

RICARDO SIU

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EDUCATION

Ph.D. in Biomedical Engineering <i>Florida International University</i>	Projected May 2018
B.S. in Biomedical Engineering (GPA – 3.21) <i>Florida International University</i>	May 2012
A.A. w/Honors, Biological Sciences (GPA – 3.56) <i>Miami Dade College</i>	May 2008

EXPERIENCE

Graduate Research Assistant <i>Adaptive Neural Systems Laboratory - Department of Biomedical Engineering – FIU</i>	Aug 2013 - Present
<ul style="list-style-type: none">• Authored experimental protocols for respiratory muscle recording and functional electrical stimulation in the rat animal model.• Led and conducted acute and chronic animal studies for the development and implementation of an adaptive controller for respiratory muscle stimulation after incomplete spinal cord injury.• Developed a diaphragm musculoskeletal model in LabVIEW to characterize and parametrize an adaptive controller• Collaborated with a team of scholars from the University of Bordeaux in the development and characterization of a stimulator that is to be interfaced with an adaptive controller.• Have mentored FIU undergraduate students, one visiting student, and one high school student for lengths of several weeks to several years.	
Research Technician <i>Adaptive Neural Systems Laboratory - Department of Biomedical Engineering - FIU</i>	May 2012 - Jun 2013
<ul style="list-style-type: none">• Assisted in the purchase, installation and maintenance of systems that expanded research capabilities within the laboratory.• Designed and delivered a stage for the recording of neural signals in trans-radial and trans-humeral amputees.• Assisted in surgical preparation and status monitoring of animal subjects during peripheral nerve recording experiments.• Carried out manufacturing and quality control of intrafascicular electrodes that were used in the previously mentioned animal studies.	

PROJECTS

Computation-Enabled Adaptive Ventilatory Control System	Sep 2013 – Ongoing
<ul style="list-style-type: none">• Adaptive respiratory pacing device targeted at individuals suffering from spinal cord injury	
Control of Ankle Movement by Stimulating with Longitudinal Intrafascicular Electrodes (LIFEs)	Oct 2013 – May 2013
<ul style="list-style-type: none">• Providing graded neural control of ankle muscles through LIFEs	
Wearable Electronic Posture Monitoring System	Oct 2011 - May 2012
<ul style="list-style-type: none">• Posture monitoring and logging for use in diagnostics of posture related abnormalities	

SKILLS & TOOLS

Software

• MATLAB • Minitab • SPSS • Solidworks • LabVIEW • MS Office Suite

Laboratory and Research

• Research Protocol Development • Experimental Design • Control Systems • Animal Care • Rodent Surgery • Signal Processing & Analysis • Respiratory Control • Sleep Apnea • Spinal Cord Injury

COMMUNITY SERVICE / VOLUNTEER WORK

IEEE Engineering in Medicine and Biology Conference 2016 <i>Disney's Contemporary Resort, Orlando, Florida, United States</i>	Aug 2016
13th Annual World Congress of society for Brain Mapping and Therapeutics <i>Hyatt Regency Miami Convention Center, Miami, Florida, United States</i>	Apr 2016

FIU Engineering Expo – Adaptive Neural Systems Lab – EMG controlled car <i>Florida International University, Miami, Florida, United States</i>	Feb 2013 – Feb 2017
Service Learning – Female Response to Putrescine in the Caribbean Fruit Fly <i>USDA-ARS Subtropical Horticulture Research Station, Miami, Florida, United States</i>	Sep 2007 – Dec 2007
Community Service – Reforestation Program <i>Agua Azul Reforestation Program, San Pedro Sula, Cortes, Honduras</i>	Sep 2005 – May 2006

PROFESSIONAL ORGANIZATIONS

Alpha Eta Mu Beta – Biomedical Engineering Honor Society

Event Coordinator (Fall 2015 - Spr 2016) • President (Fall 2016) • Student Advisor (Spr 2017)

MANUSCRIPTS

- Zbrzeski A, Bornat Y, Hillen B, **Siu R**, Abbas J, Jung R. Bio-inspired Controller on an FPGA applied to Closed-loop Diaphragmatic Stimulation. *Front Neurosci* 2016;10:275. <http://dx.doi.org/10.3389/FNINS.2016.00275>.

