

Kevin M. Dean, Ph.D.

Work Address

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Dallas, TX 75287
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VISION

As a scientist, I am driven to develop and apply cutting-edge imaging technologies that provide molecular insight into incredibly complex biological processes and systems. My scientific training spans multiple disciplines, including biology, biochemistry, computer vision, fluorescence microscopy, and optical probes (including optogenetics, chemogenetics, and biosensors), and I have a strong history of leading and completing highly-technical, interdisciplinary, and collaborative research projects.

RESEARCH AND WORK ACTIVITIES

Tenure-Track Assistant Professor

2022 – Present

Lyda Hill Department of Bioinformatics and Cecil H. and Ida Green Center for Systems Biology.
UT Southwestern Medical Center, Dallas, TX, USA.

Advanced fluorescence imaging of tissues, single cell sequencing, and other single-cell approaches have provided incredible insight into the earliest events in the metastatic cascade, including the growth of the primary tumor and invasion of single cells or cell clusters into adjacent tissues. In contrast, the molecular and cellular processes that enable colonization of a remote tissue are poorly understood and data are scarce. The overarching goal of the Dean Lab is to identify the molecular mechanisms that enable cancer cells to colonize and populate a distant tissue. To achieve this, we are developing a series of self-driving microscopes that leverage cutting-edge computer vision routines and adaptively image diverse specimens, and advancing integrated multiplexing imaging approaches using a combination of hydrogel-based tissue clearing and directed evolution of labeling technologies.

Research-Track Assistant Professor, and Director of the Microscopy Innovation Lab

2018 – 2022

Department of Cell Biology.

UT Southwestern Medical Center, Dallas, TX, USA.

The pace of microscopy technology development far outstrips the rate at which it can be commercialized and delivered to the greater biological community. The Microscopy Innovation Lab at UT Southwestern works to eliminate this delay by developing potentially transformative instrumentation that is tailored to address specific biological questions, and engaging in close collaborations with life scientists to gain molecular insight into physiological and pathophysiological phenomena. Towards these means, I work one-on-one with diverse biomedical scientists and physicians to develop custom imaging workflows that synergistically combine advances in optical probes, sample preparation, instrument design and operation, and computer vision-based analyses of TB-scale datasets. Imaging systems include 1) two cleared tissue Axially Swept Light-Sheet Microscopes that achieve 300 and 650 nm isotropic resolution, respectively, throughout centimeter-scale optically cleared tissues, 2) a high-speed single-objective oblique plane light-sheet microscope with 200 and 450 nm lateral and axial resolution, respectively, 3) a hyperspectral TIRF system capable of imaging 6 genetically encoded fluorescent probes in living cells, 4) a 2 and 3-photon laser scanning confocal equipped with adaptive optics, extended depth of focusing, and rapid axial scanning for ultradeep intravital imaging, and 5) a mesoSPIM microscope for macro-scale imaging with 5 μm isotropic resolution. Furthermore, through collaborations with the Danuser and Fiolka labs, a 6) 2-photon micro-environmental selective plane illumination microscope with 300 nm isotropic resolution, 7) a live-cell 1-photon Axially Swept Light-Sheet Microscope with 350 nm isotropic resolution, 7) a Field Synthesis variant of Lattice Light-Sheet Microscopy, 8) and a multi-directional illumination light-sheet microscope for imaging of developing organisms. Research combines biology, biophysics, optics, and computer vision.

Founder

2019 – 2022

Discovery Imaging Systems, LLC, Dallas, TX, USA.
<https://www.discoveryimagingystems.com>

Established an LLC to provide customized and world-class imaging solutions to academic research centers. Business portfolio focused on new methods for imaging chemically transparent biological specimens with the cleared tissue variants of Axially Swept Light-Sheet Microscopy. Customer purchases third-party components, and Discovery Imaging Systems provides expert assembly on site and annual maintenance thereafter.

Postdoctoral Fellow, Fiolka and Danuser Laboratories

2014 – 2018

Lyda Hill Department of Bioinformatics
UT Southwestern Medical Center, Dallas, TX, USA.

