

CURRICULUM VITAE

Joseph J. Carroll, Ph.D.
Richard O. Schultz / Ruth Works Professor in Ophthalmology
Professor of Biophysics
Professor of Cell Biology, Neurobiology, & Anatomy
Professor of Biomedical Engineering
The Medical College of Wisconsin

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- (3) **PLACE OF BIRTH:** Milwaukee, Wisconsin

- (4) **CITIZENSHIP:** U.S.A. & Ireland

- (5) **EDUCATION:**
08/1993 – 05/1997- B.S., Human Biology, University of Wisconsin, Green Bay, WI
07/1998 – 05/2002- Ph.D., The Medical College of Wisconsin, Milwaukee, WI

- (6) **POSTGRADUATE TRAINING AND FELLOWSHIP APPOINTMENTS:**
06/2002 – 12/2002 – Postdoctoral Fellow, Cell & Developmental Biology, The Medical
College of Wisconsin, Milwaukee, WI
01/2003 – 03/2006 – Postdoctoral Fellow, Center for Visual Science, University of
Rochester, Rochester, NY

- (8) **FACULTY APPOINTMENTS:**
04/2006 – 07/2010 – Assistant Professor, Department of Ophthalmology, The Medical
College of Wisconsin, Milwaukee, WI
04/2006 – 07/2010 – Assistant Professor, Department of Biophysics, The Medical
College of Wisconsin, Milwaukee, WI

06/2008 – 07/2011 – Assistant Professor, Department of Cell Biology, Neurobiology, & Anatomy, The Medical College of Wisconsin, Milwaukee, WI
 07/2010 – 07/2015 – Associate Professor, Departments of Ophthalmology and Biophysics, The Medical College of Wisconsin, Milwaukee, WI
 07/2011 – 07/2015 – Associate Professor, Department of Cell Biology, Neurobiology, & Anatomy, The Medical College of Wisconsin, Milwaukee, WI
 07/2011 – 07/2015 – Adjunct Associate Professor, Department of Biomedical Engineering, Marquette University, Milwaukee, WI
 07/2015 – 12/2016 – Adjunct Professor, Department of Biomedical Engineering, Marquette University, Milwaukee, WI
 10/2013 – present – Richard O. Schultz / Ruth Works Professor in Ophthalmology, The Medical College of Wisconsin, Milwaukee, WI
 10/2013 – present – Honorary Professor of University College London, Institute of Ophthalmology, UCL, London, ENGLAND
 07/2015 – present – Professor, Departments of Ophthalmology, Biophysics, and Cell Biology, Neurobiology, & Anatomy, The Medical College of Wisconsin, Milwaukee, WI
 12/2016 – present – Professor, Department of Biomedical Engineering, The Medical College of Wisconsin / Marquette University, Milwaukee, WI

(9) RESEARCH LEADERSHIP/ADMINISTRATIVE APPOINTMENTS:

01/2009 – present – Director, Core Image Analysis Module, Department of Ophthalmology, Medical College of Wisconsin, Milwaukee, WI
 07/2009 – 11/2016 – co-Director, Advanced Ocular Imaging Program, Department of Ophthalmology, Medical College of Wisconsin, Milwaukee, WI
 11/2016 – present – Director, Advanced Ocular Imaging Program, Department of Ophthalmology, Medical College of Wisconsin, Milwaukee, WI
 01/2014 – present – Director, Core Grant for Vision Research, Department of Ophthalmology, Medical College of Wisconsin, Milwaukee, WI

(15) AWARDS AND HONORS:

05/2001 – Retina Research Foundation Travel Award, 2001 ARVO Annual Meeting
 06/2001 – Course Participant & Scholarship Recipient, Structure, Function and Development of the Visual System – Cold Spring Harbor Laboratory, Cold Spring Harbor, NY
 08/2004 – Pfizer Travel Fellowship, 2004 International Congress of Eye Research
 10/2005 – Optical Society of America Young Investigator Award (best presentation by a student or postdoc), 2005 OSA Fall Vision Meeting, Tucson, AZ.
 04/2006 – Wisconsin Association of Educational Opportunity Program Personnel - TRIO Achiever Award (TRIO is a US federal programs to increase access to higher education for economically disadvantaged students)
 04/2007 – University of Wisconsin Green Bay Outstanding Recent Alumni Award
 01/2007 – Karl Kirchgessner Foundation Vision Research Award
 12/2007 – E. Matilda Ziegler Foundation Vision Research Award
 01/2008 – Research to Prevent Blindness Career Development Award
 09/2008 – Foundation Fighting Blindness Travel Award, Retinal Degeneration Meeting 2008, Emeishan, China

- 10/2010 – Outstanding Medical School Teacher, Physician Scientist Pathway, MCW Curriculum & Evaluation Committee
- 12/2011 – Outstanding Medical School Teacher, Physician Scientist Pathway and Medical Neurosciences, MCW Curriculum & Evaluation Committee
- 02/2012 – ALCON Research Institute, Young Investigator Award
- 09/2014 – Outstanding Teacher Award, MCW Graduate School of Biomedical Sciences
- 11/2014 – ARVO Fellow (Silver)
- 05/2015 – Alumnus of the Year, MCW Graduate School of Biomedical Sciences
- 12/2015 – ARVO Fellow (Gold)

(16) MEMBERSHIPS IN HONORARY AND PROFESSIONAL SOCIETIES:

- 10/1998 – present Association for Research in Vision and Ophthalmology (ARVO)
- 03/1999 – present Optical Society of America (OSA)
- 07/1999 – present International Colour Vision Society (ICVS)
- 06/2004 – present International Society for Eye Research (ISER)
- 06/2014 – present Associate Member, McPherson Eye Research Institute, University of Wisconsin, Madison, WI

(17) EDITORSHIPS/EDITORIAL BOARDS/JOURNAL REVIEWS:

Editorships:

- 05/2006 - 05/2007 – *Journal of the Optical Society of America A* (lead feature editor for issue on “Advances in Retinal Imaging”)
- 10/2010 – 03/2011 – *Biomedical Optics Express* (lead feature editor for issue on “Cellular Retinal Imaging”)
- 07/2011 – 08/2016 – Associate Editor, *Biomedical Optics Express*
- 09/2013 – present – Editorial Board Member, *Investigative Ophthalmology & Visual Science*
- 11/2014 – 05/2016 – *Visual Neuroscience* (feature editor for issue on “In Vivo Retinal Imaging”)
- 1/2015 – present – Associate Editor, *Visual Neuroscience*
- 3/2017 – present – Reviewing Editor, *Current Eye Research*

Ad hoc Journal Reviewer (past 3 years):

Biomedical Optics Express, Current Biology, Investigative Ophthalmology & Visual Science, JAMA Ophthalmology, Journal of the Optical Society of America A, Journal of Vision, Ophthalmology, Optics Express, PLoS One, Retina, Translational Vision Science & Technology, Vision Research, Visual Neuroscience

(19) NATIONAL ELECTED/APPOINTED LEADERSHIP AND COMMITTEE POSITIONS:

