

POSITIONS

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|---|--|
| University of California, Berkeley Assistant Professor, School of Optometry Vision Science Program Helen Wills Neuroscience Institute | 2018 – present |
| Dartmouth College Assistant Research Professor, Psychological and Brain Sciences Adjunct Assistant Professor, Computer Science | 2015 – 2018 2015 – 2018 2016 – 2018 |
| Stanford University Postdoctoral Research Scholar, Psychology | 2013 – 2015 |

EDUCATION

| | |
|---|--------------------|
| University of California, Berkeley <i>Ph.D., Neuroscience</i> Dissertation: Perception of Depth in Real and Pictured Environments (Advisor: Martin Banks) | 2007 – 2012 |
| University of Chicago <i>B.A., Psychology and English Language & Literature (Phi Beta Kappa)</i> | 2003 – 2007 |

FELLOWSHIPS

| | |
|--|------|
| National Science Foundation, <i>Graduate Research Fellowship</i> | 2011 |
| Department of Defense, <i>National Defense Science & Engineering Graduate Fellowship</i> | 2009 |
| Howard Hughes Medical Institute, <i>Undergraduate Research Fellowship</i> | 2006 |

RESEARCH FUNDING

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|---|------|
| National Science Foundation, <i>CAREER: Smartglasses for All</i> (PI) | 2021 |
| Facebook Reality Labs, <i>Adaptation to minification caused by spectacles</i> (PI) | 2020 |
| National Institute of Health, <i>Neural codes underlying visual segmentation</i> (co-I, PI Huang) | 2020 |
| CITRIS Core Seed Funding, <i>Enhancing obstacle visibility using a head-mounted vision aid</i> (co-PI) | 2020 |
| Google, <i>Characterizing the perceptual eyebox</i> (PI) | 2019 |
| Human Frontier Science Program, <i>Visual circuit adaptations in zebrafish & cichlids</i> (co-I) | 2018 |
| Facebook Reality Labs, <i>Unrestricted gift</i> | 2018 |
| Neukom Institute (Dartmouth College), <i>Biologically-plausible model of associative learning</i> (co-PI) | 2017 |
| Intel, <i>Light Field Display ISRA Program, Unrestricted gift</i> | 2017 |
| Oculus, <i>Unrestricted Gift</i> | 2017 |
| Samsung, <i>Global Research Outreach, Monovision and focus-tunable near-eye displays</i> (co-I, PI Wetzstein) | 2016 |
| Microsoft, <i>Augmenting reality for the visually impaired, Unrestricted gift</i> | 2015 |

AWARDS

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|---|------|
| National Eye Institute, <i>Early Career Scientist Travel Grant</i> | 2019 |
| NVIDIA, <i>Academic GPU Award</i> | 2016 |
| Stanford University, <i>Henzl-Gabor Young Women in Science Travel Award</i> | 2013 |
| ARVO, <i>Vision Sciences Society Student Travel Award</i> | 2012 |
| UC Berkeley, <i>Outstanding Graduate Student Teaching Award</i> | 2009 |