Development and application of light-sheet microscopy and computer vision technologies to elucidate mechanisms of cell-extracellular matrix adhesions, Rho GTPase signaling, and cytoskeletal dynamics of breast cancer cells disseminating into 3D tissue-like environments. Ruth L. Kirschstein Postdoctoral Fellow. Research conducted under the guidance of Drs. Reto Fiolka and Gaudenz Danuser.

Director, BioFrontiers Advanced Imaging Resource

2013 – 2014

BioFrontiers Institute
University of Colorado, Boulder, CO, USA.

Established first campus-wide microscopy facility and expanded user base expanded to over 100 users from eight departments, two universities, and two biotechnology firms. Led a collaborative team in the building and development of novel microscopy and super-resolution instrumentation and techniques; executed independent research; provided facility strategic vision; organized analytical training for users; worked with researchers to develop customized protocols and assays; collaborated with faculty to compete for grants and contracts to support facility research activities and lead infrastructure grants; interfaced and worked closely with industrial users. Directly reported to the Chief Scientific Officer, Dr. Leslie Leinwand, and Dr. Tom Cech.

Graduate Research Assistant, Palmer Laboratory.

2007 – 2013

Department of Biochemistry
University of Colorado, Boulder, CO, USA.

Investigated the role of site-specific mutations in dark-state conversion and irreversible photobleaching for red-fluorescent proteins; developed high-throughput microfluidic cell-sorter capable of measuring fluorescence lifetime and the rate of photobleaching on single mammalian cells; directed-evolution of red-fluorescent proteins for improved photostability; collaborated with other lab members on the development and evaluation of optical biosensors. Research conducted under the guidance of Drs. Amy E. Palmer and Ralph Jimenez.

Undergraduate Research Assistant, Williamson Laboratory.

2003 – 2006

Department of Chemistry
Willamette University, Salem, OR, USA.

Development of semi-automated laser light scattering instrumentation and the measurement of highly accurate and precise binary liquid-liquid phase diagrams. Research conducted under the guidance of Dr. J. Charles Williamson.

EDUCATION

Ph.D., Biochemistry GPA: 3.9
University of Colorado, Boulder, CO, USA. 2007 - 2013
Dissertation: Fluorescent Proteins: Spectroscopic Studies, Microfluidic Analysis, and Generation of Improved Variants. Research conducted under the guidance of Drs. Amy E. Palmer and Ralph Jimenez.

B.A., Chemistry GPA: 3.64
Willamette University, Salem, OR, USA. December 2002 - 2006
Thesis: Laser Light Scattering Investigations of the Isobutyric Acid/Water Binary Liquid System. Research conducted under the guidance of Dr. J. Charles Williamson.

OTHER TRAINING

Marine Biological Laboratory, Woods Hole, MA. (2016)
Computational Image Analysis, Summer Course.
Directors: Lani Wu, Steven Altschuler, and Gaudenz Danuser

GRANT SUPPORT

- 2023 – 2024 Harold C. Simmons Comprehensive Cancer Center, UTSW.
Next-Generation Histopathology Using Rapid Ultraviolet Photoacoustical Microscopy .
Principal Investigator
- 2021 – 2026 1RM1GM145399
National Institute of General Medical Sciences, NIH.
UTSW-UNC Center for Cell Signaling Analysis.
Principal Investigator
- 2021 – 2026 1U54CA268072
National Cancer Institute, NIH.
Intelligent Hyperspectral Imaging of Subcellular Molecular States at the Whole Organ Level.
Principal Investigator
- 2020 – 2025 1R01DK127589
National Institute of Diabetes and Digest and Kidney Diseases, NIH.
Prune Belly Syndrome: Mechanisms of Filamin A Mutations.
Co-Investigator
- 2020 – 2024 1R01MH120131
National Institute of Mental Health, NIH.
Neuronal Signaling Mechanisms of Stress-Induced Anhedonia in the Lateral Habenula.
Collaborator
- 2019 – 2020 1S10OD026722
National Institute of General Medical Sciences, NIH.
Laser for Ultra-Deep Intravital Imaging.
Key Personnel
- 2016 – 2018 F32GM117793
National Institute of General Medical Sciences, NIH.
Symmetry breaking and polarization of cells in 3D environments.
Principal Investigator
- 2011 – 2013 0801680
Division Of Graduate Education, NSF

Integrative Graduate Education and Research Trainee (IGERT) in Computational, Optical, Sensing and Imaging.

