Sara Stokes Patterson, Ph.D.

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EDUCATION

09.2015 – 07.2020 Ph.D. in Neuroscience, University of Washington
Thesis: Structure and function of S-cone opponent circuits in the primate retina

08.2010 – 05.2014 B.S. in Neuroscience, Dickinson College
Honors in Neuroscience, Minor in Psychology

RESEARCH EXPERIENCE

09.2024 – Present *Assistant Professor*, University of Rochester Medical Center
Flaum Eye Institute and Del Monte Institute for Neuroscience

08.2020 – 09.2024 *Postdoctoral Fellow*, University of Rochester
Lab: David Williams, Center for Visual Science
Ganglion cell classification with adaptive optics, calcium imaging and circuit tracing

09.2016 – 07.2020 *Graduate Student*, University of Washington
Lab: Jay Neitz, Department of Ophthalmology
Primate retinal circuitry with electrophysiology and electron microscopy

08.2014 – 08.2015 *Post-baccalaureate IRTA*, National Institutes of Health
Lab: Ralph Nelson, Neural Circuits Unit, NINDS
Zebrafish retinal development using ERG and confocal microscopy

11.2010 – 05.2014 *Research Assistant*, Dickinson College
Lab: Jonathan Page, Department of Psychology
Role of V1 in mental imagery with visual evoked potentials and EEG

06.2013 – 08.2013 *Summer Intern*, National Institutes of Health
Lab: Ralph Nelson, Neural Circuits Unit, NINDS
Photoreceptor function assessment in transgenic zebrafish lines

TEACHING EXPERIENCE

07.2025 *Instructor*, Cold Spring Harbor Vision Course
Lecture on career development

07.31 – 08.04.2023 *Guest Instructor*, International Color Vision Society Summer School
Lecture on retinal processing of color, mentor for projects and outreach activities

Spring 2023 *Co-Instructor*, University of Rochester
OPTICS 489: The Retina-Brain Interface

Fall 2017 *Teaching Assistant*, University of Washington
NBIO 302: Introduction to Systems Neurobiology

ADDITIONAL TRAINING

06.2019	Cold Spring Harbor Vision Course
08.2018	Allen Institute Dynamic Brain Summer Course in Computational Neuroscience

FUNDING

Individual Grants

09.2024 – 09.2027	R00-EY035323	National Eye Institute, NIH
	Title: Linking Rare Primate Ganglion Cells to Downstream Visual Functions	
	PI: Patterson, University of Rochester	
07.2023 – 08.2024	K99-EY035323	National Eye Institute, NIH
	Title: Linking Rare Primate Ganglion Cells to Downstream Visual Functions	
	PI: Patterson, University of Rochester	
06.2021 – 06.2023	F32-EY032318	National Eye Institute, NIH
	Title: Foveal Ganglion Cell Function in the Living Eye	
	PI: Patterson, University of Rochester	

Positions on Institutional Training Grants

08.2020 – 06.2021	T32-EY007125	National Eye Institute, NIH
	PI: Tadin, University of Rochester	
06.2018 – 06.2019	T32-EY007031	National Eye Institute, NIH
	PI: Pasupathy, University of Washington	
06.2016 – 06.2017	T32-NS099578	National Institute of Neurological Disorders & Strokes
	PI: Sullivan, University of Washington	

Contributions to Funded Grants

03.2022 – 03.2025	FA9550-22-1-0167	Air Force Office of Scientific Research (MURI)
	Title: Single Retinal Ganglion Cells and Sensation	
	PI: Williams, University of Rochester	
03.2022 – 03.2023	FA9550-22-1-0044	Air Force Office of Scientific Research (DURIP)
	Title: Super Resolution Adaptive Optics Ophthalmoscope for Revealing the Retinal Code	
	PI: Williams, University of Rochester	
01.2021 – 11.2025	R01-EY031467	National Eye Institute, NIH
	Title: High Resolution Mapping of Foveal Receptive Fields in the Living Primate Eye	
	PI: Williams/Merigan, University of Rochester	
02.2018 – 01.2023	R01-EY027859	National Eye Institute, NIH
	Title: Linking Retinal Circuits to Perception	
	PI: Neitz, University of Washington	

