

LILIANA RINCON GONZALEZ, PHD.

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SUMMARY

- *Biomedical research engineer with 7 years of research experience in Neuroscience, Engineering and Psychology.*
- *Experience in exploratory research to find non-invasive methods for brain stimulation.*
- *Deep knowledge of how the brain senses and perceives stimuli with the aim of providing sensation to a prosthetic device.*
- *Strong background in development of research projects, grant writing and scientific publishing.*
- *Experienced in medical devices, FDA and human subjects regulations, design of experiments, data collection and analysis, advanced statistics, computer programming, and exploratory research.*
- *Skilled in creative, analytical and critical thinking, problem solving, project management, working in cross-functional teams and individually, managing multiple tasks and projects, and handling ambiguity and uncertainty.*
- *Strong oral and written communication skills. Fully fluent in Spanish.*

EDUCATION

ARIZONA STATE UNIVERSITY · Tempe, AZ

Ph.D. in Biomedical Engineering · Concentration: Neuroscience · 12/2012

Master of Science in Biomedical Engineering · Concentration: Neuroscience · 12/2010

Bachelor of Science Engineering in Bioengineering · Concentration: Electrical Engineering · 07/2007

Bachelor of Arts in Psychology · Concentration: Neuroscience · 07/2007

PROFESSIONAL EXPERIENCE

ADAPTIVE NEURAL SYSTEMS LABORATORY · Department of Biomedical Engineering · Florida International University, Miami FL

Assistant Research Scientist · 03/2015 – present

- Responsible for planning, administration and implementation of research studies for the application of neurotechnology to investigate human neural function and for therapeutic applications.
- Work collaboratively with faculty, staff and students of ANS to develop and implement a variety of programmatic initiatives designed to support the success of the research program.

DONDERS INSTITUTE FOR BRAIN, COGNITION, AND BEHAVIOUR · Radboud University, The Netherlands

Postdoctoral Researcher · 06/2013 – 09/2014

World leading basic-research institute in translational neuroscience research.

- Led a team of 5 to study the influence of vestibular signals (sense of movement) and saccadic choice behavior (eye movements) to understand how the brain makes motor decisions while in motion.
- Acquired new knowledge and became proficient in different fields of Neuroscience: vestibular function, saccadic system, and motoric decision making.
- Managed all aspects of the project completing it ahead of schedule; recruited 40 subjects, conducted the experiments, analyzed the complex data, presented the results at a international conference, perform a literature review, and wrote a comprehensive manuscript.
- Self-taught Python to develop a code for interfacing and controlling an eye tracking system (Eyelink, SR Research), an LED controlled Arduino, and a vestibular sled chair.
- Modeled eye movements' reaction times with a RACE model to understand the neural decision process.
- Developed Matlab code for mathematical and statistical analyses.
- Solved technical issues with the experimental setup to enhance the signal to noise ratio.
- Supervised, trained, and mentored two students.

SENSORIMOTOR RESEARCH GROUP · Department of Bioengineering · Arizona State University, Tempe, AZ

Postdoctoral Researcher · 04/2013 – 5/2013

- Transformed lengthy and technically complex thesis into focused articles accessible to a wider public.

Graduate Research Assistant · 08/2007 – 12/2012

- Led and managed 3 complex research projects that resulted in 5 publications, 11 presentations at international and national conferences, and 2 grant proposals.
- Developed hypotheses and performed exploratory research to understand how the brain senses and perceives stimuli with the purpose of providing sensory feedback to a prosthetic device.
- Provided difficult statistical evidence of subtle differences in how individuals process body-posture signals.
- Initiated follow up studies within the SENSORIMOTOR group and was cited by 33 scientific articles.
- Designed and developed a brain stimulator device composed of OLEDs that used light to stimulate the brain instead of electrical pulses with the purpose of overcoming the limitations of electrical stimulation.
- Engineered a first ever OLED microscope chamber for the simultaneous stimulation and electrophysiological recording of light-sensitive neurons under a confocal microscope as a proof of concept for the device.
- Developed Matlab code for mathematical and statistical analyses.
- Collaborated with 3 doctoral students and 3 professors on several projects and manuscript preparation.

Undergraduate Research Assistant · 01/2006 – 07/2007

- Designed a wireless brain stimulator device that went through the process of project planning, concept and prototype development, FDA quality systems regulations, design controls and regulatory pathways for the commercialization of the medical device.
- Prototyped a 3x3 mm piezoelectric transducer with small platinum microelectrodes with the purpose of wirelessly stimulating the cortex of a rodent by using an ultrasound emitter to power the stimulator.