ARTICLES

- M. Wang and E.A. Cooper. A Re-Examination of Dichoptic Tone Mapping *ACM Transactions on Graphics*, in press
- S.A. Cholewiak, Z. Bağgöze, O. Cakmakci, D.M. Hoffman and E.A. Cooper. A Perceptual Eyebox for Near-Eye Displays. *Optics Express*, 28(25), 38008-38028, 2020
- T.E. Yerxa, E. Kee, M.R. DeWeese and E.A. Cooper. Efficient Sensory Coding of Multidimensional Stimuli. *PLOS Computational Biology*, 16(9):e1008146, 2020
- Z. Bağgöze, D.N. White, J. Burge and E.A. Cooper. Natural Image Statistics at Depth Edges Modulate Perceptual Stability *Journal of Vision*, 20(8):10, 2020
- Z. Bağgöze, J. Gualtieri, M.T. Sachs and E.A. Cooper. Navigational Aid Use by Individuals with Visual Impairments. [Conference Paper] *Journal on Technology & Persons with Disabilities*, 8: 22-39, 2020
- T. Tadros, N.C. Cullen, M.R. Greene and E.A. Cooper. Assessing Neural Network Scene Classification from Degraded Images. *ACM Transactions on Applied Perception*, 16(4): 21, 2019
- J. Huang, M. Kinateder, M.J. Dunn, W. Jarosz, X. Yang and E.A. Cooper. An Augmented Reality Sign-reading Assistant for Users with Reduced Vision. *PLOS One*, 14(1): e0210630, 2019
- Z. Bağgöze, A.P. Mackey and E.A. Cooper. Plasticity and Adaptation in Adult Binocular Vision. [Review Article] *Current Biology*, 28(24), R1406-R1413, 2018
- M. Kinateder, J. Gualtieri, M.J. Dunn, W. Jarosz, X. Yang and E.A. Cooper. Using an Augmented Reality Device as a Distance-Based Vision Aid – Promise and Limitations. *Optometry & Vision Science*, 95(9), 727-737, 2018
- B. Rokers, J.M. Fulvio, J. Pillow, and E.A. Cooper. Systematic Misperceptions of 3D Motion Explained by Bayesian Inference. *Journal of Vision*, 18(3):23, 2018
- E.A. Cooper and M.S. Banks. Perceived Facial Distortions in Selfies are Explained by Viewing Habits. [Commentary] *JAMA Facial Plastic Surgery*, 20(5), 431, 2018
- R. Konrad, N. Padmanaban, K. Molner, E.A. Cooper, and G. Wetzstein. Accommodation-invariant Computational Near-eye Displays. *ACM Transactions on Graphics (SIGGRAPH Conference Proceedings)*, 36(4):88, 2017
- N. Padmanaban, R. Konrad, T. Stramer, E.A. Cooper, and G. Wetzstein. Optimizing Virtual Reality for All Users Through Gaze Contingent and Adaptive Focus Displays. *Proceedings of the National Academy of Sciences*, 114(9), 2183-2188, 2017
- E.A. Cooper, M. van Ginkel, and B. Rokers. Sensitivity and Bias in the Discrimination of 2D and 3D Motion Direction. *Journal of Vision*, 16(10):5, 2016
- W.W. Sprague, E.A. Cooper, S. Reissier, B. Yellapragada, and M.S. Banks. The Natural Statistics of Blur. *Journal of Vision*, 16(10):23, 2016
- E.A. Cooper and A.P. Mackey. Sensory and Cognitive Plasticity: Implications for Academic Interventions. [Review Article] *Current Opinion in Behavioral Sciences*, 10, 21-27, 2016
- E.A. Cooper. A Normalized Contrast-encoding Model Exhibits Bright/dark Asymmetries Similar to Early Visual Neurons. *Physiological Reports*, 4(7):e12746, 2016
- R. Konrad, E.A. Cooper, and G. Wetzstein. Novel Optical Configurations for Virtual Reality: Evaluating User Preference and Performance with Focus-tunable and Monovision Near-eye Displays. *Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI)*, 2016

- E.A. Cooper and A. Radonjic. Gender Representation in the Vision Sciences: a Longitudinal Study. *Journal of Vision*, 16(1):17, 2016
- E.A. Cooper and H. Farid. Does the Sun Revolve Around the Earth? A Comparison between the General Public and On-line Survey Respondents in Basic Scientific Knowledge. *Public Understanding of Science*, 25(2), 146-153, 2016
- W.W. Sprague*, E.A. Cooper*, I. Tomic and M.S. Banks. Stereopsis is Adaptive for the Natural Environment. *Science Advances*, 1(4):e1400254, 2015 *Author order determined by coin toss
- E.A. Cooper and A.M. Norcia. Predicting Cortical Dark/Bright Asymmetries from Natural Image Statistics and Early Visual Transforms. *PLOS Computational Biology*, 11(5):e1004268, 2015
- D.E. Jacobs, O. Gallo, E.A. Cooper, K. Pulli, and M. Levoy. Simulating the Visual Experience of Very Bright and Very Dark Scenes. *ACM Transactions on Graphics*, 34(3):25, 2015
- E.A. Cooper and A.M. Norcia. Perceived Depth in Natural Images Reflects Encoding of Low-level Luminance Statistics. *Journal of Neuroscience*, 34(35), 11761-8, 2014
- M.S. Banks, E.A. Cooper, and E.A. Piazza. Camera Focal Length and the Perception of Pictures. *Ecological Psychology*, 26(1-2), 30-46, 2014
- E.A. Cooper, H. Jiang, V. Vildavski, J.E. Farrell, and A.M. Norcia. Assessment of OLED Displays for Vision Research. *Journal of Vision*, 13(12):16, 2013
- P. Vangorp, C. Richardt, E.A. Cooper, G. Chaurasia, M.S. Banks, and G. Drettakis. Perception of Perspective Distortions in Image-Based Rendering. *ACM Transactions on Graphics (SIGGRAPH Conference Proceedings)*, 32(4):58, 2013
- E.A. Cooper, E.A. Piazza, and M.S. Banks. The Perceptual Basis of Common Photographic Practice. *Journal of Vision*, 12(5):8, 2012
- R.T. Held, E.A. Cooper, and M.S. Banks. Blur and Disparity are Complementary Cues to Depth. *Current Biology*, 22(5), 426-31, 2012
- E.A. Cooper, J. Burge, and M.S. Banks. The Vertical Horopter is not Adaptable, but It may be Adaptive. *Journal of Vision*, 11(3):20, 2011
- E.A. Cooper, U. Hasson, and S.L. Small. Interpretation-Mediated Changes in Neural Activity During Language Comprehension. *NeuroImage*, 55(3), 1314-23, 2011
- R.T. Held, E.A. Cooper, J. O'Brien, and M.S. Banks. Using Blur to Affect Perceived Distance and Size. *ACM Transactions on Graphics*, 29(2):19, 2010