Trainee

- 2009 – 2011 T32GM065103
National Institute of General Medical Sciences, NIH.
Interdisciplinary Predoctoral Training in Molecular Biophysics.
Trainee
- 2006 – 2007 Sigma Xi Undergraduate Research Fellowship.
Trainee

PEER-REVIEWED PUBLICATIONS

1. Philippe Roudot et al., u-track 3D: measuring and interrogating intracellular dynamics in three dimensions. *Submitted*.
2. Erik S. Welf et al., Worrying drives cell migration in mechanically unrestrained environments. *Submitted*.
3. Tadamoto Isogai, Kevin M. Dean et al., Direct Arp2/3-vinculin binding is essential for cell spreading, but only on compliant substrates and in 3D. *Submitted*.
4. Andrew D. Weems et al., Blebs Promote Cell Survival by Assembling Oncogenic Signaling Hubs. *Accepted, Nature*.
5. Alec Bancroft et al., Discoidin Domain Receptor 2 regulates aberrant mesenchymal progenitor cell fate and matrix organization. *Accepted, Sci. Advances*.
6. Bingying Chen et al., Increasing the field-of-view in oblique plane microscopy via optical tiling. *Biomed. Opt. Exp.* 2022 Nov; (13) 5616-5627.
7. Bingying Chen et al., Resolution doubling in light-sheet microscopy via oblique plane structured illumination. *Nat. Methods* 2022 Sep;
8. Kevin M. Dean et al., Isotropic imaging across spatial scales with axially swept light-sheet microscopy. *Nat. Protoc.* 2022 Jul; (17) 2025-2053.
9. Sue Y. Kim et al., Particle Retracking Algorithm Capable of Quantifying Large, Local Matrix Deformation for Traction Force Microscopy. *PLoS ONE*. 2022 Jun; (17) e0268614.
10. Iliodora V Pop et al., Structure of long-range direct and indirect spinocerebellar pathways as well as local spinal circuits mediating proprioception. *Neurosci.* 2022 Jan; (42) 581-600.
11. Hao Liu et al., Heterozygous mutation of Vegfr3 decreases renal lymphatics but is dispensable for renal function. *J. Am. Soc. Neph.* 2021 Sep; (32) 3099-3113.
12. Bo-Jui Chang et al., Real-time multi-angle projection imaging of biological dynamics. *Nat. Methods*. 2021 Jun; (18) 829-834.
13. Sangyoon J. Han et al., Pre-complexation of talin and vinculin without tension is required for efficient nascent adhesion maturation. *eLife*. 2021 Mar; (10) e66151. *Co-corresponding author*.
14. Erik S. Welf et al., Actin-membrane release initiates cell protrusion. *Dev. Cell*. 2020 Dec; (55) 723-736.
15. Etai Sapoznik et al., A versatile Oblique Plane Microscope for large-scale and high-resolution imaging of subcellular dynamics. *eLife*. 2020 Nov; (9) e57681. *Co-corresponding author*.
16. Kyung-min Lee et al., Proline rich 11 (PRR11) overexpression amplifies PI3K signaling and promotes antiestrogen resistance in breast cancer. *Nat. Comm.* 2020 Oct; (11) 1-15.
17. Tonmoy Chakraborty, Bingying Chen et al., Converting Lateral Scanning Into Axial Focusing to Speed Up 3D Microscopy. *Light Sci. Appl.* 2020 Sep; (9) 00401-00409.
18. Bo-Jui Chang, Kevin M. Dean, and Reto Fiolka. Systematic and quantitative comparison of lattice and Gaussian light-sheets. *Opt. Express*. 2020 Aug; (28) 27052-27077.

