

Christopher Miranda, PhD

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Education & Training	Postdoctoral Scholar Wu Tsai Neurosciences Institute Department of Biology Stanford University Advisor: Mark Schnitzer, Ph.D.	Present
	Ph.D. in Biomedical Engineering Ira A. Fulton School of Engineering Arizona State University <i>Dissertation: Imaging and Targeting with Optics and Acoustics</i> Advisor: Barbara S. Smith, Ph.D.	2021
	M.S. in Biomedical Engineering Ira A. Fulton School of Engineering Arizona State University Advisor: David Frakes, Ph.D.	2015
	B.S. in Biomedical Engineering Ira A. Fulton School of Engineering Arizona State University Minor in Physics College of Liberal Arts and Sciences	2013
Awards & Honors	<ul style="list-style-type: none">Stanford Bio-X Postdoctoral FellowshipStanford Jump Start Award for Excellence in Research for Postdoctoral ScholarsSimons Foundation Mentor - Shenoy Undergraduate Research Fellowship in Neuroscience (SURFiN)Wu Tsai Neurosciences Institute Interdisciplinary Postdoctoral Scholar AwardSchool of Biological and Health Systems Engineering Katie Conrad Memorial AwardDean's Dissertation Award in the Ira A. Fulton School of EngineeringGraduate and Professional Student Association (GPSA) Travel GrantArizona State University Edson Student Entrepreneur Initiative: \$12,500School of Biological and Health Systems Engineering Merit AwardFeatured article in <i>Applied Physics Letters</i> for "Photoacoustic Micropipette"National Institutes of Health (NIH) BRAIN Initiative: Interdisciplinary Training in Computational NeuroscienceNational Science Foundation (NSF) I-Corps Award; Entrepreneurial LeadBiomedical Engineering Society Poster Award (1 of 5 awarded from ~1500 posters)School of Biological and Health Systems Engineering Merit AwardArizona State University Edson Student Entrepreneur Initiative: \$5,000Arizona State University Edson Student Entrepreneur Initiative: \$13,000	2026-2027 2024-2025 2024-2025 2022-2024 2021 2019-2020 2019 2018-2019 2018 2018 2017 2017 2017 2017 2013-2014 2012-2013
Publications	<ol style="list-style-type: none">Lusk, Joel, Ethan Marschall, Christopher Miranda, Christina Aridi, and Barbara Smith. "Photoacoustic detection of genetically encoded fluorophores for neuronal subtype identification." <i>Journal of Neural Engineering</i> (2025).Yiqi Jiang, Hakki O. Akengin, Ji Zhou, Mehmet A. Aslihak, Yang Li, Radosław Chrapkiewicz, Oscar Hernandez, Sadegh Ebrahimi, Omar Jaidar, Yanping Zhang, Hakan Inan, Christopher Miranda, Fatih Dinc, Marta Blanco-Pozo, Mark J. Schnitzer. "ActSort: An active-learning accelerated cell sorting algorithm for large-scale calcium imaging datasets." <i>Advances in Neural Information Processing Systems</i> 37 (2024): 79095-79143.Eshima, Jarrett, Taylor R. Pennington, Youssef Abdellatif, Angela Ponce Olea, Joel F. Lusk, Benjamin D. Ambrose, Ethan Marschall, Christopher Miranda, et al. "An engineered culture vessel and flow system to improve the in vitro analysis of volatile organic compounds." <i>Communications Engineering</i> 4, no. 1 (2025): 162.Christopher Miranda, Madeleine R. Howell, Joel F. Lusk, Ethan Marschall, Jarrett Eshima, Trent Anderson, and Barbara S. Smith. "Automated microscope-independent fluorescence guided micropipette." <i>Biomedical Optics Express</i> 12.8 (2021): 4689-4699.Christopher Miranda, Ethan Marschall, Blake Browning, and Barbara S. Smith "Side-viewing Photoacoustic Waveguide Endoscopy." <i>Photoacoustics</i>, (2020) 100167.Joel F. Lusk, Christopher Miranda, and Barbara S. Smith. "Ovarian Cancer Detection Using Photoacoustic Flow Cytometry." <i>JoVE (Journal of Visualized Experiments)</i> 155 (2020): e60279.	

7. Joel F. Lusk, **Christopher Miranda**, Madeleine Howell, Matthew Chrest, Jarrett Eshima, and Barbara S. Smith. "Photoacoustic Flow System for the Detection of Ovarian Circulating Tumor Cells Utilizing Copper Sulfide Nanoparticles." *ACS Biomaterials Science and Engineering* (2019).
8. Jarrett Eshima, Stephanie Ong, Trenton J. Davis, **Christopher Miranda**, et al., "Monitoring changes in the healthy female metabolome across the menstrual cycle using GCxGC-TOFMS." *Journal of Chromatography B*. (2019).
9. **Christopher Miranda**, Joel Barkley, and Barbara S. Smith. "Intrauterine photoacoustic and ultrasound imaging probe." *Journal of Biomedical Optics*. 23.4 (2018): 046008.
10. **Christopher Miranda**, Swathy Sampath Kumar, Jitendran Muthuswamy, and Barbara S. Smith "Photoacoustic micropipette." *Applied Physics Letters*. 113.26 (2018): 264103.

