March 2021
Harvard University	<i>Cognition, Brain, & Behavior Seminar</i>	January 2021
Dartmouth College	<i>Cognitive Science Colloquium*</i>	April 2020
Florida State University	<i>Philosophical Psychology Group*</i>	April 2020
University of Southern California	<i>Mind & Language Series*</i>	March 2020
New Mexico State University	<i>Psychology Colloquium*</i>	March 2020
Northeastern University	<i>Psych, Eng, Neuro (PEN) Series*</i>	March 2020
Princeton University	<i>Cognitive Science Colloquium*</i>	March 2020
Vassar College	<i>Psychology Colloquium</i>	February 2020
University of Pittsburgh	<i>Center for Philosophy of Science</i>	April 2019
University of Pennsylvania	<i>MindCore Series</i>	April 2019
University of Oregon	<i>Cognitive Area</i>	March 2019
York University	<i>Center for Vision Research</i>	January 2019
University of Toronto	<i>Ebbinghaus Talk Series</i>	January 2019
New College of the Humanities	<i>Cognitive Science Research Group</i>	December 2018
École Normale Supérieure	<i>Colloquium du DEC</i>	December 2018
École Normale Supérieure	<i>Institut Jean Nicod</i>	December 2018
Victoria University of Wellington	<i>Colloquium Series</i>	March 2018
University of Sydney	<i>School of Psychology Colloquium</i>	March 2018
University of New South Wales	<i>Psychology Colloquium</i>	March 2018
Australian National University	<i>Philosophy Society Seminar</i>	March 2018
UMass-Amherst	<i>Cognitive Science Colloquium</i>	March 2018
Taipei Medical University	<i>Brain & Consciousness Seminar</i>	April 2017
Taipei Medical University	<i>Institute for Mind, Brain, & Consciousness</i>	April 2017
National Taiwan University	<i>Perception Group</i>	April 2017
Colorado State University	<i>Cognitive Area</i>	March 2017
University of Delaware	<i>Cognitive Brownbag</i>	February 2017
Wesleyan University	<i>Psychology Colloquium</i>	October 2016
University of Waterloo	<i>Cognitive Seminar Series</i>	February 2016
Northeastern University	<i>Language and Cognition Colloquium</i>	September 2015
Trinity College	<i>Psychology Club</i>	March 2015

Northwestern University	<i>Cognitive Brownbag</i>	January 2015
University of Chicago	<i>Cognitive Area Speaker Series</i>	January 2015
CUNY Graduate Center	<i>Cognitive Science Speaker Series</i>	February 2014
Rutgers-Newark	<i>Psychology Colloquium</i>	January 2014
Rutgers-New Brunswick	<i>RuCCS Colloquium</i>	November 2012

* canceled due to COVID-19

Invited Conference and Workshop Presentations

Cognition does not affect perception. Invited lecture given to the *Human Nature and Human Diversity* seminar, Rutgers University, 2/7/24, New Brunswick, NJ.

Cognition does not affect perception. Invited lecture given to the *Seeing Things* seminar, Johns Hopkins University, 11/2/23, Baltimore, MD.

The perception of silence. *JHU Center for Psychedelic & Consciousness Research*. 9/20/23, Baltimore, MD.

Cognition does not affect perception. *Los Angeles Dodgers Performance Science Team*. 1/27/23.

Seeing 'How'. Stanton Prize address, *Joint Meeting of the Society for Philosophy and Psychology and European Society for Philosophy and Psychology*, 7/22/22, Milan, Italy.

(Ir)rational perceptual beliefs. Invited talk given to the *What is Belief* seminar series, 3/11/22, Princeton, NJ.

Real or fake? Evaluating human and AI deepfake detection. Panelist, *Synthetic Futures* (virtual) event, 2/16/22, Cambridge, UK.

Comments on O'Callaghan & Beck. Commentator, Perception and Cognition Symposium, *American Philosophical Association* (virtual) event, 1/18/22.

Taking a machine's perspective. Talk given at the *Philosophy of Science Association*, 11/14/21, Baltimore, MD.

Seeing what isn't there. Talk given (virtually) at the *Society for Experimental Social Psychology*, 10/9/21, Santa Barbara, CA.

Seeing "how". Invited lecture to the *Philosophy of Perception* seminar, Brown University, 9/30/20, Providence, RI.

When priors repel: "Antirational" updating in perception. Invited lecture to the *Philosophy of Psychology* seminar, Johns Hopkins University, 3/31/20, Baltimore, MD.

Embodiment (or not) in visual perception. Invited keynote address to the *AALAC Conference on Embodiment* 10/18/19, Bryn Mawr, PA.

Seeing what's possible. Invited presentation to the *McDonnell Plenary Meeting on Modality*, 6/25/19, Martha's Vineyard, MA.