19. Bingying Chen, Tonmoy Chakraborty et al., Extended depth of focus multiphoton microscopy via incoherent pulse splitting. *Biomed. Opt. Express*. 2020 Jun; (11) 3830-3842.
20. Tonmoy Chakraborty et al., Light-sheet microscopy of Cleared Tissues with Isotropic, Subcellular Resolution. *Nat. Methods*. 2019 Nov; (16), 1109-1113. *Co-corresponding author*.
21. Meghan K. Driscoll et al., Robust and automated detection of subcellular morphological motifs in 3D microscopy images. *Nat. Methods*. 2019 Sept; (16) 1037-1044.
22. Ashwathi S. Mohan et al., Enhanced dendritic actin network formation in lamellipodia drives proliferative signaling in growth-challenged Rac1^{P29S} melanoma cells. *Dev. Cell*. 2019 May; (49) 444-460.
23. Bo-Jui Chang, Mark Kittisopikul et al., Universal Light-Sheet Generation with Field Synthesis. *Nat. Methods*. 2019 Feb; (16) 235-238.
24. Kevin M. Dean and Reto Fiolka. Lossless Three-Dimensional Parallelization in Digitally Scanned Light-Sheet Fluorescence Microscopy. *Sci. Rep.* 2017 Aug; (7), 9332.
25. Kevin M. Dean et al., Imaging Subcellular Dynamics with Fast and Light-Efficient Volumetrically Parallelized Microscopy. *Optica*. 2017 Feb; (4), 263-271.
26. Jun Chu et al., A Bright Cyan-Excitable Orange Fluorescent Protein for Dual-Emission Microscopy and Highly Sensitive Bioluminescence Imaging In Vivo. *Nat. Biotechnol.* 2016 May 30; (34), 760-767.
27. J. Charles Williamson et al. Determination of Liquid-Liquid Critical Point Composition Using 90° Laser Light Scattering. *Phys. Rev. E*. 2016 Apr 21; (93), 042610.
28. Kevin M. Dean, Philippe Roudot et al, Diagonally Scanned Light-Sheet Microscopy for Fast Volumetric Imaging of Adherent Cells. *Biophys. J.* 2016 Mar 29; (110), 1456-1465.
29. Erik S. Welf, Meghan K. Driscoll et al., Quantitative Multiscale Cell Imaging in Controlled 3D Microenvironments. *Dev. Cell*. 2016 Feb 22; (36), 462-475.
30. Kevin M. Dean et al. Deconvolution-Free Subcellular Imaging with Axially Swept Light Sheet Microscopy. *Biophys. J.* 2015 Jun 16; 108(12), 2807-2815.
31. Kevin M. Dean et al, High-Speed Multiparameter Photophysical Analyses of Fluorophore Libraries. *Anal. Chem.* 2015 Apr 21; 87(10), 5026-30.
32. Kevin M. Dean et al., Microfluidics-Based Selection of Red-Fluorescent Proteins with Decreased Rates of Photobleaching. *Int. Biol.* 2014 Nov 21; 7(2), 263-73.
33. Kevin M. Dean and Reto Fiolka. Uniform and Scalable Light-Sheets Generated by Extended Focusing. *Opt. Express*. 2014 Oct 16;22(21),26141-26152.
34. Kevin M. Dean and Amy E. Palmer. Advances in Fluorescence Labeling Strategies for Dynamic Cellular Imaging. *Nat. Chem. Biol.* 2014 May 16;10(7):512-23.
35. Yan Qin et al., Direct Comparison of a Genetically Encoded Sensor and Small Molecule Indicator: Implications for Quantification of Cytosolic Zn²⁺. *ACS Chem. Biol.* 2013 Aug 30;8(11):2366-71.
36. Lloyd M. Davis et al., Microfluidic Cell sorter for Use in Developing Red Fluorescent Proteins with Improved Photostability. *Lab Chip*. 2013 Jun 21;13(12):2320-7.
37. Kevin M. Dean, Yan Qin, and Amy E. Palmer. Visualizing Metal Ions in Cells: An Overview of Analytical Techniques, Approaches, and Probes. *Biochim. et Biophys. Acta*. 2012 Sep;1823(9):1406-15.
38. Jennifer L. Lubbeck et al., Microfluidic Flow Cytometer for Quantifying Photobleaching of Fluorescent Proteins in Cells. *Anal. Chem.* 2012 May 1;84(9):3929-37.
39. Kevin M. Dean et al., Analysis of Red-Fluorescent Proteins Provides Insight Into Dark-State Conversion and Photodegradation. *Biophys. J.* 2011 Aug 17;101(4):961-9.
40. Kevin M. Dean and J. Charles Williamson. The Stir-Settle Approach to Semiautomated Light Scattering Determination of Liquid-Liquid Coexistence Curves. *J. Chem. Eng. Data*. 2011 Jan 26;56(4):1433-7.