ABSTRACTS

- T. Manning, I. McLean, B. Naecker, J. Pillow, B. Rokers and E.A. Cooper. Estimating Perceptual Priors with Finite Experiments. *Journal of Vision*, in press
- M. Wang, J. Ding, D.M. Levi and E.A. Cooper. Binocular Contrast Perception of Gratings, Noise, and Natural Images. *Journal of Vision*, in press
- E. Alexander, V. Krishna S., T.C. Hladnik, N.C. Guilbeault, L.T. Cai, T.R. Thiele, A.B. Arrenberg and Emily A. Cooper. Self-motion Cues in the Natural Habitats of Zebrafish Support Lower Visual Field Bias. *Journal of Vision*, in press
- M. Wang and E.A. Cooper. A Re-examination of Dichoptic Tone Mapping Methods. *Journal of Vision*, 20:887, 2020
- L.T. Cai, V. Krishna, T. Hladnik, N. Guilbeault, S. Juntti, T. Thiele, A. Arrenberg and E.A. Cooper. Visual Statistics of Aquatic Environments in the Natural Habitats of Zebrafish. *Journal of Vision*, 20:433, 2020

- T. Thiele, S. Juntti, K. Wang, L. Cai, T. Hladnik, R. Meier, F. Dehmelt, J. Hinz, V. Subramanian, N. Guilbeault, E.A. Cooper and A. Arrenberg. Investigation of Visual Circuit Adaptations to Natural Environmental Motion in Zebrafish and Cichlids. *Zebrafish Neural Circuits and Behavior*, 2019
- Z. Başgöze, D. White, J. Burge and E.A. Cooper. Effects of Context on the Visual Stability of Depth Edges in Natural Scenes. *Journal of Vision*, 19:223a, 2019
- X. Huang, C. Wang, B. Arseneau, T.E. Yerxa and E.A. Cooper. Natural scene statistics of depth and motion pertinent to figure-ground segregation. *Society for Neuroscience*, 2019
- A. Boroshok, G. Velasquez, A. Park, K. Simon, J. Forde, E.A. Cooper and A.P. Mackey. Individual Differences in Human Frontoparietal Plasticity. *Flux Congress*, 2019
- M. Kinader and E.A. Cooper. Using Visual Snapshots to Estimate Egocentric Orientation in Natural Environments. *Journal of Vision*, 18:513, 2018
- M. Kinader, T. Pfaff, and E.A. Cooper. The Visual Features of Smoke. *Journal of Vision*, 17(10):415, 2017
- S. Finocchetti, E.A. Cooper, and M. Gori. Visual Experience and Spatial Reference Frames for Sound Localization. *International Multisensory Research Forum*, 2017
- N. Padmanaban, R. Konrad, E.A. Cooper, and G. Wetzstein. Optimizing Virtual Reality for All Users Through Adaptive Focus Displays. *SIGGRAPH*, 2017
- R. Konrad, N. Padmanaban, E.A. Cooper, and G. Wetzstein. Computational Focus-Tunable Near-Eye Displays. *SIGGRAPH Emerging Technologies*, 3, 2016
- M.S. Banks, W.W. Sprague, E.A. Cooper, and S. Reissier. How Natural Distributions of Blur Affect 3D Percepts. *Journal of Vision*, 16(12):195, 2016
- E.A. Cooper and A.M. Norcia. What are the Natural Scene Statistics of Cortical Input? *Journal of Vision*, 15(12):1287, 2015
- W.W. Sprague, E.A. Cooper and M.S Banks. Statistics of Retinal Image Blur During Natural Viewing. *Journal of Vision*, 15(12):766, 2015
- E.A. Cooper and A.M. Norcia. Perceived Depth in Natural Images Reflects Encoding of Low-Level Luminance Statistics. *Journal of Vision*, 14(10):1112, 2014
- W.W. Sprague, E.A. Cooper, J.-B. Durand, and M.S. Banks. Disparity Preferences in V1 Reflect the Statistics of Disparity in Natural Viewing. *Journal of Vision*, 14(10):1111, 2014
- A.M. Norcia, J.M. Ales, E.A. Cooper, and T. Weigand. Measuring Perceptual Differences between Compressed and Uncompressed Video Sequences using the Swept-Parameter Visual Evoked Potential. *Journal of Vision*, 14(10):649, 2014
- J. Yang, M. Andric, S. Duncan, A. Holt, U. Hasson, E.A. Cooper, and S.L. Small. Top-Down Modulation of Brain Networks During Discourse Comprehension. *Society for the Neurobiology of Language*, San Diego, CA, 2013
- E.A. Cooper, W.W. Sprague, I. Tomic, and M.S. Banks. Is Stereopsis Optimized for the Natural Environment? *Journal of Vision*, 13(9):612, 2013
- J. Yang, U. Hasson, E.A. Cooper, and S.L. Small. Influence of Selective Attention on Story Comprehension. *Cognitive Neuroscience Society Annual Meeting*, San Francisco, CA, 2013
- E.A. Cooper and M.S. Banks. Perception of Depth in Pictures when Viewing from the Wrong Distance. *Journal of Vision*, 12(9):896, 2012