Color: From knowledge to appearance? Invited presentation to the *Philosophy of Cognitive Science Seminar*, Carnegie Mellon University, 4/23/19, Pittsburgh, PA.

Taking a machine's perspective. Invited presentation to the *Yuille Computational Cognitive Science Group*, Johns Hopkins University, 4/2/19, Baltimore, MD.

Taking a machine's perspective. Invited presentation to the *JHU Applied Physics Lab Intelligent Systems Center*, Johns Hopkins University, 2/6/19, Laurel, MD.

Color: From knowledge to appearance? Invited presentation to the *Philosophy of Cognitive Science Reading Group*, York University, 1/24/19, Toronto, Canada.

Color: From knowledge to appearance? Invited presentation to the *Cognition, Emotion, & Individual Differences* seminar, University of New South Wales, 3/21/18, Sydney, Australia.

Color: From knowledge to appearance? Invited presentation to the *Cognitive Penetrability* seminar, UMass-Amherst, 3/6/18, Amherst, MA.

Embodiment in perception: Will we know it when we see it?. Invited talk at the *Alvin Goldman Retirement Conference*, Rutgers University, 2/27/18, New Brunswick, NJ.

Seeing stability: Physical understanding is rooted in automatic visual processing. Invited presentation to the "Vision Meets Cognition" workshop, *Computer Vision and Pattern Recognition*, 7/21/17, Honolulu, HI.

Cognition does not affect perception. Invited presentation to the "Are there top-down effects on perception?" symposium, *American Philosophical Association (Eastern)*, 1/7/17, Baltimore, MD.

Do we *see* morality? Exploring the possibility of 'moral perception'. Invited presentation to the *Boston Area Morality Group*, Harvard University, 3/22/16, Cambridge, MA.

Cognition does not affect perception. Invited presentation to the *Border Between Perception & Cognition* seminar, New York University, 9/12/16, New York, NY.

High-level vision: From minds to machines (and back)? Invited talk at the *Office of Naval Research Conference on Understanding Scenes and Events*, 9/13/15, Lake Arrowhead, CA.

There are no (*interesting*) top-down effects on perception. Invited talk at the *Bergen Workshop on the Cognitive Penetrability of Perception*, 6/25/15, Bergen, Norway.

The El Greco fallacy: A new strategy to investigate top-down effects on perception. Invited talk given as part of the 'Cognitive Penetrability' symposium at the annual meeting of the *European Society for Philosophy and Psychology*, 7/9/13, Granada, Spain.

The case against 'paternalistic vision'. Invited talk given at the *NYU Workshop on the Modularity of Perception*, 12/2/12, New York, NY.

Paternalistic vision. Invited presentation to the *Epistemology Meets the Science of Perception and Belief* seminar, Harvard University, 4/11/12, Cambridge, MA.

Contributed Conference Presentations

Nartker, M., Firestone, C., Egeth, H., & Phillips, I. (2023). What do the inattentionally blind see? Talk given at the annual meeting of the *Association for the Scientific Study of Consciousness*, 6/23/23, New York, NY.