41. Kevin. M. Dean et al., The Accuracy of Liquid-Liquid Phase Transition Temperatures Determined from Semiautomated Light Scattering Measurements. *J. Chem. Phys.* 2010 Aug 21;133, 074506.

PATENTS AND PATENT APPLICATIONS

1. 13,360,706 – Optically Integrated Microfluidic Cytometer for High Throughput Screening of Photo-physical Properties of Cells or Particles.
2. 62,155,980 – Uniform and Scalable Light-Sheets Generated by Extended Focusing.
3. 16,093,561 – Light-Sheet Microscope with Parallelized 3D Image Acquisition.

INVITED TALKS

1. 2023 - Willamette University. Salem, OR, USA.
2. 2022 - Photonics Media Webinar Series. Virtual.
3. 2022 - CLEO: Laser Science to Photonic Applications Technical Conference. San Jose, CA, USA.
4. 2022 - Light-Sheet Conference and Workshop, Marine Biological Laboratory. Woods Hole, MS, USA.
5. 2021 - Institute for Quantitative Health Science & Engineering, Michigan State University. Lansing, MI, USA.
6. 2020 - Photonics Media Webinar Series. Virtual.
7. 2020 - Imaging ONE WORLD Series. Virtual.
8. 2019 - Next Generation Microscopy Workshop. Cambridge, U.K.
9. 2017 - Cell Biology Seminar Series, Denver University, Denver, CO, USA.
10. 2014 - Andor Academy, University of Colorado, Boulder, CO, USA.
11. 2019 - American Chemical Society, Orlando, FL, USA.

INVITED WORKSHOPS

1. M2PC Workshop. Pacific Northwest National Labs. Virtual. September 21-22, 2021.
2. Software for Microscopy. Janelia Farm, Howard Hughes Medical Institute. Ashburn, VA. February 19-21, 2020.

OTHER TALKS, PRESENTATIONS, AND CONFERENCE PAPERS

1. 2021 - Kevin M. Dean. American Society for Cell Biology (ASCB). Virtual.
2. 2021 - Kevin M. Dean. Society for Neuroscience (SfN). Virtual.
3. 2021 - Kevin M. Dean. EMBO & EMBL Symposium: Seeing is Believing - Imaging the Processes of Life. Virtual.
4. 2021 - Doug P. Shepherd, Alfred Millett-Sikking, Andrew G. York, Reto P. Fiolka, Kevin M. Dean. Focus On Microscopy. Virtual.
5. 2021 - Kevin M. Dean, Denise Ramirez, Reto Fiolka, Hu Zhao, and Kate Luby-Phelps. Arizona Imaging and Microanalysis Conference. Virtual.
6. 2020 - Tonmoy Chakraborty, Reto Fiolka, and Kevin M. Dean. The Network of European Bioimage Analysts (NEUBIAS). Bordeaux, France.
7. 2020 - Kevin M. Dean. Imaging Mouse Development. Janelia Farm, Howard Hughes Medical Institute. Ashburn, VA, USA.

