

# Erik A. Roberts

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## Education

### **Boston University School of Medicine**

MD/PhD Candidate, expected graduation 2021.

### **University of California, San Diego**

BSc in Bioengineering, Magna Cum Laude, June 2012.

## Research Experience

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

Advisor: Nancy Kopell, PhD

*Graduate Research Assistant*, June 2014 – Present

Discovering novel insights from rodent and human deep brain recordings using cutting edge statistical techniques. Determining mechanisms of pharmacologic modulation of consciousness by utilizing computational models of neural oscillations.

### **UCSD Department of Bioengineering, Cardiac Mechanics Research Group**

Advisor: Andrew McCulloch, PhD

*Research Intern*, January 2011 – June 2012

Developed a computational model of heart cell signal transduction to better understand receptor desensitization.

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

Advisor: Nikolas Blevins, MD

*Research Intern*, Summer 2009 – 2011

Developed a workflow to create patient-specific virtual models that support real-time simulation and haptic interaction in a skull base simulator for surgical planning and training.

### **UCSF School of Medicine Department of Pediatrics**

Advisor: Yao Sun, MD, PhD

*Research Intern*, Summer 2007

High School Summer Internship Program in Biomedical and Health Sciences. Explored the benefits of a web portal to allow parents of intensive care nursery patients to interact with the medical staff and remotely view treatment progress.

## **Publications**

- 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*, 201605658.
- 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

## **Abstracts**

- E. A. Roberts**, K. Kondabolu, M. Abdulkerim, M. M. Mccarthy, N. Kopell, X. Han. (2015). Enhanced cortico-striatal beta oscillations and synchrony mediated by optogenetic increase of striatal cholinergic tone. 2015 Neuroscience Meeting Planner. Chicago, IL: Society for Neuroscience.
- Roberts EA**, Salisbury K, Chan S, Blevins NH. (2011). Tissue Modeling in a Patient-Specific Skull Base Surgical Simulator. *Otolaryngology — Head and Neck Surgery*.

## **Teaching Experience**

### **BU BE402 – Control Systems in Biomedical Engineering**

*Teaching Fellow*, Spring 2016

Taught weekly discussion sections and led review sessions for entire class.

## **Leadership Experience**

### **Geek Speak Toastmasters at BU**

*Co-Founder*, June 2015

*VP Education*, June 2015 – June 2016

Sought to improve public speaking and leadership skills among club members.

### **Psychiatry Society at BU**

*Co-Leader*, November 2013 – June 2014

Organized events to foster student interest in psychiatry.

### **Physicians for Human Rights at BU**

*Co-Founder*, October 2013 – February 2014

Implemented a 6-part human trafficking education series. Began planning the first Boston citywide student-involved asylum-seeker evaluation clinic.

### **Christian Medical Dental Associations at BU**

*Programming Coordinator*, February 2013 – February 2014

Implemented school-wide events focusing on spiritual education and social justice issues. Organized a 5-part homelessness empathy training series. Planned the Boston Healthcare Fellowship retreat single's event and dance.

### **UCSD Student Health Advocates**

*Student Health Advocate*, March 2010 – June 2012

Taught health information to peers at residence hall outreaches. Conducted weekly presentations to promote general health education. Obtained patient vital signs at the student clinic.

*Co-President*, September 2011 – June 2012

Planned and led weekly officer meetings. Oversaw budgeting and planning of all events. Supported other officers in their duties. Created innovative new programs.

*Student Residence Outreach Coordinator*, September 2010 – June 2011

Facilitated communication with the Village, a residence location at UCSD.

### **Phi Delta Epsilon International Pre-Medical Fraternity**

*Member*, June 2009 – September 2011

*Historian*, March 2010 – September 2011

Augmented photographic archives of fraternity events. Participated in weekly officer meetings. Published the annual newsletter.

## **Work Experience**

### **Boston University School of Medicine**

*Disease and Therapy Tutor*, September 2014 – Present

*Neuroscience Tutor*, December 2013 – January 2014

### **The Guardian Newspaper, UCSD**

*Staff Photographer*, October 2010 – June 2012

Carried out photographic assignments including documentation of student events, recreational activities, and other areas of editorial interest.

### **Stanford School of Medicine Department of Otolaryngology Head & Neck Surgery**

*Intern*, Summer 2008

Assisted hospital dentistry clinic staff in administrative tasks and patient care. Provided photographic documentation and image processing of procedures for teaching and research purposes.

### **AllMac**

*Computer Technician*, September 2007 – January 2008

Provided direct customer support. Diagnosed and repaired Apple devices.

## **Awards/Honors**

Phi Beta Kappa, 2012

Provost Honors, 2009 – 2012

Fern W. Erion Scholarship, 2011

Brython P. Davis Scholarship, 2010

Making of the Modern World Writing Showcase, May 2010