TECHNICAL SKILLS

- **Programming:** Matlab, Python, Labview.
- **Statistical Software:** SPSS, JMP.
- **Adobe Suite:** advanced Illustrator, Photoshop.
- **Psychophysical techniques:** psychophysics of proprioception and touch, visuomotor rotation, prism adaptation, and electrotactile stimulation.
- **Motion tracking systems:** Optotrak, Cyber Glove, Eyelink.
- **Writing:** IRB protocols, Scientific, Grant Proposals and Technical writing.
- **Reference Management Software:** Zotero, Papers, Reference Manager, Endnote.
- **Imaging techniques:** confocal and light microscopy.
- **Electrophysiology techniques:** Patch-clamp recordings.
- **Cell culture techniques:** dissociated neuronal cultures and preparation of acute slices.
- **Microsoft Office Suite:** advanced Excel, Word, Power Point, Project.

PEER REVIEWED MANUSCRIPTS

- **Rincon-Gonzalez L, SN Naufel, VJ Santos, SI Helms Tillery (2012)** Interactions between tactile and proprioceptive representations in haptics. *Journal of Motor Behavior*. 44 (6), 391-401
 - **Rincon-Gonzalez L, JP Warren, DM Meller, SI Helms Tillery (2011)** Haptic interaction of touch and proprioception: implications for neuroprosthetics. *IEEE Trans Neural Syst Rehabil Eng*, 19(5), 490-500
 - **Rincon-Gonzalez L, CA Buneo, SI Helms Tillery (2011)** The proprioceptive map of hand location is systematic and stable but idiosyncratic. *PLoS ONE*. 6(11), p.e25214
 - **Rincon-Gonzalez L, CA Buneo, SI Helms Tillery.** Prism perturbation of the proprioceptive map of the arm. *In preparation*
 - **Rincon-Gonzalez L, CA Buneo, SI Helms Tillery.** Perturbing the proprioceptive map of the arm. *In preparation*
 - **Rincon-Gonzalez L, LPJ Selen, K Halfwerk, BD Corneil, WP Medendorp.** Vestibular modulation of saccadic target selection. *In preparation*
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ORAL PRESENTATIONS AT PROFESSIONAL MEETINGS

- **Rincon-Gonzalez L, Helms Tillery SI (2011).** The structure of the proprioceptive-visual mapping of hand location is idiosyncratic across subjects but highly conserved within subjects. 41st Annual Meeting of the Society for Neuroscience, Washington, DC.
- **Rincon-Gonzalez L, Helms Tillery SI (2011).** An idiosyncratic and learned process to generate a visual representation of hand location from somatosensory signals. Emerging Researchers National (ERN) Conference in STEM, Washington, DC.

POSTER PRESENTATIONS AT PROFESSIONAL MEETINGS

- **Rincon-Gonzalez L, LPJ Selen, K Halfwerk, BD Corneil, WP Medendorp (2014).** Vestibular modulation of saccadic target selection. 24th Annual Conference of the Society for the Neural Control of Movement, Amsterdam, The Netherlands.
- **Rincon-Gonzalez L, CA Buneo, SI Helms Tillery (2012).** Perturbing the proprioceptive map of the arm. 42nd Annual Meeting of the Society for Neuroscience, New Orleans, LA.
- **Rincon-Gonzalez L, SI Helms Tillery (2011).** The proprioceptive map of the arm is systematically and individually constructed. 8th IBRO World Congress of Neuroscience, Florence, Italy.
- **Rincon-Gonzalez L, SI Helms Tillery (2011).** The proprioceptive map which underlies both movement and tactile sensation is constructed individually. 21st Annual Conference of the Society for the Neural Control of Movement, San Juan, Puerto Rico.
- **Rincon-Gonzalez L, Tufail Y, Helms Tillery SI, Tyler WJ (2010).** Activation of Channelrhodopsin-2 neurons using organic LEDs: An in vitro and in vivo validation. 40th Annual Meeting of the Society for Neuroscience, San Diego, CA.
- **Rincon-Gonzalez L, Tufail Y, Ghassan GE, Helms Tillery SI, Tyler WJ. (2009).** Channelrhodopsin-2 expressing neurons stimulated with blue organic LEDs. BMES 2009 Annual Fall Scientific Meeting, Pittsburgh, PA.
- **Rincon-Gonzalez L, Tufail Y, Ghassan GE, Helms Tillery SI, Tyler WJ. (2009).** Stimulation of Channelrhodopsin-2 expressing neurons using organic LEDs. 39th Annual Meeting of the Society for Neuroscience, Chicago, IL.
- **Rincon-Gonzalez L, DA Diaz, M Santello, SI Helms Tillery (2008).** The effect of tactile stimulation on the estimate of hand location is different in right and left hands. 38th Annual Meeting of the Society for Neuroscience, Washington, DC.
- **Rincon-Gonzalez L, JP Warren, G Bodeen, DA Diaz, M Santello, SI Helms Tillery (2007).** The effect of tactile and electrotactile stimulation on the estimate of hand location in dominant and non-dominant hands. 37th Annual Meeting of the Society for Neuroscience, San Diego, CA.