Patents

1. Smith, Barbara, and **Christopher Miranda**. "Dual Brillouin-Photoacoustic Microscopy." U.S. Patent 12,364,395 issued July 22, 2025.
2. Smith, Barbara, and **Christopher Miranda**. "Deep brain stimulation electrode with photoacoustic and ultrasound imaging capabilities." U.S. Patent 12,161,295 issued December 10, 2024.
3. Smith, Barbara, and **Christopher Miranda**. "Photoacoustic voltage indicators." U.S. Patent 12,082,938 issued September 10, 2024.
4. Smith, Barbara S., **Christopher Miranda**, and Ethan B. Marschall. "Integrated container adapter for photoacoustic microscopy." U.S. Patent 11,975,327 issued May 7, 2024.
5. Smith, Barbara S., **Christopher Miranda**, and Ethan B. Marschall. "Photoacoustic and optical microscopy combiner and method of generating a photoacoustic image of a sample." U.S. Patent 11,768,182 issued September 26, 2023.
6. Smith, Barbara, and **Christopher Miranda**. "Photoacoustic targeting with micropipette electrodes." U.S. Patent 11,596,313 issued March 7, 2023.
7. Smith, Barbara, and **Christopher Miranda**. "Miniature transducer device and related methods." U.S. Patent 11,583,252 issued February 21, 2023.
8. Smith, Barbara, Joel Barkley, and **Christopher Miranda**. "Systems for multimodal real-time imaging for biopsies and related methods." U.S. Patent 11,045,169 issued June 29, 2021.
9. **Miranda, Christopher**, Peter Thomas Georgiou, Rachel Bone, and Yen-Ting Lai. "Elevating wheelchair." U.S. Patent 9,980,865 issued May 29, 2018.
 - a. Smith, Barbara, **Christopher Miranda**, Madeleine Howell, and Joel Lusk. "Photoacoustic ion indicators." U.S. Patent Application 17/321,722 filed November 18, 2021.

Conference Posters and Talks

- Molecular, Cellular and Tissue Bioengineering Symposium** March 2017
- **Christopher Miranda**, Barbara S. Smith. "Translational Technology for the Detection of Endometrial Cancer Using Photoacoustic and Ultrasound Imaging"
 - Joel Lusk, **Christopher Miranda**, and Barbara Smith. "Treatment and Diagnosis of Cervical Cancer Using Photoacoustic Nanoparticle Contrast Agents Synthesized by Green Methods"
 - Stephanie Ong, Jarrett Eshima, **Christopher Miranda**, Trenton Davis, Heather Bean, and Barbara S. Smith "Monitoring Women's Fertility Through Volatile Biomarkers"
- Biomedical Engineering Society Annual Meeting** October 2017
- **Christopher Miranda**, Joel Barkley, Barbara S. Smith. "Intrauterine Photoacoustic and Ultrasound Imaging Probe" (BMES Poster Award)
 - Joel Lusk, **Christopher Miranda**, and Barbara Smith. "Nanoparticle Contrast Agents for use in Photoacoustic Imaging for the Early Detection and Photothermal Ablation of Ovarian Cancer"
 - Madeleine Howell, Joel Lusk, **Christopher Miranda**, and Barbara Smith. "Aggregation of copper sulfide nanoparticles around nanoscale targets for photoacoustic contrast in a flow model"
 - Stephanie Ong, Jarrett Eshima, **Christopher Miranda**, Trenton Davis, Heather D. Bean, Barbara S. Smith. "Monitoring Women's Fertility through Volatile Biomarkers"
- Molecular, Cellular and Tissue Bioengineering Symposium** March 2018
- **Christopher Miranda**, Blake Browning, Barbara S. Smith. "Photoacoustic and Ultrasound Endoscopic Imaging Using a Side-Viewing Hollow Optical Waveguide"
 - Joel Lusk, **Christopher Miranda**, Matthew Chrest, and Barbara Smith. "Copper Sulfide Nanoparticles for the Detection of Circulating Ovarian Cancer Cells in a Photoacoustic Flow System"

Biomedical Engineering Society Annual Meeting

October 2018

- **Christopher Miranda**, Barbara S. Smith. “Photoacoustic Microelectrode Pipette for Single Cell Recordings”

4th International IOTA 2019 Congress

April 2019

- Joel Barkley, **Christopher Miranda**, Barbara S. Smith. “Development of an Intrauterine Ultrasound and Photoacoustic Imaging Probe for Evaluation of Intracavitary Lesions”

Biomedical Engineering Society Annual Meeting

October 2019

- **Christopher Miranda**, Madeleine Howell, Joel Lusk, Ethan Marschall, Barbara S. Smith. “Photoacoustic and Fluorescence Guided Electrophysiology”
- Madeleine Howell, **Christopher Miranda**, Joel Lusk, Matthew Chrest, Barbara S. Smith. “Fluorescence-Guided Electrophysiology”
- Joel Lusk, **Christopher Miranda**, Matthew Chrest, Ethan Marschall, and Barbara S. Smith. “Photoacoustic Microscopy System for Specific Cell Type Detection Utilizing iRFP”