

Christopher Miranda, PhD

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ChristopherMirandaPhD.com

Education & Training	Postdoctoral Scholar	Present
	Wu Tsai Neurosciences Institute Department of Biology Stanford University Advisor: Mark Schnitzer, Ph.D.	
	Ph.D. in Biomedical Engineering	2021
	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.	
	M.S. in Biomedical Engineering	2015
	Ira A. Fulton School of Engineering Arizona State University Advisor: David Frakes, Ph.D.	
	B.S. in Biomedical Engineering	2013
	Ira A. Fulton School of Engineering Arizona State University	
	Minor in Physics	
	College of Liberal Arts and Sciences	
Awards & Honors	• Stanford Bio-X Postdoctoral Fellowship	2026-2027
	• Stanford Jump Start Award for Excellence in Research for Postdoctoral Scholars	2024-2025
	• Simons Foundation Mentor - Shenoy Undergraduate Research Fellowship in Neuroscience (SURFiN)	2024-2025
	• Wu Tsai Neurosciences Institute Interdisciplinary Postdoctoral Scholar Award	2022-2024
	• School of Biological and Health Systems Engineering Katie Conrad Memorial Award	2021
	• Dean's Dissertation Award in the Ira A. Fulton School of Engineering	2019-2020
	• Graduate and Professional Student Association (GPSA) Travel Grant	2019
	• Arizona State University Edson Student Entrepreneur Initiative: \$12,500	2018-2019
	• School of Biological and Health Systems Engineering Merit Award	2018
	• Featured article in <i>Applied Physics Letters</i> for "Photoacoustic Micropipette"	2018
	• National Institutes of Health (NIH) BRAIN Initiative: Interdisciplinary Training in Computational Neuroscience	2017
	• National Science Foundation (NSF) I-Corps Award; Entrepreneurial Lead	2017
	• Biomedical Engineering Society Poster Award (1 of 5 awarded from ~1500 posters)	2017
	• School of Biological and Health Systems Engineering Merit Award	2017
	• Arizona State University Edson Student Entrepreneur Initiative: \$5,000	2013-2014
	• Arizona State University Edson Student Entrepreneur Initiative: \$13,000	2012-2013
Publications	1. 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).	
	2. 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.	
	3. 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.	
	4. 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.	
	5. Christopher Miranda , Ethan Marschall, Blake Browning, and Barbara S. Smith "Side-viewing Photoacoustic Waveguide Endoscopy." <i>Photoacoustics</i> , (2020) 100167.	

6. Joel F. Lusk, **Christopher Miranda**, and Barbara S. Smith. "Ovarian Cancer Detection Using Photoacoustic Flow Cytometry." *JoVE (Journal of Visualized Experiments)* 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”