- Hafri, A., Sun, Z., & Firestone, C., (2023). Compositionality in relational scene perception (Or: How to build a scene). Talk given at the annual meeting of the *Society for Philosophy and Psychology*, 6/23/23, Pittsburgh, PA.
- Croom, S., Zhou, H., & Firestone, C. (2023). What does learning look like? Visual recognition of epistemic intent. Talk given at the annual meeting of the *Society for Philosophy and Psychology*, 6/21/23, Pittsburgh, PA.
- Myers, C., Firestone, C., & Halberda, J (2023). Visual guessing relies on metacognitive reasoning. Poster presented at the annual meeting of the *Vision Sciences Society*, 5/22/23, St. Pete Beach, FL.
- Han, S., Sun, Z., & Firestone, C., (2023). Caricaturing shapes in visual memory. Poster presented at the annual meeting of the *Vision Sciences Society*, 5/22/23, St. Pete Beach, FL.
- Sun, Z., Firestone, C., & Hafri, A. (2023). How to build a scene: Relational representations are constructed in a canonical order. Poster presented at the annual meeting of the *Vision Sciences Society*, 5/22/23, St. Pete Beach, FL.
- Nartker, M., Firestone, C., Egeth, H., & Phillips, I. (2023). What do the inattentionally blind see? Evidence from 10,000 subjects. Poster presented at the annual meeting of the *Vision Sciences Society*, 5/21/23, St. Pete Beach, FL.
- Croom, S., Zhou, H., & Firestone, C. (2023). What does learning look like? Inferring epistemic intent from observed actions. Talk given at the annual meeting of the *Vision Sciences Society*, 5/20/23, St. Pete Beach, FL.
- Goh, R. Z., Zhou, H., Firestone, C., & Phillips, I. (2023). Event-based warping: An illusory distortion of time within events. Talk given at the annual meeting of the *Vision Sciences Society*, 5/20/23, St. Pete Beach, FL.
- Nartker, M., Firestone, C., Egeth, H., & Phillips, I. (2022). What can 10,000 subjects tell us about inattentional blindness? Talk given at the annual *Object Perception, Attention, and Memory* meeting, 11/17/22, Boston, MA.
- Croom, S., & Firestone, C. (2022). Looking tight: Visual judgments of knot strength reveal the limits of physical scene understanding. Poster presented at the annual *Object Perception, Attention, and Memory* meeting, 11/17/22, Boston, MA.
- Mazor, M., Firestone, C., & Phillips, I. (2022). Using pretense behavior to explore counterfactual self-simulation. Talk given at the annual meeting of the (*European*) *Society for Philosophy & Psychology*, 7/22/2022, Milan, Italy.
- Hafri, A., Boger, T., & Firestone, C. (2022). Remembering the future: Representational momentum for physical states. Talk given at the annual meeting of the (*European*) *Society for Philosophy & Psychology*, 7/21/2022, Milan, Italy.
- Goh, R. Z., Firestone, C., & Phillips, I. (2022). The perception of silence. Talk given at the annual meeting of the (*European*) *Society for Philosophy & Psychology*, 7/21/2022, Milan, Italy.
- Mazor, M., Phillips, I., & Firestone, C. (2022). Pretending not to see: Pretense behavior reveals the limits of self-simulation. Poster presented at *Virtual-VSS*, 6/1/2022.
- Hermann, K., & Firestone, C. (2022). Shape bias at a glance: Comparing human and machine vision on equal terms. Talk given at the annual meeting of the *Vision Sciences Society*, 5/18/2022, St. Pete Beach, FL.
- Halberda, J., Myers, C., Sanford, E., & Firestone, C. (2022). Visual guessing is anti-Bayesian. Poster presented at the annual meeting of the *Vision Sciences Society*, 5/17/2022, St. Pete Beach, FL.
- Boger, T., & Firestone, C. (2022). Automatic simulation of unseen physical events. Poster presented at the annual meeting of the *Vision Sciences Society*, 5/17/2022, St. Pete Beach, FL.
- Guan, C., & Firestone, C. (2022). Attending to future objects. Talk given at the annual meeting of the *Vision Sciences Society*, 5/17/2022, St. Pete Beach, FL.
- Goh, R. Z., Phillips, I., & Firestone, C. (2022). Seeing nothing happening: Moments of absence as perceptual events. Poster presented at the annual meeting of the *Vision Sciences Society*, 5/17/2022, St. Pete Beach, FL.

- Sun, Z., Yu, Q., Halberda, H., & Firestone, C. (2022). How to look unique. Poster presented at the annual meeting of the *Vision Sciences Society*, 5/17/2022, St. Pete Beach, FL.
- Croom, S., & Firestone, C. (2022). Looking tight: Visual judgments of knot strength reveal the limits of physical scene understanding. Poster presented at the annual meeting of the *Vision Sciences Society*, 5/16/2022, St. Pete Beach, FL.
- Myers, C., Firestone, C., & Halberda, J. (2022). Attention to fire. Poster presented at the annual meeting of the *Vision Sciences Society*, 5/16/2022, St. Pete Beach, FL.
- Nartker, M., Zhou, Z., & Firestone, C. (2022). Intuiting machine failures. Talk given at the annual meeting of the *Vision Sciences Society*, 5/16/2022, St. Pete Beach, FL.
- Hafri, A., Sun, Z., & Firestone, C. (2022). Sequential construction of visual relations. Poster presented at the annual meeting of the *Vision Sciences Society*, 5/14/2022, St. Pete Beach, FL.
- Morales, J., & Firestone, C. (2022). Attentional prioritization by absent parts. Poster presented at the annual meeting of the *Vision Sciences Society*, 5/14/2022, St. Pete Beach, FL.
- Hafri, A., & Firestone, C. (2022). Beyond objects and features: High-level relations in visual perception. Symposium presentation at the annual meeting of the *Vision Sciences Society*, 5/13/2022, St. Pete Beach, FL.
- Morales, J., & Firestone, C. (2021). Attention to absences. Talk given at the annual (online) *Object Perception, Attention, and Memory* meeting, November 2021.
- Nartker, M., Firestone, C., Egeth, H., & Phillips, I. (2021). What we've been missing about what we've been missing: Above-chance sensitivity to inattentional blindness stimuli. Poster presented at the annual (online) *Object Perception, Attention, and Memory* meeting, November 2021.
- Sun, Z., & Firestone, C. (2021). The evolution of complexity in visual memory. Poster presented at the annual (online) *Object Perception, Attention, and Memory* meeting, November 2021.
- Croom, C., & Firestone, C. (2021). Tangled physics: Knots as a challenge for physical scene understanding. Poster presented at the annual (online) meeting of the *Cognitive Science Society*, July 2021.
- Nartker, M., Firestone, C., Egeth, H., & Phillips, I. (2021). What we've been missing about what we've been missing: Above-chance sensitivity to inattentional blindness stimuli. Talk given at the annual (online) meeting of the *Society for Philosophy and Psychology*, 7/2/21.
- Morales, J., & Firestone, C. (2021). The perception of absences. Talk given at the annual (online) meeting of the *Society for Philosophy and Psychology*, 6/30/21.
- Guan, C., Schwitzgebel, D., Hafri, A., & Firestone, C. (2021). The perception of possibility. Talk given at the annual (online) meeting of the *Society for Philosophy and Psychology*, 6/28/21.
- * William James Prize**
- Hafri, A., Boger, T., & Firestone, C. (2021). Melting ice with your mind: Dynamic representation of physical states. Talk given at the annual (online) meeting of the *Vision Sciences Society*, May 2021.
- Boger, T., Epstein, Z., Groh, M., & Firestone, C. (2021). Through the looking-glass: Visual sensitivity to chirality. Poster presented at the annual (online) meeting of the *Vision Sciences Society*, May 2021.
- Sun, Z., Han, S., & Firestone, C. (2021). The evolution of complexity in visual memory. Talk given at the annual (online) meeting of the *Vision Sciences Society*, May 2021.
- Nartker, M., Firestone, C., Egeth, H., & Phillips, I. (2021). What we've been missing about what we've been missing: Above-chance sensitivity to inattentional blindness stimuli. Poster presented at the annual (online) meeting of the *Vision*