- E.A. Cooper, E.A. Piazza, and M.S. Banks. Depth Compression and Expansion in Photographs. *Journal of Vision*, 11(11):65, 2011
- E.A. Cooper, J. Burge, and M.S. Banks. Do People of Different Heights Have Different Horopters? *Journal of Vision*, 10(7):372, 2010
- R.T. Held, E.A. Cooper, and M.S. Banks. Blur and Disparity Provide Complementary Distance Information for Human Vision. *Journal of Vision*, 10(7):57, 2010
- R.T. Held, E.A. Cooper, J. O'Brien, and M.S. Banks. Making Big Things Look Small: Blur Combined With Other Depth Cues Affects Perceived Size and Distance. *Journal of Vision*, 9(8):959, 2009
- E.A. Cooper, U. Hasson, and S.L. Small. Dimensions of Discourse: Brain Activation During the Processing of Temporal, Spatial, and Actional Information in Narrative. *Cognitive Neuroscience Society Annual Meeting*, New York, NY, 2007

INVITED TALKS

- Perceptual Science for Augmented Reality, *Brown University* 2021
- The Potential for Improving Impaired Vision with Augmented Reality, *UCB Learning in Retirement* 2020
- Perceptual Science for Augmented Reality, *UC Berkeley Institute of Cognitive and Brain Sciences* 2020
- Perceptual Science for Augmented Reality, *Northwestern University* 2020
- Perceptual Science for Augmented Reality, *Smith Kettlewell* 2020
- A Perceptual Eyebox for Augmented Reality, *SNAP* 2020
- Natural and Virtual 3D Vision, *UNR Big Data Summer School* 2020
- Understanding Visual Demands for Aquatic Animals used in Neuroscience Research, *Sussex Visions* 2020
- A Perceptual Eyebox for Augmented Reality, *Google* 2019
- A Perceptual Eyebox for Augmented Reality, *UC Berkeley Vive Center* 2019
- 3D Vision in Natural Environments, *UC Berkeley Neuroscience Bootcamp* 2019
- 3D Vision, *Cold Spring Harbor Laboratory: Vision Course* 2019
- Considering Individual Differences in Vision for AR/VR, *Magic Leap* 2019
- 3D Vision in Natural Environments, *UC Berkeley Institute of Cognitive and Brain Sciences* 2019
- 3D Vision in Natural Environments, *SUNY Optometry* 2019
- 3D Vision in Natural Environments, *Bay Area Vision Research Day* 2018
- Insights Across Animal Models, Computational Models, & Humans, *Computational Cognitive Neuroscience* 2018
- Using AR/VR to Better Understand Individual Differences in Vision, *Oculus* 2018
- The Potential for Improving Impaired Vision with Augmented Reality, *OSA Frontiers in Optics* 2017
- What 3D Scene Statistics Tell Us About 3D Vision, *Harvard Medical School* 2017
- Designing and Assessing VR/AR Displays to Increase User Inclusivity, *VSS Symposia* 2017
- What More can Natural Images Tell Us About ON and OFF Pathways? *Cosyne Workshop* 2017
- Designing and Assessing VR/AR Displays to Increase User Inclusivity, *Google* 2017
- Designing and Assessing VR/AR Displays to Increase User Inclusivity, *Stanford SCIEN* 2017
- What 3D Scene Statistics Tell Us About 3D Vision, *University of Pennsylvania* 2016
- What 3D Scene Statistics Tell Us About 3D Vision, *Rochester Institute of Technology* 2016
- What 3D Scene Statistics Tell Us About 3D Vision, *UW Madison* 2016
- What 3D Scene Statistics Tell Us About 3D Vision, *UT Austin NETI Workshop* 2016
- The Computational Demands of Biological Stereovision, *Massachusetts Institute of Technology* 2015
- The Visual Representation of Brights and Darks, *Italian Institute of Technology* 2015
- The Computational Demands of Biological Stereovision, *Middlebury College* 2015
- Creating Illusions of Depth, *Google* 2014
- Is Stereopsis Optimized for Our Natural Environment? *Bay Area Vision Research Day* 2013
- Is 3D Vision Optimized for Our Natural Environment? *Dartmouth College* 2013
- Is Stereopsis Optimized for Our Natural Environment? *Bay Area Society for Information Display* 2012
- The Perceptual Basis of Common Photographic Techniques, *Stanford University* 2012