- 10/2004 – 10/2006 – Vice-chair, OSA Applications of Visual Science Technical Group
- 05/2004 – 05/2007 – Member, ARVO Advocacy Committee
- 10/2006 – 10/2008 – Chair, OSA Applications of Visual Science Technical Group
- 05/2006 – 05/2010 – Member, ARVO Members-in-Training Committee
- 05/2006 – 05/2009 – Member, ARVO Program Committee, VI Section
- 05/2009 – 05/2010 – Chair, ARVO Program Committee, VI Section
- 05/2007 – 05/2010 – Member, ARVO Commercial Relationships Committee
- 10/2007 – Participant, ARVO Strategic Planning Retreat
- 10/2007 – 12/2010 – Chair-elect, OSA Vision & Color Division
- 10/2008 – 12/2014 – Member, OSA Board of Meetings
- 10/2008 – 10/2010 – OSA Frontiers in Optics Subcommittee Chair, Division 7
- 05/2008 – 05/2013 – ARVO Strategic Planning Working Group (MIT)
- 03/2008 – 12/2014 – Member, Verriest Medal Selection Committee, ICVS
- 01/2008 – 09/2008 – Session Organizer, XVIII International Congress for Eye Research
- 10/2008 – 10/2016 – Member, International Society of Imaging the Eye Program Committee
- 10/2008 – 10/2016 – Member, Advisory Committee for the ARVO Multidisciplinary Ophthalmic Imaging Group
- 01/2009 – 12/2012 – Member, OSA Edgar D. Tillyer Award Committee (Chair in 2011)
- 01/2009 – 05/2013 – Member, Fight for Sight Scientific Review Committee
- 05/2010 – 05/2013 – Chair, ARVO Members-in-Training Committee
- 12/2010 – 12/2014 – Chair, OSA Vision & Color Division
- 10/2010, 02/2011 – Ad Hoc member, BMIT study section (NIH CSR)
- 05/2011 – Mail reviewer, ZRG1 ETTN-E (12) B study section (NIH)
- 06/2011 – 06/2012 – ARVO Annual Meeting Site Selection Working Group
- 11/2011 – Mail reviewer, Collaborative Health Research Projects Selection Panel (Canada)
- 12/2012 – Reviewer for Medical Research Council (UK)
- 02/2013, 06/2013 – Ad Hoc member, ZRG1 ETTN-G (12) study section (NIH)
- 11/2013 – present – Member, Dept of Veterans Affairs NURF SRG (VA)
- 10/2013 – Grant Reviewer for Science Foundation Ireland
- 04/2014 – Grant Reviewer for NHMRC Australia
- 04/2014 – Grant Reviewer for German Science Foundation, DFG
- 06/2014 – Ad Hoc member, ZDK1 GRB-9 (O3) study section (NIH)
- 07/2014 – Ad Hoc reviewer, European Research Council
- 10/2015 – present – Member, Medical & Scientific Advisory Board, Fighting Blindness
- 01/2016 – present – Member, Board of Scientific Advisors, National Organization for Albinism and Hypopigmentation
- 02/2016 – Ad Hoc member, ZEY1VSN (03) study section (NIH, P30)
- 10/2016 – Ad Hoc member, ZRG1 F02B-D study section (NIH, Fellowships)
- 03/2017 – present – Member, Scientific Advisory Board, Vision for Tomorrow

(20) **RESEARCH GRANTS/AWARDS/CONTRACTS/PROJECTS:**

A. Active

Peer Review

- Title: **Assessing Photoreceptor Structure & Function in Normal and Diseased Retinae**
Source: National Eye Institute (NIH) (R01EY017607-09)
Role: Principal Investigator
Dates: August 1, 2013 – July 31, 2017
- Title: **Retinal Versus Cortical Contributions to Vision Loss in Albinism**
Source: National Eye Institute (NIH) (R01EY024969-03)
Role: Principal Investigator (MPI w/ Dr. Ted DeYoe)
Dates: December 1, 2014 – November 30, 2018
- Title: **Characterization of existing and newly developed models of Usher syndrome**
PI: Jacque Duncan, MD
Source: Foundation Fighting Blindness, Program Project Award
Role: co-Investigator & MCW subcontract PI
Dates: April 1, 2017 – March 31, 2022
- Title: **Core Grant for Vision Research**
Source: National Eye Institute (NIH) (P30EY001931-40)
Role: Principal Investigator and Image Analysis Module Director
Dates: April 1, 2012 – June 30, 2017
- Title: **Platform Technologies for Microscopic Retinal Imaging: Development & Translation**
Source: National Eye Institute (NIH) (U01EY025477-02)
Role: co-Investigator & MCW subcontract PI
Dates: May 1, 2015 – April 30, 2020
- Title: **Clinical and Genetic Characterization of Individuals With Achromatopsia**
PI: William Hauswirth, Ph.D.
Source: National Eye Institute (NIH) (R24EY022023-04)
Role: co-Investigator & MCW subcontract PI
Dates: June 30, 2013 – May 31, 2018
- Title: **Improving Therapeutic Strategies in Age-Related Macular Degeneration Using Adaptive Optics Retinal Imaging**
Source: The Edward N. & Della L. Thome Memorial Foundation
Role: Principal Investigator
Dates: January 31, 2015 – June 30, 2017

Title: **Research Training Program in Vision Science**
PI: Joseph C. Besharse, Ph.D.
Source: National Eye Institute (NIH) (T32EY014537-14)
Role: Graduate Student Mentor
Dates: September 1, 2013 – December 31, 2018

Non-Peer Review

Title: **Pediatric Imaging of Retinopathy of Prematurity**
PI: Deborah Costakos, M.S., M.D.
Source: Greater Milwaukee Foundation
Role: co-Investigator
Dates: July 1, 2013 – June 30, 2017

Title: **Adaptive Optics Imaging – Phase 2 Trial**
Source: Lowy Medical Research Institute
Role: Principal Investigator
Dates: July 1, 2014 – September 30, 2017

Title: **rAAV-CNGB33 Gene Therapy For Achromatopsia:
Translational Research Studies**
Source: Applied Genetics Technology Corporation (AGTC)
Role: Principal Investigator
Dates: April 1, 2013 – December 31, 2017

C. Prior

Peer Review

Title: **Organization of the Trichromatic Cone Mosaic**
Source: National Eye Institute (NIH) (F32EY014749)
Role: Principal Investigator
Dates: April 1, 2003 – March 31, 2006

Title: **Imaging the Effects of Cone Opsin Mutations on the Integrity
of the Cone Photoreceptor Mosaic**
Source: Fight for Sight
Role: Principal Investigator
Dates: June 1, 2007 – June 30, 2008

Title: **Uncovering Mechanisms of Retinal Disease with High-
Resolution Retinal Imaging**
Source: E. Matilda Ziegler Foundation for the Blind, Inc.
Role: Principal Investigator
Dates: December 31, 2007 – December 31, 2010

Title: **Development of a Predictive Algorithm for Age-related
Macular Degeneration**
PI: Murray Brilliant, Ph.D.
Source: Wisconsin Genomics Initiative
Role: Co-Principal Investigator
Dates: August 1, 2010 – June 30, 2012

Title: **Career Development Award**
Source: Research to Prevent Blindness
Role: Principal Investigator
Dates: January 1, 2008 – January 1, 2012

Title: **Advanced Imaging of Photoreceptor Disruption in Retinal Disease**
Source: Foundation Fighting Blindness
Role: Principal Investigator
Dates: July 1, 2011 – June 30, 2014

Non-Peer Review

Title: **Relationship Between Cone Density and Cortical Magnification Assessed with fMRI**
Source: Rochester Center for Brain Imaging
Role: Principal Investigator
Dates: March 1, 2005 - December 31, 2005

Title: **Visualizing the Effects of Disruptions in Cone Opsin Expression on the Topography of the Human Cone Mosaic**
Source: Karl Kirchgessner Foundation (unsolicited)
Role: Principal Investigator
Dates: January 1, 2007 - December 31, 2007

Title: **Advanced Retinal Imaging and Improving the Success of Gene Therapy**
Source: Hope for Vision
Role: Principal Investigator
Dates: January 14, 2009 - December 31, 2011

Title: **Assessing Foveal Anatomy in Albinism and Aniridia Using High Resolution Retinal Imaging**
Source: Vision for Tomorrow Foundation
Role: Principal Investigator
Dates: May 1, 2010 - July 1, 2012

(21) INVITED LECTURES/WORKSHOPS/PRESENTATIONS:

International

Carroll, J. & Williams, D.R. “Retinal imaging with adaptive optics reveals a novel disease mechanism for dichromacy,” presented at the 2004 FASEB Summer Research Conference – Retinal Neurobiology & Visual Processing, Saxtons River, VT (July, 2004).

Carroll, J., Choi, S., Gray, D., Wolfing, J., Williams, D.R. “Mechanisms of color blindness revealed with adaptive optics retinal imaging,” presented at the XVIth International Congress of Eye Research, Sydney, Australia (August, 2004).

Carroll, J. “Inferences about photoreceptor degeneration from high-resolution retinal imaging,” presented at the Department of Physics, National University of Ireland, Galway, Ireland (March, 2005).