Sciences Society, May 2021.

Morales, J., & Firestone, C. (2021). Attention to absences. Poster presented at the annual (online) meeting of the *Vision Sciences Society*, May 2021.

Croom, C., & Firestone, C. (2021). Tangled physics: Knots as a challenge for physical scene understanding. Poster presented at the annual (online) meeting of the *Vision Sciences Society*, May 2021.

Groh, M., Epstein, Z., Picard, R., & Firestone, C. (2021). Human detection of DeepFakes: A role for holistic face processing. Talk given at the annual (online) meeting of the *Vision Sciences Society*, May 2021.

Boger, T., Hafri, A., & Firestone, C. (2020). Melting ice cubes with your mind: Representational momentum in state-space. Talk given at the annual (online) *Object Perception, Attention, and Memory* meeting, November 2020.

Guan, C., Schwitzgebel, D., Hafri, A., & Firestone, C. (2020). Possible objects count: Representations of possibility alter the perception of numerosity. Poster presented at the annual (online) meeting of the *Vision Sciences Society*, June 2020.

Hafri, A., Bonner, M., & Firestone, C. (2020). Visual predictions from physical relations. Poster presented at the annual (online) meeting of the *Vision Sciences Society*, June 2020.

Halberda, J., Yu, Q., Sun, Z., & Firestone, C. (2020). The Goldilocks principle drives search and memory.

Little, P. C., & Firestone, C. (2020). What's behind the curtain? Draped objects prime their uncovered counterparts. Poster presented at the annual (online) meeting of the *Vision Sciences Society*, June 2020.

Nartker, M. N., Lepori, M. A., & Firestone, C. (2020). Which "shoe" is best? Humans know what good training examples look like. Talk given at the annual (online) meeting of the *Vision Sciences Society*, June 2020.

Sun, Z., & Firestone, C. (2020). The simple and the beautiful: An aesthetic preference for moderately complex stimuli. Poster presented at the annual (online) meeting of the *Vision Sciences Society*, June 2020.

Zhou, Z., Nartker, M. N., & Firestone, C. (2020). When will AI misclassify? Human prediction of machine misbehavior. Talk given at the annual (online) meeting of the *Vision Sciences Society*, June 2020.

Nartker, M., Lepori, M., & Firestone, C. (2020). Which shoe is best? Using machine learning to study human teaching. Talk given at the *Capital Area Cognition/Attention/Perception Conference (CAP^2)*, 1/24/20, Washington, DC.

Zhou, Z., & Firestone, C. (2019). When will AI misclassify? Human intuition for machine (mis)behavior. Poster presented at the *Shared Visual Representations in Human and Machine Intelligence* workshop (*NeurIPS*), 12/13/19, Vancouver, Canada.

Sun, Z., & Firestone, C. (2019). Speaking about seeing: How verbal descriptions encode visual complexity. Talk given at the *Object Perception, Attention, and Memory* meeting, 11/14/19, Montreal, Canada.