TEACHING

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|---|-------------|
| UC Berkeley, VS 260D Seeing in Time, Space, and Color | Spring 2021 |
| UC Berkeley, VS 217 Oculomotor Function & Neurology | Spring 2021 |
| UC Berkeley, Neurosci 290A Neuroscience Research Design & Analysis (guest lecturer) | Fall 2020 |
| UC Berkeley, VS 260D Seeing in Time, Space, and Color | Spring 2020 |
| UC Berkeley, VS 217 Oculomotor Function & Neurology | Spring 2020 |
| UC Berkeley, Neurosci 290A Neuroscience Research Design & Analysis (guest lecturer) | Fall 2019 |
| UC Berkeley, VS 260D Seeing in Time, Space, and Color (guest lecturer) | Spring 2019 |
| Dartmouth College, Functional Neuroanatomy | Spring 2018 |
| Dartmouth College, Technology, Psychology & Neuroscience | Spring 2017 |
| Dartmouth College, Functional Neuroanatomy | Spring 2016 |
| UC Berkeley, MCB 61 Brain, Mind & Behavior (graduate student instructor) | Spring 2010 |
| UC Berkeley, MCB 163 Mammalian Neuroanatomy (graduate student instructor) | Fall 2008 |

FORMER ADVISEES

| | |
|--|-------------|
| Jonathan Huang, Undergraduate Senior Thesis Student (Computer Science) | 2015 – 2017 |
| Tim Tadros, Undergraduate Senior Thesis Student (Computer Science) | 2015 – 2017 |
| Irene Feng, Undergraduate Senior Thesis Student (Computer Science) | 2016 – 2017 |
| Max Kinateder, Postdoctoral Researcher | 2016 – 2018 |
| Thomas Yerxa, Undergraduate Senior Thesis Student (Physics) | 2018 – 2019 |
| Zeynep Başgöze, Postdoctoral Researcher | 2017 – 2020 |
| Tianhao Cai, Postdoctoral Researcher | 2018 – 2020 |

OTHER ACTIVITIES

UC Berkeley

| | |
|--|-------------|
| NIH/Nevada ENDURE Program, Faculty Facilitator | 2021 – |
| Vision Science Program, Postdoc Advisor | 2021 – |
| Center for Innovation in Vision and Optics Outreach Program, Coordinator | 2020 – |
| Fiat Lux Scholarship Program, Faculty Interviewer | 2020 – |
| Cognitive Science Major, Affiliated Faculty | 2019 – |
| Vision Science Student Outreach, Faculty Advisor | 2019 – |
| Center for Innovation in Vision and Optics, Co-Director | 2018 – |
| Institute of Cognitive & Brain Sciences, Faculty Member | 2018 – |
| Helen Wills Neuroscience Institute, Graduate Admissions Committee Member | 2020 – 2021 |
| Vision Science Graduate Program, Admissions Committee Member | 2019 – 2021 |
| Helen Wills Neuroscience Institute, Graduate Admissions Committee Member | 2010 – 2011 |
| Mind & Brain Night, After School Activity Night Coordinator | 2008 – 2012 |
| Helen Wills Neuroscience Institute, Speaker Series Committee Member | 2008 – 2010 |

External

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|---|-------------|
| Society for Information Display Applied Vision Subcommittee, Member | 2020 – |
| Females of Vision et al., Advisory Board Member | 2018 – |
| Community Resources for Science, Middle School Classroom Volunteer | 2008 – 2012 |