AWARDS

10.2022	Young Investigator Award, Optica Fall Vision Meeting
09.2021	Steadman Family Postdoctoral Prize for Interdisciplinary Research
07.2019	Patmalnieks Award for Best Student Talk, International Color Vision Society Meeting
07.2019	International Color Vision Society Travel Grant
05.2019	Association for Research in Vision and Ophthalmology Travel Grant
09.2018	Best Collaboration Award, Allen Institute Dynamic Brain Summer Course
05.2015	Post-baccalaureate Poster Award and Travel Grant, NINDS Annual Symposium
08.2014	McAndrews Award for Outstanding Female Scholar-Athlete, Dickinson College
08.2013	NINDS Exceptional Summer Intern Award

05.2013 Psi Chi National Honor Society
05.2012 Outstanding Research Poster Award, Dickinson Science Research Symposium
01.2011 Alpha Lambda Delta Freshman Honor Society

SERVICE

Center for Visual Science Symposium Committee, University of Rochester
Postdoctoral Representative, Center for Visual Science Executive Committee, University of Rochester
Founder, Center for Visual Science Postdoctoral Seminar Series, University of Rochester
NeuroYES Postdoctoral Seminar Series Committee, University of Rochester
Center for Visual Science Retreat Committee, University of Rochester
Mentor, Ophthalmology Summer Scholars Internship Program, University of Washington
Internal Seminar Coordinator, Neuroscience Seminar Series, University of Washington
Neuroscience Outreach Group, University of Washington
Mentor, Expand Your Horizons, American Association of University Women
Neuroscience Student Representative, Danish Institute for Study Abroad
Student Wellness Committee, Dickinson College

REVIEW

Biomedical Optics Express, Current Eye Research, Investigative Ophthalmology and Vision Science, Journal of Comparative Neurology, Journal of Modern Optics, Journal of Neuroscience, Nature Communications, Perception, Proceedings of the National Academy of Sciences, Vision Research

PUBLICATIONS

Key: *co-first author, †corresponding author, mentee

19. Godat, T., Kohout, K., Parkins, K., Yang, Q., Strazzeri, J.M., McGregor, J.E., Merigan, W.H., Williams, Patterson, S.S.† (2024) Cone-opponent ganglion cells in the primate fovea tuned to non-cardinal color directions. *Journal of Neuroscience*, 44(18), e1738232024
    - New Insights on How the Retina Processes Color. *Journal of Neuroscience*, 44(18), etwij44182024
18. Patterson, S.S.*, Girresch, R.J.*, Mazzaferri, M.A., Bordt, A.S., Piñon-Teal, W.L., Jesse, B.D., Perera, D.W., Schlepphorst, M.A., Kuchenbecker, J.A., Chuang, A.Z., Neitz, J., Marshak, D.W., Ogilvie, J.M. (2024) Synaptic origins of the complex receptive field structure in primate smooth monostratified retinal ganglion cells. *ENeuro*, 11(1)
17. Godat, T., Cottaris, N., Patterson, S.S., Kohout, K., Parkins, K., Yang, Q., Strazzeri, J.M., McGregor, J.E., Brainard, D.H., Merigan, W.H., Williams, D.R. (2022) In vivo chromatic and spatial tuning of foveolar retinal ganglion cells in Macaca fascicularis. *PLoS ONE*, 17(11), e0278261
16. Nelson, R.F., Balraj, A., Suresh, T., Elias, L.J., Yoshimatsu, T., Patterson, S.S. (2022) Over-expression of thyroid hormone receptor β2 in zebrafish changes the distribution of cone spectral signals. *eNeuro*, 9(6)
15. Bordt, A.S., Patterson, S.S., Kuchenbecker, J.A., Mazzaferri, M.A., Yearick, J.N., Yang, E.R., Ogilvie, J.M., Neitz, J., Marshak, D.W. (2022) Synaptic inputs to displaced intrinsically photosensitive ganglion cells in macaque retina. *Scientific Reports*, 12, 15160
14. Patterson, S.S.†, Bembry, B.N., Mazzaferri, M.A., Neitz, M., Rieke, F., Soetedjo, R., Neitz, J. (2022) Conserved circuits for direction selectivity in the primate retina. *Current Biology*, 32(11), 2529-2538
13. Patterson, S.S., Neitz, J., Neitz, M. (2022) S-cone circuits in the primate retina for non-image-forming vision. *Seminars in Cell and Developmental Biology*, 126, 66-70