*** Best Talk Award**

Little, P. C., & Firestone, C. (2019). The Pantomime Effect: Physical interaction makes invisible surfaces visible. Poster presented at the *Object Perception, Attention, and Memory* meeting, 11/14/19, Montreal, Canada.

Morales, J., & Firestone, C. (2019). Does the world look flat? Vision science as experimental philosophy. Talk given at the annual meeting of the *European Society for Philosophy and Psychology*, 9/7/19, Athens, Greece.

Firestone, C., & Sun, Z. (2019). Speaking about seeing: Verbal descriptions of images reflect their visually perceived complexity. Talk given at the 1st annual *Mid-Atlantic Meeting on Attention*, 7/16/19, Villanova, PA.

Little, P., & Firestone, C. (2019). Physical interaction makes invisible surfaces visible. Poster presented at the 1st annual *Mid-Atlantic Meeting on Attention*, 7/16/19, Villanova, PA.

Guan, C., & Firestone, C. (2019). Seeing what's possible: Disconnected visual 'parts' are confused for their potential 'wholes'. Poster presented at the 1st annual *Mid-Atlantic Meeting on Attention*, 7/16/19, Villanova, PA.

Baker, A., Morales, J., & Firestone, C. (2019). "You're my doctor?": Stereotype-incongruent identities impair recognition of incidental visual features. Poster presented at the annual meeting of the *Society for Philosophy and Psychology*, 7/13/19, San Diego, CA.

*** Best Poster Prize**

Morales, J., & Firestone, C. (2019). Does the world look flat? Vision science as experimental philosophy. Talk given at the annual meeting of the *Society for Philosophy and Psychology*, 7/12/19, San Diego, CA.

Won, I., Gross, S., & Firestone, C. (2019). Impossible integration of size and weight. Poster presented at the annual meeting of the *Vision Sciences Society*, 5/22/19, St. Pete Beach, FL. [Abstract published in *Journal of Vision*, 19(10), 301a, <https://jov.arvojournals.org/article.aspx?articleid=2751149>]

Sun, Z., & Firestone, C. (2019). Speaking about seeing: Verbal descriptions of images reflect their visually perceived complexity. Poster presented at the annual meeting of the *Vision Sciences Society*, 5/21/19, St. Pete Beach, FL. [Abstract published in *Journal of Vision*, 19(10), 242, <https://jov.arvojournals.org/article.aspx?articleid=2750903>]

Guan, C., & Firestone, C. (2019). Seeing what's possible: Disconnected visual 'parts' are confused for their potential 'wholes'. Poster presented at the annual meeting of the *Vision Sciences Society*, 5/21/19, St. Pete Beach, FL. [Abstract published in *Journal of Vision*, 19(10), 220a, <https://jov.arvojournals.org/article.aspx?articleid=2750806>]

Hafri, A., Landau, B., Bonner, M., & Firestone, C. (2019). When a phone in a basket looks like a knife in a cup: Perception and abstraction of visual-spatial relations between objects. Poster presented at the annual meeting of the *Vision Sciences Society*, 5/19/19, St. Pete Beach, FL. [Abstract published in *Journal of Vision*, 19(10), 160a, <https://jov.arvojournals.org/article.aspx?articleid=2750558>]

Baker, A., Morales, J., & Firestone, C. (2019). "You're my doctor?": Stereotype-incongruent identities impair recognition of incidental visual features. Poster presented at the annual meeting of the *Vision Sciences Society*, 5/19/19, St. Pete Beach, FL. [Abstract published in *Journal of Vision*, 19(10), 156, <https://jov.arvojournals.org/article.aspx?articleid=2750539>]

Rivera-Aparicio, J., & Firestone, C. (2019). High-def memories of low-def scenes: A new phenomenon of "vividness extension". Talk given at the annual meeting of the *Vision Sciences Society*, 5/19/19, St. Pete Beach, FL. [Abstract published in *Journal of Vision*, 19(10), 129a, <https://jov.arvojournals.org/article.aspx?articleid=2750424>]

Little, P., & Firestone, C. (2019). Physical interaction makes invisible surfaces visible. Poster presented at the annual meeting of the *Vision Sciences Society*, 5/19/19, St. Pete Beach, FL. [Abstract published in *Journal of Vision*, 19(10), 107, <https://jov.arvojournals.org/article.aspx?articleid=2750327>]

Zhou, Z., & Firestone, C. (2019). Taking a machine's perspective: Humans can decipher adversarial images. Poster presented at the annual meeting of the *Vision Sciences Society*, 5/18/19, St. Pete Beach, FL. [Abstract published in *Journal of Vision*, 19(10), 59a, <https://jov.arvojournals.org/article.aspx?articleid=2750126>]

Morales, J., & Firestone, C. (2019). Does the world look flat? Sustained representation of perspectival shape. Talk given at the annual meeting of the *Vision Sciences Society*, 5/18/19, St. Pete Beach, FL. [Abstract published in *Journal of Vision*, 19(10), 15, <https://jov.arvojournals.org/article.aspx?articleid=2750084>]

Guan, C., & Firestone, C. (2018). Seeing what's possible: Disconnected visual 'parts' are confused for their potential 'wholes'. Talk given at the *Object Perception, Attention, and Memory* meeting, 11/15/18, New Orleans, LA.