CONFERENCE PROCEEDINGS

- Zbrzeski A, **Siu R**, Bornat Y, Hillen B, Jung R, Renaud S. A versatile fast-development platform applied to closed-loop diaphragmatic pacing. *Proceedings of 7th International IEEE/EMBS Conference on Neural Engineering*, 2015. Pg.791-794. Doi:10.1109/NER.2015.7146742

PRESENTATIONS

- **Siu R**, Hillen BK, Thota A, Renaud S, Abbas J, Jung R. Parametrization of a closed-loop adaptive controller for respiratory pacing in a rodent model. Program No. 249.18. 2016 Neuroscience Meeting Planner. San Diego, CA: Society for Neuroscience, 2016. (Poster)
- Jung R, Renaud S, Abbas J, Bornat Y, Hillen B, Zbrzeski A, **Siu R**, Castelli J, Kolbl F. Computation-Enabled Ventilatory Control System(CENAVEX). *2015 Collaborative Research in Computational Neuroscience PI Meeting*, Paris, France. (Poster)
- Castelli J, **Siu R**, Kolbl F, N’Kaoua G, Bornat Y, Mangalore A, Hillen B, Abbas J, Lewis N, Jung R, Renaud S, An IC-based controllable stimulator for in vivo experiments. *2016 Collaborative Research in Computational Neuroscience PI Meeting*, Paris, France. (Poster)
- **Siu R**, Hillen B, Thota A, Abbas J, Renaud S, Jung R. Closed-loop adaptive controller for respiratory pacing in a rodent model. *2016 UM Neural Engineering Symposium*, Miami, FL. (Poster)
- **Siu R**, Hillen BK, Abbas JJ, Renaud S, Jung R. Neuromuscular stimulation of respiratory muscles for respiratory pacing in the rat model. Program No. 430.02. 2015. *Neuroscience Meeting Planner* (Society for Neuroscience Chicago, IL; 2015). Online. (Poster)
- Thota A, Kuntaegowdanahalli S, **Siu R**, Abbas J, and Jung R, Evaluation of an Implantable Intrafascicular Electrode System in Rodents, Program No. 522.11. 2015. *Neuroscience Meeting Planner* (Society for Neuroscience, Chicago, IL: 2015). Online. (Poster)
- Jung R, Renaud S, Abbas J, Bornat Y, Hillen B, Zbrzeski A, **Siu R**, Castelli J, Davis B, Kolbl F. Computation-Enabled Ventilatory Control System(CENAVEX). *2015 Collaborative Research in Computational Neuroscience PI Meeting*, Seattle, WA. (Poster)
- **Siu R**, Hillen B, Thota A, Abbas J, Renaud S, Jung R. Adaptive control of lung volume for respiratory pacing in the rodent model. *2015 CRCNS PI Meeting*, Seattle, WA. (Poster)
- Davis B, **Siu R**, Hillen B, Vale C, Jung R. Assessment of Ventilatory Function and Respiratory Muscle Electromyograms in Rodents for Design of an Adaptive Ventilatory Neuromuscular Pacing Device. *Biomedical Engineering Society Annual Meeting 2014*. San Antonio, Texas Oct. 22-25 2014. (Poster)
- **Siu R**, Hillen B, Davis B, Zbrzeski A, Bornat Y, Castelli J, Abbas J, Renaud S, Jung R, “Assistive Respiratory Pacing of the Diaphragm in the Rat Model Based on Ventilatory and Electromyographic Recordings”, *2014 Collaborative Research in Computational Neuroscience PI Meeting*, Tempe, AZ, October 16-18, 2014. (Poster)
- Davis B, **Siu R**, Hillen B, Vale C, Jung R. Assessment of Ventilatory Function and Respiratory Muscle Electromyograms in Rodents for Design of an Adaptive Ventilatory Neuromuscular Pacing Device. *Florida International University’s McNair Scholars Research Conference 2014*. Miami, FL Oct. 16-18 2014 (Poster)
- Jung R, Renaud S, Abbas J, Bornat Y, Hillen B, Zbrzeski A, **Siu R**, Castelli J, Davis B, Kolbl F. Computation-Enabled Ventilatory Control System(CENAVEX). *2014 Collaborative Research in Computational Neuroscience PI Meeting*, Tempe, AZ. (Presentation)

AWARDS

1st Place Graduate Poster Presentation

FIU – 2016 Material Advantage Graduate Research Poster Presentation Competition

Nov 2016

1st Place Poster Presentation

FIU – 2016 BME Graduate Research Day

Oct 2016

1st Place Poster Presentation

FIU – 2015 BME Graduate Research Day

Oct 2015