12. Bordt, A.S., Patterson, S.S., Girresch, R.J., Perez, D., Tseng, L., Anderson, J.R., Mazzaferri, M.A., Kuchenbecker, J.A., Gonzales-Rojas, R., Roland, A., Tang, C., Puller, C., Chuang, A.Z., Ogilvie, J.M., Neitz, J., Marshak, D.W. (2021) Synaptic inputs to broad thorny ganglion cells in macaque retina. *Journal of Comparative Neurology*, 529(11), 3098-3111
11. Patterson, S.S.†, Mazzaferri, M.A., Bordt, A.S., Chang, J., Neitz, M., Neitz, J.† (2020) Another Blue-ON ganglion cell in the primate retina. *Current Biology*, 30(23), R1409-R1410
10. Neitz, A., Jiang, X., Kuchenbecker, J.A., Domdei, N., Harmening, W., Yan, H., Yeonan-Kim, J., Patterson, S.S., Neitz, M., Neitz, J., Coates, D., Sabesan, R. (2020) The effect of cone spectral topography on chromatic detection sensitivity. *Journal of the Optical Society of America A*, 37(4), A245-A255
20. Patterson, S.S., Kuchenbecker, J.A., Anderson, J.R., Neitz, M., Neitz, J. (2020) A color vision circuit for non-image-forming vision in the primate retina. *Current Biology*, 30(7), 1269-1274
    - Rivera, A., Huberman, A. (2020) Coloring time: A chromatic retinal circuit encodes sunrise and sunset for the brain. *Current Biology*, 30, R316-R318
8. Neitz, M., Patterson, S.S., Neitz, J. (2020) The genetics of cone opsin based vision disorders. In: *The Senses: A Comprehensive Reference*, 2nd edition, Vol. 1, pg. 493-507
7. Patterson, S.S.*, Bordt, A.S.*, Girresch, R.J., Linehan, C.M., Bauss, J., Yeo, E., Perez, D., Tseng, L., Navuluri, S., Harris, N.B., Matthews, C., Anderson, J.R., Kuchenbecker, J.A., Manookin, M.B., Ogilvie, J.M., Neitz, J., Marshak, D.W. (2019) Wide-field amacrine cell inputs to ON parasol ganglion cells in macaque retina. *Journal of Comparative Neurology*, 528(9), 1588-1598
6. Patterson, S.S., Neitz, M., Neitz, J. (2019) Reconciling color vision models with midget ganglion cell receptive fields. *Frontiers in Neuroscience*, 13, 865
5. Patterson, S.S., Kuchenbecker, J.A., Anderson, J.R., Bordt, A.S., Marshak, D.W., Neitz, M., Neitz, J. (2019) An S-cone circuit for edge detection in the primate retina. *Scientific Reports*, 9, 11913
4. Neitz, M., Patterson, S.S., Neitz, J. (2019) Photopigment genes, cones and color: Disrupting the splicing code causes a diverse array of vision disorders. *Current Opinion in Behavioral Sciences*, 30, 60-66
3. Nelson, R.F., Balraj, A., Suresh, T., Torvund, M., Patterson, S.S. (2019) Strain variations in opsin peaks *in situ* during zebrafish development. *Visual Neuroscience*, 36, E010
2. Bordt, A.S., Perez, D., Tseng, L., Liu, W.S., Neitz, J., Patterson, S.S., Famiglietti, E.V., Marshak, D.W. (2019) Synaptic inputs and connectivity of a sparsely branched ganglion cell in rabbit retina. *Visual Neuroscience*, 36, E004
1. Manookin, M.B., Patterson, S.S., Linehan, C.M. (2018) Neural mechanisms mediating motion sensitivity in parasol ganglion cells of the primate retina. *Neuron*, 97, 1327-1340
    - Murphy-Baum, B.L., Awatramani, G.B. (2018) An old neuron learns new tricks: Redefining motion processing in the primate retina. *Neuron*, 97, 1205-1207

PREPRINTS

- Baez, H.C., LaPorta, J.M., Walker, A.D., Fischer, W.S., Hollar, R., Patterson, S.S., DiLoreto, D.A., Gullapalli, V., McGregor, J.E. (2024) Inner limiting membrane peel extends in vivo calcium imaging of retinal ganglion cell activity beyond the fovea in non-human primate. Available on *bioRxiv*
- Patterson, S.S., Neitz, M., Neitz, J. (2019) The spectral sensitivity of neurons mediating black and white. Available on *bioRxiv*