Zhou, Z., & Firestone, C. (2018). Seeing like a machine: Can humans "crack" adversarial images? Talk given at the *Object Perception, Attention, and Memory* meeting, 11/15/18, New Orleans, LA.

Firestone, C., & Gross, S. (2018). When priors repel: "Antirational" updating in perception and cognition. Talk given at the annual meeting of the *Society for Philosophy and Psychology*, 7/12/18, Ann Arbor, MI.

Rivera-Aparicio, J., & Firestone, C. (2018). Vision science at the bar: The role of closure in a powerful geometric illusion. Poster presented at the annual meeting of the *Vision Sciences Society*, 5/23/18, St. Pete Beach, FL. [Abstract published in *Journal of Vision*, 18(10), 1318, <https://jov.arvojournals.org/article.aspx?articleid=2700298>]

Guan, C., & Firestone, C. (2018). The automaticity of Tetris: Disconnected 'parts' activate visual representations of their potential 'wholes'. Poster presented at the annual meeting of the *Vision Sciences Society*, 5/23/18, St. Pete Beach, FL. [Abstract published in *Journal of Vision*, 18(10), 1317, <https://jov.arvojournals.org/article.aspx?articleid=2700297>]

Sun, Z., & Firestone, C. (2018). Curious objects: Preattentive processing of object complexity. Talk given at the annual meeting of the *Vision Sciences Society*, 5/22/18, St. Pete Beach, FL. [Abstract published in *Journal of Vision*, 18(10), 1055, <https://jov.arvojournals.org/article.aspx?articleid=2700040>]

Valenti, J. J., & Firestone, C. (2018). Isolating perception by fooling cognition: Does color knowledge alter color appearance? Poster presented at the annual meeting of the *Vision Sciences Society*, 5/21/18, St. Pete Beach, FL. [Abstract published in *Journal of Vision*, 18(10), 862, <https://jov.arvojournals.org/article.aspx?articleid=2699851>]

Yu, Q., Firestone, C., Flombaum, J. I., Bedny, M., & Halberda, J. (2018). Visual interference does not contaminate working memory: Testing the "perceptual reuse" theory. Poster presented at the annual meeting of the *Vision Sciences Society*, 5/20/18, St. Pete Beach, FL. [Abstract published in *Journal of Vision*, 18(10), 691, <https://jov.arvojournals.org/article.aspx?articleid=2699681>]

Little, P. C., & Firestone, C. (2018). Doing physics by eye and by hand: Mouse tracking reveals reflexive visual processing of physical scenes. Poster presented at the annual meeting of the *Vision Sciences Society*, 5/19/18, St. Pete Beach, FL. [Abstract published in *Journal of Vision*, 18(10), 147, <https://jov.arvojournals.org/article.aspx?articleid=2699141>]

Gross, S., & Firestone, C. (2018). Prior repulsion: "Anti-Bayesian" updating in visual cognition. Talk given at the annual meeting of the *Vision Sciences Society*, 5/19/18, St. Pete Beach, FL. [Abstract published in *Journal of Vision*, 18(10), 12, <https://jov.arvojournals.org/article.aspx?articleid=2699007>]

Lowet, A., Firestone, C., & Scholl, B. J. (2017). Seeing structure: Perceived similarity is driven by shape skeletons. Poster presented at the annual meeting of the *Vision Sciences Society*, 5/24/17, St. Pete Beach, FL. [Abstract published in *Journal of Vision*, 17(10), 1380, <http://jov.arvojournals.org/article.aspx?articleid=2652245>]

Firestone, C., & Scholl, B. J. (2017). Seeing physics in the blink of an eye. Talk given at the annual meeting of the *Vision Sciences Society*, 5/20/17, St. Petersburg, FL. [Abstract published in *Journal of Vision*, 17(10), 203, <http://jov.arvojournals.org/article.aspx?articleid=2651088>]

Firestone, C., & Scholl, B. J. (2016). Seeing stability: Perception and attention extract features of intuitive physics. Talk given at the annual *Object Perception Attention and Memory* meeting, 11/17/16, Boston, MA.

