

Erik A. Roberts, MD, PhD

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Training and Education

University of Michigan, Department of Anesthesiology

Anesthesiology Residency, June 2021 – June 2025

Clinician-Scientist Translational Anesthesiology Research (C-STAR) Track

Electives: Cardio-Obstetrics, Regional Anesthesia

Boston University School of Medicine

MD-PhD, Biomedical Engineering, August 2012 – May 2021

Extracurricular Education: Harvard GSAS Business Club Mini-MBA, Boston University Startup Bootcamp,

Global Health Elective, Spectrum of Physician Advocacy Elective, Toastmasters Public Speaking Club

University of California, San Diego

BSc, Bioengineering, Magna Cum Laude, August 2008 – June 2012

Research Projects

University of Michigan, Department of Anesthesiology

Advisor: Michael Mathis, MD

Research Track Resident, 2023 – 2025

Applying machine learning to cardiac surgery-associated acute kidney injury data. Characterizing patient and perioperative features associated with progression to chronic kidney disease. Identifying recovery trajectories and morbidity risk profiles for kidney injury subtypes.

Boston University, Department of Mathematics & Statistics, Neural Dynamics Group

Advisor: Nancy Kopell, PhD

Graduate Research Assistant, June 2014 – May 2019

Created biophysical computational models of neural oscillations to better understand sleep architecture and general anesthesia. Utilized statistical learning and signal processing techniques to analyze brain electrical recordings. Developed software for neural simulation and data visualization.

UC San Diego, Department of Bioengineering, Cardiac Mechanics Research Group

Advisor: Andrew McCulloch, PhD

Research Assistant, January 2011 – June 2012

Developed computational model of heart cell molecular signaling.

Stanford School of Medicine, Department of Otolaryngology Head & Neck Surgery

Advisor: Nikolas Blevins, MD

Research Intern, Summer 2009 – 2011

Designed workflow to create patient-specific virtual models for surgical simulator.

Publications

- Ramineni, A., **Roberts, E. A.**, Vora, M., Mahboobi, S. K., & Nozari, A. (2021). Anesthesia Considerations in Neurological Emergencies. *Neurologic Clinics*, 39(2), 319-332.
- Roberts, E. A.** (2019). *Global neural rhythm control by local neuromodulation* (Doctoral dissertation, Boston University).
- Sherfey J.S., Soplata A.E., Ardid S., **Roberts E.A.**, Stanley D.A., Pittman-Polletta B.R. & Kopell N.J. (2018) DynaSim: A MATLAB Toolbox for Neural Modeling and Simulation. *Front. Neuroinform.* 12:10.
- Howe, W. M., Gritton, H. J., Lusk, N. A., **Roberts, E. A.**, Hetrick, V. L., Berke, J. D., & Sarter, M. (2017). Acetylcholine release in prefrontal cortex promotes gamma oscillations and theta–gamma coupling during cue detection. *Journal of Neuroscience*, 37(12), 3215-3230.
- Kondabolu, K.*, **Roberts, E. A.***, Bucklin, M., McCarthy, M. M., Kopell, N., & Han, X. (2016). Striatal cholinergic interneurons generate beta and gamma oscillations in the corticostriatal circuit and produce motor deficits. *Proceedings of the National Academy of Sciences*, 113(22), E3159-E3168.
- Roberts, E. A.**, Troiano, C., & Spiegel, J. H. (2016). Standardization of Guidelines for Patient Photograph Deidentification. *Annals of plastic surgery*, 76(6), 611-614.
- Kondabolu, K., Kowalski, M. M., **Roberts, E. A.**, & Han, X. (2015). Optogenetics and deep brain stimulation neurotechnologies. In *Cognitive Enhancement* (pp. 441-450). Springer International Publishing.

* indicates co-first authorship

Poster Abstracts

- Roberts E.A.**, Kopell N.J. (2017) GIMBL-Vis: A GUI-Based Interactive Multidimensional Visualization Toolbox for Matlab. *Organization for Computational Neurosciences*. Antwerp, Belgium.
- Roberts E. A.**, Kondabolu K., Abdulkerim M., McCarthy M. M., Kopell N., & Han X. (2015). Enhanced corticostriatal beta oscillations and synchrony mediated by optogenetic increase of striatal cholinergic tone. 2015 Neuroscience Meeting Planner. Chicago, IL: Society for Neuroscience.
- Roberts E.A.**, Salisbury K., Chan S., & Blevins N.H. (2011). Tissue Modeling in a Patient-Specific Skull Base Surgical Simulator. *Otolaryngology — Head and Neck Surgery*. San Francisco, CA.

Teaching

Control Systems in Biomedical Engineering, Boston University

Teaching Fellow, Spring 2016 & 2017

Taught weekly class discussion sections. Led exam review sessions.

Boston University School of Medicine

Medical Curriculum Tutor, December 2013 – January 2017

Leadership

Psychiatry Society at Boston University

Co-Leader, November 2013 – June 2014

Organized events to foster student interest in psychiatry.

Physicians for Human Rights at Boston University

Co-Founder, October 2013 – February 2014

Implemented 6-part human trafficking education series.

Student Health Advocates, University of California San Diego

Co-President, September 2011 – June 2012

Led weekly officer meetings. Planned student events.

Student Health Advocate, March 2010 – June 2012

Presented weekly around campus to promote student wellness.

Service

International Anesthesia Research Society (IARS) Annual Meeting, *Abstract Reviewer*, 2024

Hyde Square Task Force, *Mentor*, 2014-2015

Supported high school student to be first in family to apply to college.

Work Experience

The Guardian Newspaper, University of California San Diego

Staff Photographer, October 2010 – June 2012

Photographed student events, recreational activities, areas of editorial interest.

AllMac

Computer Technician, September 2007 – January 2008

Provided direct customer support. Diagnosed and repaired Apple devices.

Entrepreneurship

Harvard GSAS Business Club Mini-MBA, Summer 2018

Boston University Startup Bootcamp, Spring 2018

Awards/Honors

Michigan Medicine Making a Difference Award, 2022 and 2023

MIT Hacking Medicine Best Epilepsy Hack, 2017

Pitched mobile app for epilepsy patients, to provide community and support.

Phi Beta Kappa, 2012

University of California San Diego Provost Honors, 2009 – 2012

University of California San Diego Making of the Modern World Writing Showcase, May 2010