8. 2020 - Alfred Millett-Sikking, Andrew G. York, Reto Fiolka, Kevin M. Dean. Focus On Microscopy. Osaka, Japan. *Cancelled*.
9. 2020 - Kevin M. Dean. The Academy of Medicine, Engineering & Science of Texas (TAMEST). Dallas, TX, USA.
10. 2019 - Tonmoy Chakraborty, Reto Fiolka, and Kevin M. Dean. EMBL Seeing is Believing. Heidelberg, Germany.
11. 2019 - Kevin M. Dean. Frontiers and Challenges in Laser-Based Biological Microscopy. Telluride, CO, USA.
12. 2019 - Tonmoy Chakraborty, Bo-Jui Chang, Kevin M. Dean, and Reto Fiolka. Focus On Microscopy. London, U.K.
13. 2018 - Kevin M. Dean, Tadamoto Isogai, Philippe Roudot, Erik S. Welf, Meghan K. Driscoll, Reto Fiolka, and Gaudenz Danuser. Focus On Microscopy. Singapore, Republic of Singapore.
14. 2017 - Kevin M. Dean, Erik S. Welf, Philippe Roudot, Meghan K. Driscoll, Reto Fiolka, and Gaudenz Danuser. Frontiers in Imaging Science. Janelia Farm, Howard Hughes Medical Institute. Ashburn, VA, USA.
15. 2017 - Kevin M. Dean, Erik S. Welf, Philippe Roudot, Meghan K. Driscoll, Reto Fiolka, and Gaudenz Danuser. Biophysical Society. New Orleans, LA, USA.
16. 2017 - Kevin M. Dean, Erik S. Welf, Philippe Roudot, Meghan K. Driscoll, Reto Fiolka, and Gaudenz Danuser. Quantitative BioImaging 2017. College Station, TX, USA.
17. 2016 - Kevin M. Dean et al., Microscope Technologies for Quantitative Imaging in 3D Microenvironments. *SPIE, Biomedical Optics and Medical Imaging*.
18. 2016 - Kevin M. Dean and Reto Fiolka. Isotropic 3D Imaging over Large Volumes with Axially Swept Light-Sheet Microscopy. *inFocus Magazine, Royal Microscopical Society*.
19. 2016 - Kevin M. Dean, Erik S. Welf, Philippe Roudot, Meghan K. Driscoll, Reto Fiolka, and Gaudenz Danuser. Gordon Research Conference - Signaling by Adhesion Receptors. Bates College, Lewiston, Maine, USA.
20. 2015 - Kevin M. Dean, Philippe Roudot, Erik S. Welf, Meghan K. Driscoll, Reto Fiolka, and Gaudenz Danuser. EMBO & EMBL Symposium: Seeing is Believing - Imaging the Processes of Life. EMBL, Heidelberg, Germany.
21. 2013 - Kevin M. Dean, Jennifer L. Lubbeck, Premashis Manna, Lloyd M. Davis, Ralph Jimenez, Amy E. Palmer. EMBO & EMBL Symposium: Seeing is Believing - Imaging the Processes of Life. EMBL, Heidelberg, Germany.
22. 2013 - Kevin M. Dean, Jennifer L. Lubbeck, Lloyd M. Davis, Ralph Jimenez, Amy E. Palmer. Signaling and Cellular Regulation Symposium. University of Colorado, Boulder, CO, USA.
23. 2013 - Kevin M. Dean, Jennifer L. Lubbeck, Lloyd M. Davis, Ralph Jimenez, Amy E. Palmer. Computational, Optical, Sensing and Imaging. University of Colorado, Boulder, CO, USA.
24. 2012 - Kevin M. Dean, Jennifer L. Lubbeck, Lloyd M. Davis, Ralph Jimenez, Amy E. Palmer. Computational Optical, Sensing and Imaging IAB Meeting. Breckenridge, CO, USA.
25. 2011 - Kevin M. Dean, Jennifer L. Lubbeck, Lloyd M. Davis, Ralph Jimenez, Amy E. Palmer. Colorado Photonics Industry Association Annual Meeting. Boulder, CO, USA.
26. 2011 - Kevin M. Dean, Jennifer L. Lubbeck, Lloyd M. Davis, Ralph Jimenez, Amy E. Palmer. Molecular and Cellular Biophysics Symposium at the University of Denver. Denver, CO, USA.
27. 2011 - Kevin M. Dean, Jennifer L. Lubbeck, Lloyd M. Davis, Ralph Jimenez, Amy E. Palmer. Multiphoton Imaging: The Next 6×10^{23} Femtoseconds, Janelia Farm, Howard Hughes Medical Institute. Ashburn, VA, USA.
28. 2010 - Kevin M. Dean, Jennifer L. Lubbeck, Hairong Ma, Ralph Jimenez, Amy E. Palmer. New Optical Methods in Cell Physiology, Society of General Physiologists. Wood's Hole, MA, USA.