Firestone, C., & Scholl, B. J. (2016). Seeing stability: Intuitive physics automatically guides selective attention. Poster presented at the annual meeting of the *Vision Sciences Society*, 5/15/16, St. Petersburg, FL. Abstract published in *Journal of Vision*, 16(12), 689, <http://jov.arvojournals.org/article.aspx?articleid=2550672>]

Firestone, C., & Scholl, B. J. (2015). Can you simultaneously represent a figure as both an object and an open contour? Hybrid shape representations revealed by the "tap-the-shape" task. Talk given at the annual meeting of the *Vision Sciences Society*, 5/19/15, St. Petersburg, FL. [Abstract published in *Journal of Vision*, 12(12), 1125a, <http://jov.arvojournals.org/article.aspx?articleid=2434235>]

Firestone, C., & Keil, F. C. (2014). Reconstructing the 'third dimension' from 2D shapes: Evidence from the perception of balance. Talk given at the annual meeting of the *Vision Sciences Society*, 5/20/14, St. Petersburg, FL. [Abstract published in *Journal of Vision*, 14(10), 888a, <http://jov.arvojournals.org/article.aspx?articleid=214476>]

Firestone, C., & Scholl, B. J. (2013). 'Top-down' effects where none should be found: The El Greco fallacy in perception research. Talk given at the annual meeting of the *Society for Philosophy and Psychology*, 6/14/13, Providence, RI.

* **William James Prize**

Firestone, C., & Scholl, B. J. (2013). 'Top-down' effects where none should be found: The El Greco fallacy in perception research. Talk given at the annual meeting of the *Vision Sciences Society*, 5/13/13, Naples, FL. [Abstract published in *Journal of Vision*, 13(9), 780a, <http://www.journalofvision.org/content/13/9/780>]

Firestone, C., & Scholl, B. J. (2012). 'Please tap the shape, anywhere you like': An exceedingly simple measure exposes skeletal shape representations. Talk given at the annual *Object Perception Attention and Memory* meeting, 11/15/12, Minneapolis, MN.

* **Best Talk Award**

Firestone, C., & Scholl, B. J. (2012). "Please tap the shape, anywhere you like": The psychological reality of shape skeletons. Poster presented at the annual meeting of the *Vision Sciences Society*, 5/15/12, Naples, FL. [Abstract published in *Journal of Vision*, 12(9), 1155a, <http://www.journalofvision.org/content/12/9/1155>]

Firestone, C. (2011). Visual paternalism and the penetrability of perceptual experience. Talk given at the annual Princeton-Rutgers Graduate Philosophy Conference, 3/27/11, New Brunswick, NJ.

Firestone, C., & Warren, W. H. (2010). Why does the rabbit escape the fox on a zig-zag path? Predator-prey dynamics and the constant bearing strategy. Poster presented at the annual meeting of the *Vision Sciences Society*, 5/9/10, Naples, FL. [Abstract published in *Journal of Vision*, 10(9), 1049a, <http://www.journalofvision.org/content/10/7/1049>]

Firestone, C. (2009). Who needs free will? A semi-compatibilist look at being in (and out of) control. Poster presented at *Brain Matters: New Directions in Neuroethics*, 9/25/09, Halifax, NS, Canada.

Professional Activities and Affiliations

Leadership

Society for Philosophy and Psychology	Executive Committee Member	(2018–2021)
	Program Chair	(2022)
	Stanton Prize Coordinator	(2023)
Co-Founder, <i>phiVis</i> : Philosophy of Vision Science		(2021–)

Memberships

Association for Psychological Science
 Cognitive Science Society
 Neural Information Processing Systems
 Society for Philosophy and Psychology
 Vision Sciences Society

Editing

Consulting Editor, *Visual Cognition* (2020–)

Ad Hoc Reviewing (selected)

Attention, Perception, & Psychophysics
Behavioral & Brain Sciences

Computational Brain & Behavior
Consciousness & Cognition

<i>Cognition</i>	<i>Oxford University Press</i>
<i>Cognitive Science</i>	<i>Perception</i>
<i>Current Biology</i>	<i>Personality and Social Psychology Bulletin</i>
<i>eLife</i>	<i>Perspectives on Psychological Science</i>
<i>Frontiers in Psychology</i>	<i>Philosophy Compass</i>
<i>i-Perception</i>	<i>Philosophical Psychology</i>
<i>JEP: Human Perception & Performance</i>	<i>Philosophical Review</i>
<i>JEP: General</i>	<i>Philosophy of Science</i>
<i>JEP: Applied</i>	<i>PLoS One</i>
<i>Journal of Vision</i>	<i>Proceedings of the National Academy of Sciences</i>
<i>Journal of Experimental Social Psychology</i>	<i>Psychological Research</i>
<i>Memory & Cognition</i>	<i>Psychological Science</i>
<i>Minds & Machines</i>	<i>Psychonomic Bulletin & Review</i>
<i>Mind & Language</i>	<i>Review of Philosophy and Psychology</i>
<i>Nature Communications</i>	<i>Scientific Reports</i>
<i>Nature Human Behaviour</i>	<i>Society for Philosophy and Psychology</i>
<i>Nature Machine Intelligence</i>	<i>Synthese</i>
<i>National Science Foundation</i>	<i>Trends in Cognitive Sciences</i>
<i>Neural Computation</i>	<i>Visual Cognition</i>
<i>Neural Networks</i>	<i>Vision Research</i>