PATENT APPLICATIONS

- 17/612,061: "Systems, Methods, and Devices for Stimulating Circadian Rhythms"

CONFERENCE PROCEEDINGS

- Teverovsky, D., Murphy, P., Parkins, K., Bernstein, L., Patterson, S.S., Merigan, W.H., Bentley, J.L., Williams, D.R. (2024) A dual adaptive optics instrument for testing the role of retinal ganglion cells in vision. *Ophthalmic Technologies XXXIV*, 12824, 158-165

OTHER PUBLICATIONS

- Patterson, S.S. (2023) Spotlight in Optics Summary for Martin (2023) The Verriest Lecture: Pathways to color in the eye and brain. *Journal of the Optical Society of America A*, 40(3), V1-V10

TALKS

08.20.2024	Telias Lab Summer Journal Club Series (virtual)
08.15.2024	33rd Center for Visual Science Symposium. Rochester, NY
06.14.2024	68th Rochester Ophthalmology Conference. Rochester, NY
11.11.2023	Society for Neuroscience Annual Meeting, Minisymposium. Washington, DC
04.23.2023	Association for Research in Vision and Ophthalmology. New Orleans, LA
10.21.2022	Optica Fall Vision Meeting. Rochester NY
10.13.2022	AFOSR Cognitive and Computational Neuroscience Program Review. Arlington, VA
09.16.2022	NINDS Festschrift for Ralph Nelson. Bethesda, MD
08.13.2022	Optica Summer Data Blitz. Virtual
07.18.2022	Air Force Office of Scientific Research MURI Workshop. Virtual
07.07.2022	Integrative Seminar in Chronobiology and Visual Neuroscience. Munich, Germany (virtual)
06.23.2022	FASEB Retinal Neurobiology and Visual Processing. Southbridge, MA
05.01.2022	Association for Research in Vision and Ophthalmology. Denver, CO
03.25.2022	Center for Visual Science Annual Retreat. Rochester, NY
10.14.2022	OSA Fall Vision Meeting. Seattle, WA (virtual)
05.03.2022	Association for Research in Vision and Ophthalmology. Virtual
12.11.2020	AOIP Young Investigator Seminar Series. Milwaukee, WI (virtual)
05.05.2020	University of Washington Spring Neuroscience Retreat. Seattle, WA
07.06.2020	International Color Vision Society Meeting. Riga, Latvia
04.28.2019	Association for Research in Vision and Ophthalmology. Vancouver, BC
04.10.2019	Janelia Farm Color Vision: Circuits and Behavior. Ashburn, VA
05.07.2018	Association for Research in Vision and Ophthalmology. Honolulu, HI
10.14.2017	OSA Fall Vision Meeting. Washington, DC

OPEN SOURCE SOFTWARE

- SBFSEM-tools: Data analysis and 3D visualization for serial electron microscopy (RRID: SCR_017350)
- AOData: Framework for managing data, metadata and code for adaptive optics imaging experiments
- OCT-tools: Semi-automatic segmentation of choroid from OCT
- h5tools-matlab: Toolbox of high-level functions for working with HDF5 files in MATLAB