Carroll, J. “In vivo imaging of human photoreceptor disease with adaptive optics,” presented at the 9th Annual Vision Research Conference: Neuroimaging the Retina, Fort Lauderdale, FL (May, 2005).

Carroll, J. “Organization of the human cone mosaic: Implications for red-green color vision,” presented at the 2006 ARVO Annual Meeting, Ft. Lauderdale, FL (April, 2006).

Carroll, J. “High-resolution imaging of human photoreceptor disease with adaptive-optics ophthalmoscopy,” presented at the 2006 ARVO Annual Meeting, Ft. Lauderdale, FL (April, 2006).

Carroll, J., Porter, J., Neitz, J., Williams, D. R., Neitz, M., “The effects of cone opsin gene disruption on the human photoreceptor mosaic,” presented at the Engineering the Eye Conference, National University of Ireland, Galway, Ireland (June, 2006).

Carroll, J., Roorda, A., Williams, D.R. “Applications of retinal imaging with adaptive-optics ophthalmoscopy,” presented at the XVIIth Biennial Meeting of the International Society for Eye Research, Buenos Aires, Argentina (November, 2006).

Carroll, J. “High-resolution retinal imaging in inherited colour vision defects,” presented at the Summer Colour Conference, University of Melbourne, Australia (February, 2007).

Carroll, J. “High-resolution measurement of visual function using adaptive optics,” presented at the 8th International Congress of Wavefront Sensing and Optimized Refractive Corrections, Santa Fe, NM (February, 2007).

Carroll, J. “Organization of the human cone mosaic: implications for red-green colour vision,” presented at the World Congress of the International Brain Research Organization, Melbourne, Australia (July, 2007).

Carroll, J. “Disruption of the human cone mosaic caused by cone opsin mutations,” presented at The Australian National University, Canberra, Australia (July, 2007).

Carroll, J. “Assessing the healthy and diseased retina with imaging approaches,” presented at the 2008 FASEB Summer Research Conference – Retinal Neurobiology & Visual Processing, Snowmass Village, CO (July, 2008).

Carroll, J. “Clinical applications of high-resolution retinal imaging,” presented to the Applied Optics group in the Department of Physics, National University of Ireland, Galway, Ireland (July, 2009).

Carroll, J. “Resolving drusen-associated photoreceptor disruption in vivo with adaptive optics,” presented at the Macula of Paris, Paris, France (January 2010).

Carroll, J. “Imaging the human retina: Development and disruption,” presented at the 3rd Annual Kongsberg Vision Meeting, Buskerud University College, Kongsberg, Norway (October, 2010).

Carroll, J. “Imaging the human retina with adaptive optics: Assessing development and disruption,” presented at the AAAS Annual Meeting, Washington, DC (February, 2011).

Carroll, J. & Dubra, A. “Imaging the cone mosaic in retinal disease,” presented at the 2011 FASEB Summer Research Conference – Biology & Chemistry of Vision, Carefree, AZ (June, 2011).

Carroll, J. “Imaging the human retina: Development and disruption,” presented at the Department of Genetics, Institute of Ophthalmology, London, England (July, 2011).

Carroll, J. “Imaging photoreceptor disruption in the human retina,” presented at the Bosch Institute Annual Scientific Meeting, University of Sydney, Sydney, Australia (June, 2013).

Carroll, J. “Adaptive optics imaging of the human retina,” presented at Retina 2013, Dublin, Ireland (November, 2013).

Carroll, J. “Imaging photoreceptor structure with AOSLO: Recent advances,” presented at the 7th Annual Kongsberg Vision Meeting, Buskerud University College, Kongsberg, Norway (October, 2014).

Carroll, J. “High-resolution imaging of photoreceptor structure in retinal disease,” presented at the 3rd Biennial International Symposium on Age Related Macular Degeneration, Harvard Medical School, Boston, MA (October, 2014).

Carroll, J. “In vivo imaging of human cone photoreceptor inner segments,” presented at the IRCCS Fondazione G.B. Bietti, Rome, Italy (December, 2014).

Carroll, J. “Adaptive optics imaging in inherited retinal degenerations,” presented at the Casey Eye Institute’s 2nd Retinal Gene Therapy Conference, Denver, CO (May, 2015).

Carroll, J. “Split-detector AOSLO imaging of photoreceptor inner segments,” presented at the 10th Annual Lowy Medical Research Institute Annual Meeting, New York, NY (June, 2015).

Carroll, J. “High-resolution retinal imaging in animal eyes,” presented at the 2015 FASEB Scientific Research Conference – Biology & Chemistry of Vision, Big Sky, MT (June, 2015).

Carroll, J. “Adaptive optics imaging biomarkers,” presented at the IX International Meeting of the IRCCS Fondazione G.B. Bietti, “*New Diagnostic and Therapeutic Frontiers in Ophthalmology*,” Rome, Italy (October, 2015).

Carroll, J. “Adaptive optics imaging in inherited retinal degenerations,” presented at the 13th Macula Vision Research Foundation (MVRF) International Scientific Conference, Boston, MA (October, 2015).

Carroll, J. “Clinical applications of adaptive optics retinal imaging,” presented at Queen’s University Postgraduate Class, Belfast, Ireland (October, 2015).

Carroll, J. “High-resolution retinal imaging and clinical trials – What’s next?,” presented at Retina 2015, Dublin, Ireland (November, 2015).

Carroll, J. “Towards a normative database for the human retinal vasculature” presented at Third International Congress on *En Face* OCT Imaging, Rome, Italy (December, 2015).

Carroll, J. “High resolution retinal imaging in color blindness” presented at XXII Biennial Meeting of the International Society for Eye Research, Tokyo, Japan (September, 2016).

Carroll, J. “Imaging the spectrum of foveal anatomy in the human retina: Lessons from albinism” presented at 9th World Symposium on Ocular Albinism, San Diego, CA (November, 2016).

National

Carroll, J. “High-resolution imaging of human photoreceptor disease with adaptive-optics ophthalmoscopy,” presented at the New England College of Optometry (January, 2006).

Carroll, J. “Retinal imaging with adaptive optics reveals novel disease mechanisms in color blindness,” presented at SUNY College of Optometry, New York, NY (December, 2006).

Carroll, J. “Imaging the effects of cone opsin mutations on the organization of the human cone mosaic,” presented at the Periopsia Seminar Series, University of Houston College of Optometry, Houston, TX (February, 2007).

Carroll, J. “High-resolution retinal imaging reveals unusual cone mosaics in color vision defects,” presented at the 24th Annual Houston Conference on Biomedical Engineering Research, Houston, TX (February, 2007).

Carroll, J. “Imaging the effects of cone opsin mutations on the organization of the human cone mosaic,” Invited Plenary talk – Center for Adaptive Optics Spring Retreat, University of California-Santa Cruz, Santa Cruz, CA (March, 2007).

Carroll, J. “Visualizing the effect of disruptions in the cone pigment genes on the organization of the cone mosaic,” presented at the Molecular, Cellular, and Integrated Neurosciences Seminar Series, Colorado State University, Fort Collins, CO (November, 2007).

Carroll, J. “Visualizing the effect of disruptions in the cone pigment genes on the organization of the cone mosaic,” presented at the Oxyopia Seminar Series, University of California-Berkeley, Berkeley, CA (March, 2008).

Carroll, J. “Using adaptive optics to understand cone degeneration: A progress report,” presented at the Adaptive Optics Interest Group, University of California-Berkeley, Berkeley, CA (May, 2008).

Carroll, J. “Investigating preclinical phenotypes using adaptive optics retinal imaging,” presented at the Smith-Kettlewell Eye Research Institute, San Francisco, CA (May, 2008).

Carroll, J. “Imaging the effects of cone opsin mutations on the organization of the human cone mosaic,” presented at the Third Annual Berkeley Conference on Translational Research, Berkeley, CA (June, 2009).

Carroll, J. “Visualizing the effect of disruptions in the cone pigment genes on the retinal cone mosaic,” presented at Vanderbilt University, Nashville, TN (November, 2009).