Advising

Graduate Students

Tal Boger (current)

Research: The perception of style; form and content in visual perception

Sholei Croom (current)

Research: Mental simulation; perception and action

Rui Zhe Gob (current)

Research: Temporal attention; the perception of silence

Caroline Myers (current)

Research: Visual metacognition; high-level properties in visual perception

Makaela Nartker (current)

Research: Intuitive theories of human and machine vision; visual awareness

Zekun Sun (2017–2023)

Research: The perception of complexity

After JHU: Postdoctoral Fellow, Yale University

Chenxiao Guan (2017–2022)

Research: Possibility in perception

After JHU: Postdoctoral Fellow, Zhejiang University

Austin Baker (visiting graduate student, 2018–2019)

Research: Stereotyping and attention

After JHU: Postdoctoral Assistant Professor, Rutgers-New Brunswick

Postdoctoral Fellows

Nicolò Cesana-Arlotti (2022–2023)

Research: Logic in visual attention

After JHU: Assistant Professor of Psychology, Yale University

Alon Hafri (2019–2022)

Research: Perception of spatial relations; language and vision

After JHU: Assistant Professor of Linguistics and Cognitive Science, University of Delaware

Jorge Morales (2018–2021)

Research: Introspection, perspectival representation, imagery

After JHU: Assistant Professor of Psychology and Philosophy, Northeastern University

Undergraduate Students

Current

Lana Milman

Hanbei Zhou

Past (selected)

Tal Boger (Yale Class of 2023; published research in *PsychScience*)

Axel Bax (JHU Class of 2021; published thesis in *PNAS*; PhD student, Cornell University)

David Schwitzgebel (Vassar College Class of 2021; PhD student, Institute Jean Nicod)

Isabel Won (JHU Class of 2021; published thesis in *Open Mind* and *BBS*; recipient of *G. Stanley Hall Research Award*)

Michael Lepori (JHU Class of 2020; published thesis in *Cognitive Science*; PhD student, Brown University)

Zhenglong Zhou (JHU Class of 2019; published thesis in *Nature Communications*; recipient of *Provost's Undergraduate Research Award*, *Dean's Undergraduate Research Award*, *NSF Graduate Research Fellowship*; PhD student, University of Pennsylvania)

Patrick Little (JHU Class of 2018.5; published thesis in *PsychScience*; recipient of *STAR Award*; PhD student, New York University)

J.J. Valenti (JHU Class of 2018; published thesis in *Cognition*; recipient of *Provost's Undergraduate Research Award*)

PhD Committees

2023: Matt Groh, Shima Rahimi Moghaddam, Zekun Sun

2022: Chenxiao Guan, Katherine Hermann (psychology, *Stanford*)

2021: Kathryn Brophy (philosophy), Donald Li (cognitive science)

2020: Judy Kim, Pang Chaisilprungraung (cognitive science), Li Guo

2019: Austin Baker (philosophy, *Rutgers*)

2018: Jenny Wang, Ela Warnecke

Qualifying Exam Committees

2024: Rui Zhe Goh

2023: Caroline Myers

2022: Shima Rahimi Moghaddam

2021: Matthew Groh (*MIT Media Lab*), Makaela Nartker, Qihan Wu

2020: Qiong Cao

2019: Chenxiao Guan, Emily Sanford, Zekun Sun, Qian Yu

2018: Seah Chang, Palmer Gunderson (philosophy), Cara Maritz (philosophy)

Teaching

Introduction to Psychology, Johns Hopkins University
Enrollment: 377 (2017), 470 (2018–2021)

Thought & Perception / Philosophy of Cognitive Science, Johns Hopkins University
Enrollment: 20 (2018)

University and Departmental Service

Committees

Co-Director, Foundations of Mind Group (2024–)
Founding Member, PBS Equity Committee (2020–)
Member, Krieger School of Arts & Sciences Curriculum Committee (2020–2022)
Co-Chair, PBS Social Cognition Search Committee (2019–2020)
Member, PBS Developmental Psychology Search Committee (2018–2019)

Speaking

Faculty Speaker, “From Molecules to Mind” Faculty Forum (2023)
Faculty Speaker, Krieger Advisory Board (2021)