MENTORSHIP

2020 – Present	Kendall Kohout, UR undergraduate Won Makous prize for undergraduate research; co-author on 2022 *PLoS ONE* paper, second author on paper in revision at *Journal of Neuroscience*; first-author 2022 ARVO abstract, co-author on 2022 ARVO & SFN abstracts
2020	Alexis Fiedler, UR neuroscience rotation student (Majewska lab)
2019 – 2020	Briyana Bembry, Research technician (UW) Co-author on 2022 *Current Biology* paper; co-author on 2021 ARVO abstract
2019 – 2020	Isabelle Rieke-Wey, High school student (UCLA) Co-author on 2020 ARVO abstract
2019	Beia Giebel, High school student (Scripps) Co-author on 2020 ARVO abstract
2018 – 2020	Jolie Chang, High school student (UW) Co-author on 2020 *Current Biology* paper; co-author on 2020 ARVO abstract
2018 – 2020	Rebecca Girresch, St. Louis University master's student Co-first author on 2023 paper in *eNeuro*, co-author on 2021 *Journal of Comparative Neurology* paper; two first-author and two co-author ARVO abstracts
2018 – 2020	Marcus Mazzaferri, Research technician Co-author on 2020 *Current Biology* paper, 2022 *Current Biology* paper, 2022 *Journal of Comparative Neurology* paper and 2023 *eNeuro* paper; two first-author and two co-author ARVO abstracts
2018	Pooja Thorali, High school student (UW)
2017	Marcela Estrada, UW Ophthalmology resident (Assistant Professor at UC Davis)
2016 – 2019	Conor Linehan, UW undergraduate (UW-Spokane MD program) Co-author on two papers: 2019 *Journal of Comparative Neurology* and 2018 *Neuron*; co-author on 2018 ARVO abstract
2015	Tara Suresh, High school student (Washington University BA-MD program) Won NINDS Outstanding Summer Intern Award; co-author on 2019 *Visual Neuroscience* and 2022 *eNeuro* paper, co-author on two conference abstracts
2013 – 2014	Kaitlyn Gregory, Dickinson College undergraduate (New England College Optometry)
2013 – 2014	Catherine Liu, Dickinson College undergraduate (Harvard Law School)
2013 – 2014	Taylor Ludman, Dickinson College undergraduate (Johns Hopkins MPH program)

CONFERENCE ABSTRACTS

34. Patterson, S.S. (2023) Retinal ganglion cell diversity in the primate fovea. *Investigative Ophthalmology & Visual Science*, 64(88), 512
33. Baez, H.C., LaPorta, J.M., Walker, A.D., Fischer, W.S., Hollar, R., Patterson, S.S., DiLoreto, D.A., Gullapalli, V., McGregor, J.E. (2023) Inner limiting membrane (ILM) peel extends in vivo calcium imaging of retinal ganglion cell (RGC) activity beyond the fovea in non-human primate. *Investigative Ophthalmology & Visual Science*, 64(8), 22
32. Ogilvie, J.M., Hamwi, C.M., Karthikeyan, S., Koch, A.M., Lee, S.H., Mazzaferri, M.A., Girresch, R.J., Patterson, S.S., Bordt, A.S., Kuchenbecker, J.A., Marshak, D.W., Neitz, J. (2023) Giant bipolar cells form synaptic circuits with motion sensitive cells in macaque retina. *Investigative Ophthalmology & Visual Science*, 64(8), 2875