Carroll, J. “Applications of adaptive optics and OCT retinal imaging,” presented at UCSF Department of Ophthalmology Grand Rounds, San Francisco, CA (April, 2010).

Carroll, J. “SD-OCT image segmentation in retinal pathology assessed with adaptive optics,” presented at the Society for Imaging and Applied Mathematics, Imaging Science Meeting, Chicago, IL (April, 2010).

Carroll, J. “Imaging the human retina: Development and disruption,” presented at the 27th Center for Visual Science Symposium: Photons and Neurons, Rochester, NY (June, 2010).

Carroll, J. “OCT imaging of the human retina: Pearls and pitfalls,” presented at Casey Eye Institute, Portland, OR (June, 2010).

Carroll, J. “Disruptions in foveal morphology and cone topography visualized with high-resolution retinal imaging,” presented at The Ohio State University, College of Optometry, Columbus, OH (August, 2010).

Carroll, J. “Subclinical photoreceptor phenotypes assessed using high-resolution retinal imaging,” presented at Emory University, Department of Ophthalmology, Atlanta, GA (January, 2011).

Carroll, J. “Imaging the photoreceptor mosaic in normal and diseased eyes,” presented at Duke University, Fitzpatrick Institute for Photonics, Durham, NC (April, 2011).

Carroll, J. “Clinical applications of adaptive optics retinal imaging,” presented at Duke University, Department of Ophthalmology, Durham, NC (April, 2011).

Carroll, J. “Understanding the normal and diseased retina using adaptive optics imaging,” presented at the 95th Annual Meeting of the Optical Society of America, San Jose, CA (October, 2011).

Carroll, J. “Do you know where your cones are? Efforts in deriving repeatable cone density estimates from AO images,” Invited talk – Center for Adaptive Optics Fall Retreat, Lake Arrowhead, CA (November, 2011).

Carroll, J. “High-resolution imaging of the human retina: Development and disruption,” presented at University of Pennsylvania, Department of Ophthalmology, Philadelphia, PA (December, 2011).

Carroll, J. “Adaptive Optics in Ophthalmic Imaging,” presented at the 43rd Annual Education Program of the Ophthalmic Photographers Society, Chicago, IL (November, 2012).

Carroll, J. “Interpretation of adaptive optics images of the photoreceptor mosaic,” presented at International Retinal Imaging Symposium (IRIS-II), New York, NY (June, 2014).

Carroll, J. “Adaptive Optics in Ophthalmic Imaging: Photoreceptor Disruption,” presented at Indiana Optometric Association Fall Seminar, Bloomington, IN (October, 2014).

Carroll, J. “Imaging Photoreceptor Disruption in the Human Retina,” presented at Indiana University School of Optometry, Bloomington, IN (October, 2014).

Carroll, J. “Advances in adaptive optics retinal imaging,” presented at the Ross Eye Institute, SUNY Buffalo, Buffalo, NY (January, 2015).

Carroll, J. “Advances in adaptive optics retinal imaging,” presented at the Department of Ophthalmology, University of Florida, Gainesville, FL (January, 2015).

Carroll, J. “Advances in adaptive optics retinal imaging,” presented at the Joan & Gordon Bergy Lecture Series in Vision Science, University of Washington, Seattle, WA (April, 2015).

Carroll, J. “Applications of adaptive optics retinal imaging,” presented at Wilmer Eye Institute, Johns Hopkins University, Baltimore, MD (May, 2015).

Carroll, J. “Imaging photoreceptor structure in the living retina: Recent advances,” presented at Cole Eye Institute Distinguished Lecture Series, Cleveland Clinic, Cleveland, OH (November, 2015).

Carroll, J. “Applications of adaptive optics retinal imaging,” presented at the Loris & David Rich Lecture Series in Vision Science, University of Alabama-Birmingham, Birmingham, AL (January, 2016).

Carroll, J. “Applications of adaptive optics retinal imaging,” Charles Dwight Townes Lecturer, University of Louisville, Louisville, KY (June, 2016).

Carroll, J. “High resolution imaging in inherited retinal degenerations,” Louis J. Fox Center for Vision Restoration Conference, University of Pittsburgh, Pittsburgh, PA (June, 2016).

Regional

Carroll, J. “Adaptive optics: How it works, retinal rod/cone imaging, & possible clinical applications,” presented at the 49th Annual Ophthalmology Conference, Rochester, NY (June, 2004).

Carroll, J. “Color coding in the human retina and implications for disease,” presented at the 49th Annual Ophthalmology Conference, Rochester, NY (June, 2004).

Carroll, J. “Electro-diagnostic testing: ERG, Multifocal ERG,” presented at the 50th Annual Ophthalmology Conference, Rochester, NY (May, 2005).

Carroll J. “Visualizing the effect of disruptions in the cone pigment genes on the organization of the cone mosaic,” presented at The Gerald A. Fishman, MD Lecture Series in Vision Science, University of Illinois at Chicago, Chicago, IL (June, 2007).

Carroll, J. “Visualizing the effect of disruptions in the cone pigment genes on the organization of the cone mosaic,” presented at the Department of Ophthalmology, Northwestern University, Chicago, IL (March, 2008).

Carroll, J. “Applications of high-resolution retinal imaging,” presented at the Department of Ophthalmology & Visual Sciences Grand Rounds, University of Wisconsin-Madison, Madison, WI (June, 2016).

Local

Carroll, J. “Applications of high-resolution retinal imaging with adaptive optics,” presented at the Department of Biophysics, Medical College of Wisconsin (September, 2005).

Carroll, J. “Applications of high-resolution retinal imaging with adaptive optics,” presented at The Brotz Lecture Series, Department of Biomedical Engineering, Marquette University (September, 2005).

Carroll, J. “Clinical applications of adaptive-optics ophthalmoscopy,” presented at the Wisconsin Eye MD Meeting, Waukesha, WI (June, 2006).

Carroll, J. “Imaging the effects of cone opsin mutations on the organization of the human cone mosaic,” presented at the Department of Cell Biology, Neurobiology, & Anatomy, Medical College of Wisconsin, Milwaukee, WI (January, 2008).

Carroll, J. “High-resolution imaging of the human retina: A progress report,” presented at The Brotz Lecture Series, Department of Biomedical Engineering, Marquette University (September, 2008).

Carroll, J. “Imaging retinal development in albinism,” presented at The Eye Institute Fall Symposium, Department of Ophthalmology, Medical College of Wisconsin (November, 2010).

Carroll, J. “Imaging the human retina: Development and disruption,” presented at the Neuroscience Research Center Inaugural Event, Medical College of Wisconsin (November, 2010).

Carroll, J. “High-resolution retinal imaging,” presented to the Society for Women in Engineering, Marquette University (October, 2011).

Carroll, J. & Costakos, D. “Imaging the human retina: Development and disruption,” presented at the Children’s Research Institute, Children’s Hospital of Wisconsin (December, 2011).

Carroll, J. “High resolution imaging of the living human retina,” presented at the Department of Biophysics, Medical College of Wisconsin (September, 2013).

Carroll, J. “Advances in non-invasive retinal imaging,” presented at the Integrated Neuroscience Research Center, Marquette University (March, 2015).

Carroll, J. “Clinical applications of high-resolution retinal imaging,” presented at the Joint Biomedical Engineering Seminar Series (MU, MCW, UWM), Medical College of Wisconsin (April, 2015).

Carroll, J. “Applications of high-resolution retinal imaging,” presented at the Department of Radiology Grand Rounds, Medical College of Wisconsin (April, 2016).

Carroll, J. “Applications of high-resolution retinal imaging,” presented at the Cardiovascular Center Seminar Series, Medical College of Wisconsin (September, 2016).

Carroll, J. “Applications of high-resolution imaging of the living human retina,” presented at the CTSI Seminar Series, Medical College of Wisconsin (October, 2016).

(22) PEER REVIEWED WORKSHOPS/PRESENTATIONS:

International

Carroll, J., Neitz, M., Neitz, J. “Testing hypotheses about deutan color vision defects” presented at the XVth Symposium of the International Colour Vision Society, Göttingen, Germany (July, 1999).