29. 2010 - Kevin M. Dean, Jennifer L. Lubbeck, Hairong Ma, Ralph Jimenez, Amy E. Palmer. Novel Approaches to Bioimaging II, Janelia Farm, Howard Hughes Medical Institute. Ashburn, VA, USA.
30. 2006 - Kevin M. Dean, Joseph C. Williamson, Student Scholarship Recognition Day, Salem, OR, USA.
31. 2006 - Kevin M. Dean, Joseph C. Williamson, Northwest Undergraduate Science Research Conference at Oregon Health & Science University, Portland, OR, USA.
32. 2005 - Kevin M. Dean, Joseph C. Williamson, Student Scholarship Recognition Day, Salem, OR, USA.

CONFERENCE ORGANIZING

1. CLEO: Laser Science to Photonic Applications Technical Conference.
2. Biomedical Applications Program Committee. OSA Biophotonics Congress: Optics in the Life Sciences.
3. BRAIN Technical Program Committee. OSA Biophotonics Congress: Optics in the Life Sciences.

GRANT REVIEW

2022	Netherlands Organization for Scientific Research (NWO, the Dutch Research Council).
2019	Netherlands Organization for Scientific Research (NWO, the Dutch Research Council).

REFeree FOR JOURNALS

- Nature Methods
- Nature Protocols
- Nature Biotechnology
- Scientific Reports
- Journal of Neuroscience Methods
- Optics Express
- Biomedical Optics Express
- Journal of Biophotonics
- Biophysical Journal
- PLoS One
- EMBO Molecular Systems Biology
- eLife

TEACHING EXPERIENCE

2022 – Present	Discussion Leader, Responsible Conduct of Research, UT Southwestern Medical Center.
2021 – Present	Assistant Instructor, Computational Image Analysis, UT Southwestern Medical Center.
2015 – 2019	Assistant Instructor, Optical Microscopy, UT Southwestern Medical Center.
2013 – 2014	Laboratory Assistant, Light Microscopy, University of Colorado.
2007 – 2008	Teaching Assistant, Introductory Chemistry, University of Colorado.
2006 – 2007	Tutor, Introductory Chemistry and Physical Chemistry, Willamette University.

INSTITUTIONAL COMMITTEES

2022 – Present	UT Southwestern Committee on Improving Research Staff Recruitment and Hiring.
2022 – Present	Lyda Hill Dept. of Bioinformatics and BME-Computational Biology Retreat.
2021 – Present	Dept. of Biophysics and Lyda Hill Dept. of Bioinformatics Faculty Search.
2021 – Present	Faculty Senate at UT Southwestern.
2021 – Present	Medical School Admissions Committee.

SCIENTIFIC MENTORSHIP

2022 – Present	Zach Marin, Ph.D., Postdoctoral Fellow, UT Southwestern Medical Center.
2021 – Present	Dax Collision, Undergraduate Student Intern, UT Southwestern Medical Center.
2021 – Present	Jinlong Lin, Research Technician I, UT Southwestern Medical Center.
2021 – Present	Hazel Borges, M.S., Research Assistant I, UT Southwestern Medical Center.
2021 – Present	Renil Gupta, High-School Student Intern, UT Southwestern Medical Center.
2021 – 2022	Samir Mamtani, Undergraduate Student, University of Wisconsin.
2021 – 2022	Sampath Rapuri, Undergraduate Student, Johns Hopkins University.
2019 – 2021	Evgenia Azarova, Graduate Student, Johns Hopkins University.
2019 – 2019	Ryan Hammond, Undergraduate Student, Carnegie Mellon University.
2018 – 2019	Qiuyan Shao, Principal Data Scientist at Capital One.
2018 – 2020	Saumya Vora, M.S., Regulatory Affairs Specialist at Medtronic.
2012 – 2014	Pia Friis, Laboratory Technician in Clinical Microbiomics.
2012 – 2013	Jordan Gringauz, Law Student, Washington College of Law.
2011 – 2013	Derek Gann, Owner and Engineer of CAFE Circuits and Software.
2010 – 2011	Jennifer Binder, Graduate Student, Arizona State University.