31. Mazzaferri, M.A., Yang, E., Bordt, A.S., Patterson, S.S., Kuchenbecker, J.A., Neitz, M., Neitz, J. (2023) The narrow thorny is an S-ON S-OFF ganglion cell in the primate retina. *Investigative Ophthalmology & Visual Science*, 64(8), 4381
30. Patterson, S.S., Godat, T., Kohout, K., Yang, Q., Merigan, W., Williams, D.R. (2023) Spectral, spatial and temporal response properties of foveal ganglion cells. *Journal of Vision*, 23(11), 9
    a. Received Optica Fall Vision Meeting Young Investigator Award
29. Godat, T., Cottaris, N., Patterson, S.S., Kohout, K., Parkins, K., Yang, Q., Strazzeri, J.M., McGregor, J.E., Brainard, D.H., Merigan, W.H., Williams, D.R. (2023) In vivo calcium imaging of macaque foveolar retinal ganglion cells reveals spatiochromatic receptive field properties. *Journal of Vision*, 23(11), 11
28. Patterson, S.S., Godat, T., Yang, Q., Merigan, W.H., Williams, D.R. (2022) Receptive field diversity in the primate foveal retina. *Investigative Ophthalmology & Visual Science*, 63(7), 4561
27. Kohout, K., Patterson, S.S., Walker, A., Strazzeri, J., Williams, D.R., Merigan, W.H. (2022) In vivo and ex vivo characterization of macaque retinal ganglion cells projecting to the superior colliculus. *Investigative Ophthalmology & Visual Science*, 63(7), 4573
26. Usamani, H., Patterson, S.S., Giarmarco, M.M., Neitz, M., Neitz, J., Kuchenbecker, J.A. (2022) Electrophysiological evidence for GABA-mediated feed-forward as a major cone signal ON pathway. *Investigative Ophthalmology & Visual Science*, 63(7), 4561
25. Marshak, D.W., Bordt, A.S., Patterson, S.S., Kuchenbecker, J.A., Neitz, J. (2022) OFF bipolar cell inputs to ipRGCs in macaque retina. *Investigative Ophthalmology & Visual Science*, 63(7), 45
24. Godat, T., Cottaris, N.P., Patterson, S.S., Kohout, K., Parkins, K., Yang, Q., Strazzeri, J.M., McGregor, J.E., Brainard, D.H., Merigan, W.H., Williams, D.R. (2022) In vivo calcium imaging reveals L/M opponent ganglion cells consistent with single cone receptive field centers at the macaque center fovea. *Investigative Ophthalmology & Visual Science*, 63(7), 4573
23. Patterson, S.S. (2021) The S-cone connectome of the primate retina. *Journal of Vision*, 22(3), 47
22. Patterson, S.S., Bembry, B.N., Mazzaferri, M.A., Neitz, M., Rieke, F., Soetedjo, R., Neitz, J. (2021) Conserved neural mechanisms for direction selectivity in the primate retina. *Investigative Ophthalmology & Visual Science*, 62 (8), 1460-1460
21. Mazzaferri, M.A., Patterson, S.S., Bordt, A., Kuchenbecker, J.A., Rezeanu, D., Barborek, R., Puller, C., Neitz, M., Neitz, J. (2021) The stellate varicose amacrine cell is positioned to provide a second layer of inhibition specific to the primate midget system. *Investigative Ophthalmology & Visual Science*, 62(8), 1458-1458
20. Neitz, J., Patterson, S.S., Chang, J., Giebel, B.Q., Rieke-Wey, I., Neitz, M. (2020) Another blue-ON ganglion cell in the primate retina. *Investigative Ophthalmology & Visual Science*, 61(7), 2338
19. Marshak, D.W., Bordt, A.S., Patterson, S.S., Girresch, R.J., Puller, C., Ogilvie, J.M., Neitz, J. (2020) Synaptic inputs to broad thorny ganglion cells from macaque retina. *Investigative Ophthalmology & Visual Science*, 61(7), 5139
18. Girresch, R.J., Patterson, S.S., Bordt, A.S., Anderson, J.R., Kuchenbecker, J.A., Neitz, J., Marshak, D.W., Ogilvie, J.M. (2020) Synaptic input to parasol and smooth monostratified ganglion cells in central macaque retina. *Investigative Ophthalmology & Visual Science*, 61(7), 4625
17. Patterson, S.S., Kuchenbecker, J.A., Anderson, J.R., Neitz, M., Neitz, J. (2019) An S-cone amacrine cell in the primate retina sets the circadian clock at sunrise and sunset. *Investigative Ophthalmology & Visual Science*, 60(9), 1373
16. Girresch, R.J., Patterson, S.S., Bordt, A.S., Anderson, J.R., Kuchenbecker, J.A., Ogilvie, J., Neitz, J., Manookin, M.B., Marshak, D.W. (2019) Parasol and smooth monostratified retinal ganglion cells of the primate retina. *Investigative Ophthalmology & Vision Science*, 60(9), 5274
15. Kuchenbecker, J.A., Patterson, S.S., Neitz, M., Neitz, J. (2019) The role of video display viewing in myopia. *Investigative Ophthalmology & Vision Science*, 60(9), 4267

