

## POSITIONS

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

## EDUCATION

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

## FELLOWSHIPS

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

## RESEARCH FUNDING

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 &amp; 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

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

- S.A. Cholewiak, Z. Başıoğlu, O. Cakmakci, D.M. Hoffman and E.A. Cooper. A Perceptual Eyebox for Near-eye Displays. *Optics Express*, in press
- 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. Başıoğlu, 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. Başıoğlu, 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. Başıoğlu, 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. Tasic 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

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

#### TEACHING

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 (guest lecturer)	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 Bağgöze, Postdoctoral Researcher	2017 – 2020
Tianhao Cai, Postdoctoral Researcher	2018 – 2020

#### OTHER ACTIVITIES

##### *UC Berkeley*

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 – 2020
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*

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