DISSERTATION COMMITTEES

2020 – Present	Byron Weiss, Danuser Lab, Lyda Hill Dept. of Bioinformatics, UTSW.
2020 – Present	Harshida Pancholi, Roberts Lab, Dept. of Neuroscience, UTSW.

DISTINCTIONS

2022	Inductee, Weed High School Hall of Fame.
2018	Dean's Discretionary Award, UT Southwestern Medical Center.
2018	Runner-Up, UTSW Brown-Goldstein Excellence in Postdoctoral Research.
2016	Nominee, AAAS/Science Program for Excellence in Science.
2015	Finalist, 2015 Educational Award, Edmund Optics.
2011	Certificate of Achievement, Colorado Photonics Industry Association (CPIA).
2007	Excellence in Graduate Teaching.
2007	ESPN & CoSIDA District 8 Academic All-American.
2007	Inducted into National Football Foundation Hampshire Honor Society.
2007	Co-Recipient, Henry Booth Outstanding Senior Male Athlete Award.
2006	Willamette University Bill Trenbeath Award.
2006	ESPN & CoSIDA District 8 Academic All-American.
2006	Sigma Alpha Epsilon National Scholar.
2006	Willamette University Athlete of The Month.
2006	Northwest Conference Athlete of the Week.
2006	Willamette University Football Team Captain.
2005	Invited to Speak at the Murdock's NW Undergraduate Research Meeting.
2005	Willamette University Football Team Captain.
2005	Peterson Family Scholarship for Chemistry.
2005	Inducted into the Mortar Board National Honor Society.

2004	Sigma Alpha Epsilon National Scholar.
2004	Inducted into the National Society of Collegiate Scholars (NSCS).
2004	Selected for Science Collaborative Research Program.
2002	Haynes McHale Award.
2002	Neal Wade Award - Weed High School Outstanding Male Athlete of the Year.
2002	Inducted into California Scholarship Federation.

LEADERSHIP POSITIONS

2007 – 2013	Sigma Alpha Epsilon - University of Colorado Advisor and Regional Director
2007	Coast 2 Coast 4 Kalan Memorial Bike Ride - Philanthropy Coordinator and Participant
2005 – 2006	Willamette University Football Team Captain

PHILANTHROPY & COMMUNITY SERVICE

2016 – 2022	Neonatal Support Staff, Parkland Neonatal Intensive Care Unit
2015 – 2020	Science Advocate, Science Policy, Education, and Communication club (SPEaC)
2006	Participant and Organizer, Coast to Coast for Kalan Memorial Bicycle Ride
2004 – 2005	Participant, United Way Day of Caring
2004 – 2005	Participant, Willamette University Bearcat Day Student Athlete Youth Outreach
2002	Participant, Habitat for Humanity

PROFESSIONAL MEMBERSHIPS

American Society for Cell Biology
 American Chemical Society
 Biophysical Society
 Society for Neuroscience

INSTITUTIONAL TRAINING

Business Finance for Basic Science
 Biological Safety
 Computational Image Analysis in Cellular and Developmental Biology
 Equal Employment Opportunity
 Fiscal Ethics and Procurement
 Hazardous Materials and Waste Management
 Human Trafficking
 Information Security
 Institutional Animal Care and Use
 Occupational Health and Safety
 Performance Evaluation for Faculty Managers
 Phishing Awareness
 Protecting Health Information
 Responsible Conduct of Research
 Title IX
 Training for Intervention Procedures (TIPS)
 Texas Public Information Act (TPIA)
 Youth Protection