Yamauchi, Y., Williams, D.R., Brainard, D.H., Roorda, A., **Carroll, J.,** Neitz, M., Neitz, J., Calderone, J.B., Jacobs, G.H. “What determines unique yellow, L/M cone ratio or visual experience?” presented at the 9th congress of the International Colour Association, Rochester, NY (June, 2001).

Carroll, J., Neitz, M., Neitz, J. “Variation in ERG-derived L/M cone ratio among trichromats is linked to the X-chromosome photopigment gene array” presented at the XVIth Symposium of the International Colour Vision Society, Cambridge, England (July, 2001).

Carroll, J., Hofer, H., Neitz, J., Neitz, M., Williams, D.R. “Variation in the cone mosaics of dichromats revealed with adaptive optics” presented at the XVIIth Symposium of the International Colour Vision Society, Seattle, WA (July, 2003).

Neitz, M., **Carroll, J.,** Renner, A., Knau, H., Werner, J.S., Neitz, J. “The genetic causes of red-green dichromacy” presented at the XVIIth Symposium of the International Colour Vision Society, Seattle, WA (July, 2003).

Carroll, J., Choi, S., Wolfing, J., Hofer, H., Williams, D.R. “Imaging retinal disease with adaptive optics” presented at the IInd European Optical Society Topical Meeting on Physiological Optics, Granada, Spain (September, 2004).

Carroll, J., Lin, J., Wolfing, J.I., Christie, N., Williams, D.R., Makous, W. “Retinal microscotomas revealed with adaptive-optics microflashes” presented at the XXVIIIth Symposium of the International Colour Vision Society, Lyon, France (July, 2005).

Chen, L., **Carroll, J.,** Williams, D.R. “A new method for classifying human cones *in vivo*” presented at the 5th International Workshop on Adaptive Optics, Beijing, China (September, 2005).

Baraas, R.C., **Carroll, J.**, Gunther, K.L., Wolfing, J.I., Gray, D., Dubra, A., Williams, D.R., Neitz, M., Foster, D.H. “A progressive form of tritanopia revealed with adaptive optics retinal imaging” presented at the Engineering the Eye II Conference, Galway, Ireland (June, 2006).

Carroll, J., Tait, D., Neitz, J., Neitz, M. “Normality of color vision in compound heterozygous females carrying a protan and a deutan defect” presented at the XIXth Symposium of the International Colour Vision Society, Belem, Brazil (July, 2007).

Carroll, J., Tait, D., Neitz, J., Neitz, M. “Normality of color vision in compound heterozygous females carrying a protan and a deutan defect” presented at Vision Down Under 2007, Cairns, Australia (July, 2007).

Krauskopf, J., & **Carroll, J.** “Numerical L:M cone ratio estimated by color appearance, ERG, and adaptive optics methods” presented at the 30th European Conference on Visual Perception, Arrezo, Italy (August, 2007).

Carroll, J. “Variation in temporal properties of cone degeneration imparted by various cone opsin mutations” presented at the XIIIth Symposium on Retinal Degeneration, Emeishan, China (September, 2008).

Neitz, M., **Carroll, J.**, Gunther, K.L., Neitz, J. “Evolutionary origin of high frequency deleterious mutations in the human cone opsins and their role in the most common eye disorders” presented at the XXth Symposium of the International Colour Vision Society, Braga, Portugal (July, 2009).

Carroll, J., Dubra, A., Wagner-Schuman, M., Neitz, J., McClements, M., Hunt, D.M., Mollon, J.D., Moore, A.T., Neitz, M., Michaelides, M “Genetic mutations within the L/M array account for both cone dysfunction and the color vision phenotype in Bornholm eye disease” presented at the XIVth Symposium on Retinal Degeneration, Mont-Treblant, Canada (July, 2010).

Carroll, J., Dubis, A.M., Genead, M., Cooper, R.F., Williams, V., Sommer, P., Stepien, K.E., Connor, T., Fishman, G.A., Dubra, A., Neitz, J., Neitz, M. “A mutant opsin allele associated with cone-type specific degeneration” presented at the XXIst Symposium of the International Colour Vision Society, Kongsberg, Norway (July, 2011).

Rosen, R., Weitz, R., **Carroll, J.**, Dubra, A., Stepien, K.E., Sripsema, N., Garcia, P., Shah, N., Scoles, D., Burns, S., Landa, G. “Clinical applications of single cell retinal imaging using adaptive optics scanning laser ophthalmoscopy – an update” presented at the 35th Annual Macula Society Meeting, Jerusalem, Israel (June, 2012).

Eells, J., Gopalakrishnan, S., Schmitt, H., Maleki, S., Ranji, M., Dubis, A., **Carroll, J.** “Photobiomodulation protects retinal mitochondria and retinal function in a rodent model of retinitis pigmentosa” presented at Asia ARVO, New Delhi, India (October, 2013).

Rosen, R., Razeen, M., Gan, A., Shah, N., Pinhas, A., Cheang, E., Liu, L., Chui, T.Y., Weitz, R., **Carroll, J.**, Dubra, A. “New insights in macular microvascularity using quantitative adaptive optics scanning light ophthalmoscopy” presented at the 37th Annual Macula Society Meeting, Key Largo, FL (February, 2014).

Carroll, J., Scoles, D., Abozaid, M., Han, D.P., Cooper, R.F., Dubra, A. “Interpreting photoreceptor ellipsoid zone lesions visualized with en face SD-OCT” presented at Second International Congress on *En Face* OCT Imaging, Rome, Italy (December, 2014).

Schwartz, S., Connor, Jr., T.B., Vaziri, K., Moshfeghi, A., Moshfeghi, D., **Carroll, J.**, Brilliant, M., McKay, B. “Inverse association between L-DOPA and age-related macular degeneration” presented at the 38th Annual Macula Society Meeting, Scottsdale, AZ (January, 2015).

Rosen, R., Weitz, R., Pinhas, A., Dubow, M., Gentile, R., Gan, A., Razeen, M., Shah, N., Cheang, E., Liu, C., **Carroll, J.**, Sulai, Y., Dubra, A., Chui, T. "Dynamic histopathology studies of retinal vascular disease using adaptive optics imaging" presented at the 38th Annual Macula Society Meeting, Scottsdale, AZ (January, 2015).

Langlo, C.S., Collison, F., Summerfelt, P., White, C., Dubra, A., Hauswirth, W., Fishman, G., **Carroll, J.** "Longitudinal measurement of cone density in congenital achromatopsia" presented at the XXIIIrd Symposium of the International Colour Vision Society, Sendai, Japan (July, 2015).

Patterson, E.J., Langlo, C.S., **Carroll, J.** "The use of the Colour Assessment and Diagnosis (CAD) test in congenital achromatopsia" presented at the XXIIIrd Symposium of the International Colour Vision Society, Sendai, Japan (July, 2015).

Li, Z., **Carroll, J.** "An analytical model of the influence of cone sensitivity and numerosity on the Rayleigh match" presented at the XXIIIrd Symposium of the International Colour Vision Society, Sendai, Japan (July, 2015).

National

Carroll, J., Ver Hoeve, J. N., Murphy, C. J., Summerfelt, P. M., Neitz, J. "Cone photopigment spectral sensitivities in the horse" presented at the 30th Annual meeting of the American College of Veterinary Ophthalmologists, Chicago, IL (November, 1999).

Carroll, J., Neitz, J., Neitz, M. "Evaluation of the flicker photometric electroretinogram as a method for estimating L:M cone ratios in human eyes" presented at the 2000 OSA Annual Meeting, Providence, RI (October, 2000).

Carroll, J., Hofer, H., Neitz, M., Williams, D. R., Neitz, J. "Correlation of electroretinogram and adaptive optics derived L:M cone ratio estimates" presented at the 2002 FASEB Summer Research Conference – Retinal Neurobiology & Visual Processing, Saxtons River, VT (July, 2002).

Carroll, J., Lin, J., Wolfing, J. I., Christie, N., Williams, D. R., Makous, W. "Retinal microscotomas revealed with adaptive-optics microflashes, and a model" presented at the 2005 OSA Fall Vision Meeting, Tucson, AZ (October, 2005).