14. Patterson, S.S., Kuchenbecker, J.A., Doebley, A., Neitz, M., Neitz, J. (2018) The normal human visual system extracts about 1% of the hues possible from the L, M and S cones compared to a perfect hue encoder. *Journal of Vision*, 19(8), 81
13. Kuchenbecker, J.A., Patterson, S.S., Neitz, M., Neitz, J., Manookin, M.B. (2018) Spectral density curves of the human lens inaccurate due to increased Rayleigh scatter in post-mortem eyes. *Journal of Vision*, 19(8)
12. Neitz, A., Jiang, X., Kuchenbecker, J.A., Patterson, S.S., Doebley, A., Neitz, M., Neitz, J., Sabesan, R. (2018) High acuity vision corrected for chromatic and achromatic aberrations is associated with color discrimination without red-green or blue-yellow sensations. *Journal of Vision*, 19(8), 12
11. Patterson, S.S., Kuchenbecker, J.A., Anderson, J.R., Linehan, C.M., Neitz, J. (2018) S-cone inputs to midget retinal ganglion cells and their implications for color vision. *Investigative Ophthalmology & Vision Science*, 59(9), 5691
10. Nelson, R., Balraj, A., Suresh, T., Torvund, M., Patterson, S.S. (2018) A computational method for determining opsin peak absorbance wavelengths from zebrafish PIII ERG responses. *Investigative Ophthalmology & Vision Science*, 59(9), 600
9. Kuchenbecker, J.A., Patterson, S.S., Neitz, M., Neitz, J. (2018) Studying S-cone inputs to hue perception using a DLP based projector integrated with a spectrally tunable light source. *Investigative Ophthalmology & Vision Science*, 59(9), 4050
8. Neitz, A., Jiang, X., Patterson, S.S., Doebley, A., Neitz, M., Neitz, J., Sabesan, R. (2018) Color detection without hue perception. *Investigative Ophthalmology & Vision Science*, 59(9), 5962
7. Patterson, S.S., Kuchenbecker, J.A., Anderson, J.R., Neitz, M., Neitz, J., Manookin, M.B. (2017) Differences between S-OFF and L/M-OFF contacts inform the role of OFF midget bipolar cells in the perception of yellow. *Journal of Vision*, 17(15), 15
6. Kuchenbecker, J.A., Patterson, S.S., Neitz, M., Neitz, J. (2017) Best of both worlds? A Maxwellian view visual stimulator incorporating a DLP spatiotemporal light driver with a programmable tunable spectrum source for studying human color vision. *Journal of Vision*, 17(15), 45
5. Patterson, S.S., Yoshimatsu, T., Suresh, T., Nelson, R.F. (2016) The role of thyroid hormone receptor β2 (trβ2) in development of photoreceptor opsin and bipolar cell connectivity. *Investigative Ophthalmology & Vision Science*, 57(12), 587
4. Kuchenbecker, J.A., Patterson, S.S., Manookin, M.B., Buhr, E., Neitz, M., Neitz, J. (2016) An ex vivo electroretinogram to study spectral mechanisms and cone pathways in the retina. *Investigative Ophthalmology & Vision Science*, 57(12)
3. Patterson, S.S., Nelson, R.F. (2015) Spectral properties of a zebrafish transgenic with L-opsin expression in all cone types. *Investigative Ophthalmology & Vision Science*, 56(7), 994
2. Nelson, R.F., Abraham, R.R., Patterson, S.S., Syrykowski, J.L., Li, L., Burgess, H.A., Connaughton, V.P. (2014) Zebrafish transgenic reports musashi1 (msi1) in retinal neurons. *Investigative Ophthalmology & Vision Science*, 55(13), 2369
1. Vitrano, D., Emery, A.C., Patterson, S.S., Page, J.W. (2013) Imagine that! Comparing brain responses to imagining and perceiving novel stimuli. *Journal of Cognitive Neuroscience*, 264

CONFERENCE PRESENTATIONS

21. Patterson, S.S., Godat, T., Kohout, K., Yang, Q., Merigan, W.H., Williams, D.R. "Functional classification of foveal ganglion cells in the living primate eye." *Society for Neuroscience Meeting*, November 2022
20. Patterson, S.S., Godat, T., Kohout, K., Yang, Q., Merigan, W.H., Williams, D.R. "Functional classification of foveal ganglion cells in the living primate eye." *FASEB Retinal Physiology & Visual Processing*, June 2022