Carroll, J., Neitz, J., Neitz, M., Williams, D. R. "High-resolution imaging of the living retina in congenital cone disorders" presented at the Novel Approaches to Bio-Imaging Conference, Janelia Farm (HHMI Campus) Ashburn, VA (March, 2008).

Torti, C., Považay, B., Hofer, B., Herman, B., Kajic, V., Unterhuber, A., Fernandez, E. J., **Carroll, J.**, Ahnelt, P. K., Drexler, W. "In vivo genotype-phenotype correlation using ultra-high speed and resolution retinal OCT with pancorrection" presented at SPIE Photonics West, San Jose, CA (January, 2009).

Torti, C., Považay, B., Hofer, B., Herman, B., Kajic, V., Unterhuber, A., Fernandez, E. J., **Carroll, J.**, Ahnelt, P. K., Drexler, W. "Revealing cellular structure in the living human retina using ultra-high speed and resolution OCT with pancorrection" presented at SPIE Photonics West, San Jose, CA (January, 2009).

Wagner Schuman, M. L., Dubis, A., Rha, J., Schroeder, B., Godara, P., Stepien, K., **Carroll, J.**, Ahnelt, P. K., Drexler, W. "Photoreceptor mosaic phenotype associated with opsin-gene disruptions: A 6-year follow-up" presented at ARVO-ISIE, Fort Lauderdale, FL (May, 2009).

Godara, P., Rha, J., Schroeder, B., **Carroll, J.**, Weinberg, D. V. “Unusual adaptive optics findings in a patient with unexplained vision loss” presented at ARVO-ISIE, Fort Lauderdale, FL (May, 2009).

Han, D. P., Stepien, K. E., **Carroll, J.**, Schell, J., Godara, P., Rha, J. “Spectral-domain OCT and adaptive optics may detect Hydroxychloroquine retinal toxicity before symptomatic vision loss” presented at American Society of Retina Specialists, New York, NY (October, 2009).

Summers, C. G., Ostler, S., McAllister, J. T., Tait, D. M., Dubis, A., Rha, J., Stepien, K. E., **Carroll, J.** “Insight into the spectrum of foveal immaturity in albinism” presented at 36th Annual AAPOS Meeting, Orlando, FL (April, 2010).

Dubis, A.M., Wagner-Schuman, M.L., Weh, E., Odell, D.W., Chiao, H., Summerfelt, P., **Carroll, J.** “Variation in foveal pit morphology in Caucasians” presented at ARVO-ISIE, Fort Lauderdale, FL (May, 2010).

Kapur, R., Nordgren, R., Dubis, A., Rha, J., **Carroll, J.**, Holtebeck, A., Han, D. P., Stepien, K. E. “Imaging outer retinal structure in hydroxychloroquine patients” presented at ASRS, Vancouver, BC (August, 2010).

Eells, J.T., Gopalakrishnan, S., Schmitt, H., Dubis, A.M., **Carroll, J.** “Photobiomodulation protects against retinal degeneration in a rodent model of retinitis pigmentosa” presented at SPIE Photonics West, San Francisco, CA (February, 2013).

Chiu, S.J., Dubis, A.M., Cooper, R.F., Dubra, A., **Carroll, J.**, Izatt, J.A., Farsiu, S. “Validated automatic segmentation of photoreceptors in adaptive optics scanning ophthalmoscope images” presented at SPIE Photonics West, San Francisco, CA (February, 2013).

Rosen, R., Weitz, R., **Carroll, J.**, Dubow, M., Pinhas, A., Shah, N., Chui, T., Sulai, Y., Sripesma, N., Dubra, A. “Fluoro microangiography – First clinical studies of fluorescein angiography using adaptive optics scanning light ophthalmoscopy” presented at ARVO-ISIE, Seattle, WA (May, 2013).

Stepien, K.E., Sulai, Y., Langlo, C., Cooper, R., Flatter, J., Kay, D., Robison, S., Weinberg, D., Dubra, A., **Carroll, J.** “Alterations in cone photoreceptor reflectivity as a biomarker of photoreceptor health” presented at ARVO-ISIE, Seattle, WA (May, 2013).

Rosen, R., Pinhas, A., Razeen, M., Shah, N., Gan, A., Bavier, R., Weitz, R., **Carroll, J.**, Dubra, A., Chui, T.Y.P. “Quantitative insights into macular microvascularity using adaptive optics scanning light ophthalmoscopy fluorescein angiography” presented at ARVO-ISIE, Orlando, FL (May, 2014).

Sajdak, B., Cooper, R.F., Bazan, K., Higgins, B., Scoles, D.H., Wilk, M., Dubra, A., **Carroll, J.** “Improving the processing and analysis workflow of adaptive optics retinal imaging” presented at ARVO-ISIE, Orlando, FL (May, 2014).

Severn, P., Dubis, A.M., Cooper, R.F., **Carroll, J.**, Dubra, A., Fitzke, F., Rubin, G., Egan, C., Michaelides, M. “Clinical assessment and single cell imaging in unexplained vision loss” presented at ARVO-ISIE, Orlando, FL (May, 2014).

Eells, J.T., **Carroll, J.**, Ranji, M., Gopalakrishnan, S. “Unblinded by the light: Photobiomodulation in retinal injury and disease” presented at the American Society for Photobiology Annual Meeting, San Diego, CA (June, 2014).

Collison, F.T., Fishman, G.A., Weleber, R.G., **Carroll, J.**, Langlo, C.S., Chulay, J.D. “Prospective cohort study in achromatopsia” presented at the XVIth Symposium on Retinal Degeneration, Pacific Grove, CA (July, 2014).

Dubis, A.M., Aboshiha, J., BaAbbad, R., Pack, A., Samra, R.S., Ramsamy, G., Sulai, Y., Dubra, A., Webster, W., **Carroll, J.**, Michaelides, M. “Photoreceptor mosaic variability in *RPGR*-associated retinal dystrophy” presented at the XVIth Symposium on Retinal Degeneration, Pacific Grove, CA (July, 2014).

Stepien, K.E., Zakka, F.R., Scoles, D.H., Liu, B.S., Cooper, R.F., Langlo, C.S., Connor, T.B., Dubra, A., **Carroll, J.** “Correlation of photoreceptor structure with autofluorescence in retinal degeneration associated with *ABCA4* mutations” presented at the XVIth Symposium on Retinal Degeneration, Pacific Grove, CA (July, 2014).

Langlo, C.S., Scoles, D.H., Fishman, G.A., Gamm, D.M., Struck, M., Chiang, J., Dubra, A., **Carroll, J.** “Imaging cone inner segment structure in achromatopsia using split detector AOSLO” presented at the XVIth Symposium on Retinal Degeneration, Pacific Grove, CA (July, 2014).

Eells, J.T., Abroe, B., Schmitt, H., Summerfelt, P., Dubis, A., **Carroll, J.**, Gopalakrishnan, S. “830nm photobiomodulation is retinoprotective in a rodent model of retinitis pigmentosa” presented at the XVIth Symposium on Retinal Degeneration, Pacific Grove, CA (July, 2014).

Kim, J.E., Scoles, D.H., Blodi, B.A., Langlo, C.S., Stepien, K.E., Weinberg, D.V., **Carroll, J.**, Dubra, A., “Inner retina and vascular imaging in macular telangiectasia using adaptive optics” presented at the 47th Annual Scientific Meeting of The Retina Society, Philadelphia, PA (September, 2014).

Trotter, A.D., Langlo, C., **Carroll, J.**, Connor, T.B. “High resolution imaging in juvenile pigmentary retinopathy” presented at the American Medical Association Annual Meeting, Atlanta, GA (November, 2015).

Rosen, R.B., Mo, S., Krawitz, B., Geyman, L., Efstathiadis, E., Weitz, R., **Carroll, J.**, Dubra, A., Chui, T.Y. “Optical coherence tomography angiography (OCTA) and adaptive optics scanning light ophthalmoscope fluorescein angiography (AOSLO FA): A quantitative and qualitative comparison” presented at ARVO-ISIE, Seattle, WA (May, 2016).