19. Godat, T., Cottaris, N.P., Patterson, S.S., Kohout, K., Parkins, K., Yang, Q., Strazzeri, J.M., McGregor, J.E., Brainard, D.H., Merigan, W.H., Williams, D.R. "In vivo calcium imaging reveals L/M opponent ganglion cells consistent with single cone receptive fields at the macaque foveal center." *FASEB Retinal Neurobiology and Visual Processing,* June 2022
18. Cai, Y., Williams, D.R., Fienup, J.R., Patterson, S.S., McGregor, J.E., Merigan, W.H. "Image scanning microscopy for *in vivo* ganglion cell classification." *Center for Visual Science Annual Retreat*, March 2022
17. Baez, H., Xu, Z., Kunala, K., Patterson, S.S., Gullapalli, V., DiLoreto, D., McGregor, J.E. "Accelerating photoreceptor replacement therapy with *in vivo* cellular imaging in primates." *Center for Visual Science Annual Retreat*, March 2022
16. Godat, T., Cottaris, N.P., Patterson, S.S., Kohout, K., Parkins, K., Yang, Q., Strazzeri, J.M., McGregor, J.E., Brainard, D.H., Merigan, W.H., Williams, D.R. "In vivo calcium imaging reveals L/M opponent ganglion cells consistent with single cone receptive fields at the macaque foveal center." *Center for Visual Science Annual Retreat*, March 2022
15. Kohout, K., Patterson, S.S., Walker, A., Strazzeri, J.M., Williams, D.R., Merigan, W. "In vivo and ex vivo characterization of macaque ganglion cells projecting to the superior colliculus." *Center for Visual Science Annual Retreat*, March 2022
14. Patterson, S.S., Neitz, M., Neitz, J. "The neural substrates encoding black, white and hue sensations." *International Color Vision Society*, July 2019
    - Received Latvijas Universitates Patmalnieks Award
13. Sabesan, R., Neitz, A., Jiang, X., Kuchenbecker, J., Patterson, S.S., Neitz, M., Neitz, J., Coates, D. "Effect of cone spectral topography on achromatic and chromatic detection sensitivity." *International Color Vision Society Meeting*, July 2019
12. Patterson, S.S., Kuchenbecker, J.A., Doebley, A., Neitz, M., Neitz, J. "The human visual system extracts 1% of the hues possible compared to a perfect hue encoder." *Gained In Translation Meeting*, September 2018
11. Estrada, M., Patterson, S.S., Linehan, C.M., Neitz, M., Neitz, J. "Amacrine cell inputs to the S-cone pathway." *Gained In Translation Meeting*, September 2018
10. Patterson, S.S., Kuchenbecker, J.A., Manookin, M.B., Neitz, M., Neitz, J. (2018) "Spatial, spectral and directional information in the small bistratified ganglion cell." *FASEB Retinal Physiology and Visual Processing*, July 2018
    - Selected for short "Data Blitz" talk
9. Patterson, S.S., Neitz, M., Neitz, J., Manookin, M.B. "Midget ganglion cell circuits for achromatic and hue sensations." *Gained in Translation Meeting*, September 2016
8. Patterson, S.S., Kuchenbecker, J., Neitz, M., Neitz, J., Manookin, M. "Subtypes of midget retinal ganglion cell in primate retina and their roles in color vision." *FASEB Retinal Physiology and Visual Processing*, July 2016
7. Patterson, S.S., Suresh, T., Yoshimatsu, T., Nelson, R.F. (2015) Development of cone opsin expression in a transgenic line with crx-driven trβ2 expression." *Society for Neuroscience Annual Meeting*, November 2015
6. Patterson, S.S., Nelson, R.F. "Spectral properties of a zebrafish transgenic with L-opsin expression in all cone types." *NINDS Annual Research Symposium*, May 2015
    - Received NINDS Post-baccalaureate Poster Award
5. Patterson, S.S., Cohen, P.M., Strykowski, J.L., Burgess, H.A., Nelson, R.F. "Effects of Musashi1 in zebrafish retinal development: disruption of UV cone mosaic and ERG sensitivity." *National Institutes of Health Summer Poster Day*, August 2013
    - Received NINDS Outstanding Summer Intern Award
4. Patterson, S.S. "Blue color vision as a measure of dopamine levels among ADHD subtypes." *Dickinson College 29th Annual Science Research Symposium*, May 2014
    - Received Departmental Honors in Neuroscience

3. Gregory, K.A., Ludman, T., Liu, K.X., Patterson, S.S., Page, J.W. "Context and rapid discrimination." *Dickinson College 29th Annual Science Research Symposium*, May 2014
2. Patterson, S.S. "Using synesthesia to study the role of color opponent process pathways in mental imagery." *Dickinson College Independent Psychology Research Symposium*, December 2013
1. Klyus, J., Norato, G., Patterson, S.S. "Developing algorithms to detect pain with EEG." *Dickinson College 27th Annual Science Research Symposium*, December 2012
    - Received Outstanding Research Poster Award

PRESS

- "Why do we see colors that aren't there?" – Live Science interview [link]
- "Why can't we see colors well in the dark?" – Live Science interview [link]
- "Are these newly found rare cells a missing link in color perception?" – UR press release for Godat et al (2024) *Journal of Neuroscience* [link]
- "Let there be circadian light" – UW press release for Patterson et al (2020a) *Current Biology* [link]