Mo, S., Krawitz, B., Phillips, E., Garg, R., Geyman, L.S., Efstathiadis, E., Chui, T.Y., **Carroll, J.**, Rosen, R.B. “Visualization of radial peripapillary capillaries in optical coherence tomography angiography: The effect of image averaging” presented at ARVO-ISIE, Seattle, WA (May, 2016).

(23) COMMITTEE SERVICE:

Medical College Committees

07/2000 - 06/2001 – President, Graduate Student Association, The Medical College of Wisconsin

07/2008 – present – Member, MCW IRB Review Committee (#2)

09/2008 – 07/2012 – Co-chair, Basic Science Faculty Search Committee, Department of Ophthalmology

10/2008 – present – Member, MSTP Admissions Committee

07/2008 – 07/2009 – Member, Faculty Council Curriculum & Evaluation Committee

- M3/M4 Subcommittee
- 01/2009 – Member, Advancing Healthier Wisconsin Grant Review Committee
 - 07/2009 – 06/2012 – Member, GSC Course Evaluation Committee
 - 07/2009 – 07/2012 – Member, Research Affairs Grant Review Committee
 - 07/2009 – 07/2013 – Member, Physician Scientist Pathway Council
 - 07/2009 – 05/2015 – Board Member, MCW/Marquette Medical Alumni Association
 - 03/2010 – 06/2012 – Member, MCW Internship Program Committee
 - 01/2011 – present – Member, Neuroscience Doctoral Program Admissions Committee
 - 01/2015 – 08/2015 – Member, Search Committee, Executive Director of Alumni Relations
 - 02/2015 – Participant, Marquette University Opus College of Engineering Thought Leaders Summit
 - 09/2015 – 07/2016 – BME Faculty Recruitment Sub-committee (MCW / Marquette)
 - 03/2016 – 09/2016 – Member, Scientific Advisory Council, MCW and Discovery World Science & Technology Center

(24) MEDICAL COLLEGE TEACHING ACTIVITIES:

Medical Student Education

- 01/2000 – 05/2002 – Teaching Assistant, Integrated Medical Neuroscience Lab
- 01/2008 – present – Lecturer, Integrated Medical Neuroscience
- 01/2008 – present – Lab Staff, Integrated Medical Neuroscience
- 01/2010 – 06/2013 – Small Group Leader, Physician Scientist Pathway
- 12/2010 – Core Session Presenter, Physician Scientist Pathway

Graduate Student Education

- 01/2008 – present – Lecturer, The Biology of Vision
- 01/2008 – present – Lecturer, Integrated Graduate Neuroscience (continued as Fundamentals of Neuroscience)
- 10/2008 – Lecturer, Molecular & Cellular Neurobiology
- 01/2009 – present – Course Director, Integrated Graduate Neuroscience (continued as Fundamentals of Neuroscience)
- 03/2009 – Lecturer, Research Ethics Discussion Series
- 03/2009 – Lecturer, Mechanisms of Cellular Signaling
- 03/2013 – Lecturer, PhD program in Basic and Translational Sciences
- 07/2013 – 07/2016 – Course Director, Advanced Systems Neuroscience

Resident & Fellow Education

- 02/2007 – 06/2016 Basic Science Lecturer, Ophthalmology Residency Program
- 08/2008, 08/2009 OCT Workshop, Ophthalmology Residency Program
- 10/2009 – 06/2016 Retina Lectures (Color Vision, Congenital Cone Disorders; Ophthalmology Residency Program)

Community/Lay Public

- 11/2006 “Retinal Imaging”; Eye Opener seminar series
- 03/2007 “Vision Research”; Oconomowoc High School

05/2008	“Envisioning the Future: Emerging Technologies for the Restoration and Preservation of Sight”; MCW Science Café
05/2009	Mentor, The Prairie School Interim Program
07/2010	Lecturer, MCW Apprenticeship in Medicine Program (AIM)
08/2011	“Advances in Retinal Imaging in Achromatopsia” – Achromatopsia Convention, The Chicago Lighthouse for People who Are Blind or Visually Impaired
12/2011	“Advances in high-resolution imaging of the human retina,” presented at the Milwaukee Chapter Meeting of the Foundation Fighting Blindness
01/2013	“Retinal Disease Research Breakthroughs: An Imaging Story,” presented at the Milwaukee Chapter Meeting of the Foundation Fighting Blindness
11/2013	Fighting Blindness Public Engagement Day, presented at Retina 2013, Dublin, Ireland
02/2014	“Adaptive Optics Imaging: From the Stars to Our Eyes,” presented at the Milwaukee Ophthalmological Society monthly meeting
11/2014	Fighting Blindness Public Engagement Day, presented at Retina 2014, Dublin, Ireland
01/2015	“Retinal Disease Research Breakthroughs,” presented at the Wisconsin Vision Seminar for the Foundation Fighting Blindness
02/2015	“Retinal Disease Research & Advanced Ocular Imaging,” presented at the Wisconsin Vision Professionals Conference
04/2015	“Applications of High Resolution Retinal Imaging,” presented at the Neuroscience Research Center Advisory Board Meeting
06/2015	“Advances in Research and Treatment on Macular Degeneration,” presented at the Summer Meeting of the Froedtert & the Medical College of Wisconsin Presidents’ Advisory Council
11/2015	Fighting Blindness Public Engagement Day, presented at Retina 2015, Dublin, Ireland

(26) MCW STUDENTS, FACULTY, RESIDENTS AND CLINICAL/RESEARCH FELLOWS MENTORED:

High School Students

Natalie DeCheck	05/2009	The Prairie School Interim Program
Bradley Julga	06/2012 – 08/2012	Mentor, MCW ROADS program
Brookfield Central	10/2013 – 03/2014	SMART Team Mentor

Undergraduate Students

Allison Gegios	05/2008 – 08/2008	Mentor, MCW SPUR program
William Howenstine	05/2008 – 08/2008	Mentor, MCW SPUR program
Christina Sloan	05/2009 – 08/2009	Mentor, MCW SPUR program
Summer Thompson	05/2009 – 08/2009	Mentor, MCW SPUR program
Ben Hansen	05/2010 – 08/2010	Mentor, MCW SPUR program
Charles Fields	05/2010 – 08/2010	Mentor, MCW SPUR program
Michele Stoehr	05/2010 – 08/2010	Mentor, MCW SPUR program
Savannah Anderson	09/2010 – 05/2011	MSOE Internship student
Robert Garrioch	06/2011 – 09/2011	Mentor, MCW SPUR program

Alex Pechauer	01/2012 – 05/2012	Mentor, MCW PURE program
Brittany Bartlein	05/2012 – 08/2012	Mentor, MCW SPUR program
Aimee Beluch	11/2012 – 06/2013	Marquette Undergrad
Kathleen Bazan	05/2013 – 08/2013	Mentor, MCW SPUR program
Rebecca Mastey	05/2015 – 08/2015	Mentor, MCW SPUR program
Jonah Robinson	05/2015 – 08/2015	Mentor, MCW BUILD program
Ryan O’Toole	05/2015 – 08/2015	Marquette Undergrad

Medical Students

John McAllister*	05/2007 – 08/2007	MSSRP student mentor
	04/2009	Honors research mentor
Nazia Ayub	05/2008 – 08/2008	MSSRP student mentor
Shawn Ostler	05/2009 – 08/2009	MSSRP student mentor
Rachel Martin	05/2009 – 08/2009	MSSRP student mentor
Cory Siebe	05/2009 – 08/2009	MSSRP student mentor
Daniel Odell	05/2009 – 08/2009	MSSRP student mentor
	01/2010 – 05/2012	Physician Scientist Pathway mentor
Jackson Lever*	04/2009	Research elective mentor
Hellen Chiao	01/2010 – 05/2012	Physician Scientist Pathway mentor
Jason Croskrey*	01/2010 – 05/2012	Physician Scientist Pathway mentor
	05/2010 – 08/2010	MSSRP student mentor
Philip Sommer	01/2010 – 05/2012	Physician Scientist Pathway mentor
	05/2010 – 08/2010	MSSRP student mentor
Melissa Wagner-Schuman	07/2010 – 05/2012	Physician Scientist Pathway mentor
David Kay*	11/2010 – 05/2014	Physician Scientist Pathway mentor
	05/2011 – 08/2011	MSSRP student mentor
Megan Land*	11/2010 – 05/2014	Physician Scientist Pathway mentor
	05/2011 – 08/2011	MSSRP student mentor
	10/2013	Honors research mentor
Sean Hansen*	11/2010 – 05/2014	Physician Scientist Pathway mentor
	05/2011 – 08/2011	MSSRP student mentor
Leah Landsem	10/2011 – 05/2014	Physician Scientist Pathway mentor
	02/2013	Research elective mentor
John Flatter*	10/2011 – 06/2014	Physician Scientist Pathway mentor
	05/2012 – 08/2012	MSSRP student mentor
	10/2013	Honors research mentor
Derek Denney*	05/2012 – 08/2012	MSSRP student mentor
Ben Liu	10/2012 – 06/2014	Physician Scientist Pathway mentor
	05/2013 – 08/2013	MSSRP student mentor
Edward Randerson*	05/2014 – 08/2014	MSSRP student mentor
	05/2014 – 06/2015	Physician Scientist Pathway mentor
	10/2016	Honors research mentor
Matthew Braza	05/2014 – 08/2014	MSSRP student mentor
	07/2014 – present	Physician Scientist Pathway mentor
Ryan Johnson*	05/2014 – 08/2014	MSSRP student mentor
	05/2014 – present	Physician Scientist Pathway mentor
Timothy Carll	05/2014 – 08/2014	MSSRP student mentor
	05/2014 – present	Physician Scientist Pathway mentor

Kyle Greiber	05/2014 – 08/2014	MSSRP student mentor
Rachel Linderman	05/2015 – 08/2015	MSSRP student mentor
	10/2014 – present	Physician Scientist Pathway mentor
	07/2016 – present	Research Year Mentor (M2/M3)
Madia Russilo	05/2015 – 08/2015	MSSRP student mentor
Jamil Khan	05/2015 – 08/2015	MSSRP student mentor
	09/2015 – present	Physician Scientist Pathway mentor
Alana Trotter*	05/2015 – 08/2015	Research Mentor, M4 Curriculum
Anisha Aurora	05/2016 – 08/2016	MSSRP student mentor
	09/2015 – present	Physician Scientist Pathway mentor
Daniel Lee	05/2016 – 08/2016	MSSRP student mentor
	09/2015 – present	Physician Scientist Pathway mentor
Maggie Strampe	06/2016 – present	Research Assistant, Flexible MD Program, University of Minnesota
Steven Seto	11/2016 – present	Physician Scientist Pathway mentor
Bisola Omoba	11/2016 – present	Physician Scientist Pathway mentor
Brit Zaro	11/2016 – present	Physician Scientist Pathway mentor

*=matched in Ophthalmology residency

Graduate Students

Ph.D. Students Advised (MCW)

Adam Dubis (IDP)	05/2007 – 05/2012	<i>Characterizing Foveal Morphology in the Normal and Diseased Retina</i>
Melissa Wagner-Schuman (MSTP)	05/2009 – 05/2010*	<i>The Role of Mutations in the L and M Opsin Genes in the Progression of Myopia</i>
Chris Langlo (MSTP)	06/2012 – 06/2016	<i>Assessing Photoreceptor Structure in Congenital Achromatopsia</i>
Melissa Wilk (NDP)	06/2012 – 09/2016	<i>Using Imaging and Genetics to Characterize Visual System Structure Across the Pigmentation Spectrum</i>
Alex Salmon (NDP)	05/2015 – present	TBD
Alison Huckenpahler (MSTP)	07/2015 – present	TBD
Erica Woertz (MSTP)	10/2015 – present	TBD
Ben Sajdak (NDP)	08/2016 – present	TBD

*MCW advisor for last year of PhD work, primary mentor moved institutions.

Ph.D. Students Advised (Marquette University Biomedical Engineering Program)

Robert Cooper	01/2010 – 09/2015	<i>Analyzing Reflectance Changes of Rod & Cone Photoreceptors</i>
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Masters Students Advised (*Marquette University Biomedical Engineering Program*)

Hitesh Tanna	02/2008 – 12/2009	<i>Tools for Retinal Image Processing</i>
Ashavini Pavaskar	02/2009 – 05/2011	<i>Automated OCT Retinal Image Analysis</i>

Ph.D. / M.S. Committees

Jim Kuchenbecker	05/2007 – 05/2008	Ph.D. (<i>joint Marquette-MCW</i>)
Diane Tait	07/2006 – 05/2008	Ph.D.
Matt Mauck	05/2007 – 06/2008	Ph.D. (<i>MCW MSTP Program</i>)
Melissa Wagner-Schuman	07/2006 – 05/2010	Ph.D. (<i>MCW MSTP Program</i>)
Dan Roberson	07/2005 – 02/2011	Ph.D.
Sandeep Gopalakrishnan	05/2010 – 07/2012	Ph.D. (<i>UW-Milwaukee</i>)
Andy Salzwedel	05/2010 – 05/2014	Ph.D.
Alex Puckett	10/2009 – 05/2013	Ph.D.
Danielle Reitsma	10/2011 – 08/2013	Ph.D.
Elisabeth Finstad	05/2015	MSc. (<i>Buskerud University College, Norway; external examiner</i>)

Qualifying Exam Committees

Ben Sajdak	10/2015	NDP Program
Alex Salmon	10/2015	NDP Program
Jonathan Young	12/2016	IDP Program
Chris Reid	12/2016	CBNA (transfer from U. Florida)

Ph.D. Rotation Students

Danielle Reitsma	Spring 2009	Neuroscience Doctoral Program
Anthony Prisco	Summer 2009	MSTP
Kate Engerer	Summer 2009	MSTP
Eric Weh	Winter 2009	Interdisciplinary Doctoral Program
Nathan Schuld	Spring 2010	Interdisciplinary Doctoral Program
Teresa Patitucci	Summer/Fall 2010	Interdisciplinary Doctoral Program
Melissa Diederichs	Summer/Fall 2011	Neuroscience Doctoral Program
Francie Moehring	Fall 2013	Neuroscience Doctoral Program
Ashley Echert	Fall 2013	Neuroscience Doctoral Program
Erica Woertz	Summer 2014	MSTP
Zachary Brandt	Fall 2014	Interdisciplinary Doctoral Program
Alex Salmon	Spring 2015	Neuroscience Doctoral Program

Research Fellows

Jungtae Rha, PhD	10/2006 – 10/2012	Research mentor
Diane Tait, PhD	05/2008 – 10/2009	Research mentor
Jesson Martin, PhD	02/2007 – 07/2008	Research mentor
Pooja Godara, MD*	10/2008 – 12/2009	Research mentor
	07/2011 – 07/2012	Research mentor
Fouad Zakka, MD	08/2012 – 06/2014	Research mentor
Mortada Abdelaal, MD	01/2014 – 07/2014	Research mentor (Egypt)
Emily Patterson, PhD	10/2014 – present	Research mentor
Lynn Sun, MD, PhD*	04/2015 – 05/2016	Research mentor
Katie Litts, PhD	05/2016 – present	Research mentor

*=matched in Ophthalmology residency

(28) PROGRAMMATIC DEVELOPMENTS:

- 2007-2017 – Initiated the organization of a departmental seminar series (*Ophthalmology*); coordinate speaker invitations with fellow faculty and assist in development of promotional materials
- 2008 – Implemented Cirrus OCT imaging capabilities for Ophthalmology clinic, provided formal training of technicians, optometrists, and provided continued technical support.
- 2009 – Established the Eye Institute *Advanced Ocular Imaging Program*
- 2008-2017 – Assist with the Eye Institute’s comprehensive color vision testing service
- 2010 – co-organizer, Department of Ophthalmology Annual Symposium, CME approved, “*Advances in Ocular Imaging*”
- 2014 – co-organizer, Department of Ophthalmology Annual Symposium, CME approved, “*The Aging Eye*”
- 2016 – co-organizer, Department of Ophthalmology Annual Symposium, CME approved, “*40th Anniversary*”

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