HONORS, AWARDS, AND SCHOLARSHIPS

Society for Neuroscience · 2011

- Travel Fellowship to the 2011 International Brain Research Organization (IBRO) World Congress in Italy.

National Science Foundation Program · 2008 – 2012

- Alliance for Graduate Education and the Professoriate (AGEP) Scholar: More Graduate Education at Mountain States Alliance (MGE@MSA).

National Science Foundation's Bridge to the Doctorate Fellowship · 2008 – 2009

- Western Alliance to Expand Student Opportunities; Louis Strokes Alliance for Minority Participation.

Graduate Fellowship · 2007

- Arizona State University Harrington's Department of Bioengineering.

Undergraduate Research Program · 2006 – 2007

- Ira A. Fulton School of Engineering: Fulton Undergraduate Research Initiative.

Undergraduate Scholarship · 2005 – 2007

- Ira A. Fulton School of Engineering Collaborative Interdisciplinary Research Community Scholars.
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RELEVANT TRAINING

The Institute on Teaching and Mentoring · Tampa, Florida · 10/2010 · 10/2012

- Four-day conference provides doctoral scholars with the skills necessary to succeed in graduate study and to prepare them for success as minority faculty members.

FENS-IBRO Imaging Training Center · Lausanne-Geneva, Switzerland · 08/2011

- One of only 20 students from around the world admitted to a three-week course dedicated to the state-of-the-art mapping of brain structure and functions. Focusing on imaging technologies and their mutual integration for basic-clinical translational research.

International Society for Medical Resonance in Medicine (ISMRM) · Montreal, Canada · 05/2011

- Weekend Educational Courses: 1) Functional & Anatomic Data Analysis. 2) Advanced fMRI Techniques & Functional Connectivity Assessment.

Neurobiology course, Marine Biological Laboratory (MBL) · Woods Hole, MA · 06/2009 – 08/2009

- One of only 12 neuroscientists from around the world admitted to the prestigious nine-week program in cellular and molecular neurobiology. Focusing on electrophysiology, imaging, and molecular neurobiology.

38th Annual Meeting of the Society for Neuroscience · Washington DC. · 11/2008

- Short Course I: Optical Control of Neural Excitability. This course examined several technologies for using light to remotely control the activity of neurons.

SUPERVISION OF STUDENTS

Undergraduate Student · Arizona State University · 09/2011 – 05/2012

- Caitlin Tennyson, Biomedical Engineering: Fulton Undergraduate Research Initiative research award.

Masters Student · Arizona State University · 05/2012 – 8/2012

- Caitlin Tennyson, Electrical Engineering.

Masters Students · Radboud University · 09/2013 – 11/2013

- Lisa Bos, Psychology.
- Marjam Smeekens, Psychology.

GRANT WRITING (unfunded proposals)

National Institutes of Health (NIH) · 2010

- Ruth L. Kirschstein National Research Service Awards for Individual Predoctoral Fellowships to Promote Diversity in Health-Related Research (NRSA F-31).
- “Patterned optical activation of Channelrhodopsin-2 neurons using organic LEDs.”

National Science Foundation (NSF) · 2009

- Graduate Research Fellowship Program (GRFP).
- “Organic LED for localized patterned photostimulation of channelrhodopsin-2 expressing neurons.”

Modeling For Molecular and Cellular Engineering class (BME 598) · 2007

- Students wrote original NIH-style proposals to develop a bioengineering model. Only proposal “funded” out of 30 student proposals. The model developed in the proposal was used as an assignment for the Bioengineering Transport Phenomena undergraduate class ever since.
- “A Channelrhodopsin-2 action potential model for modulation of behavior with neural photostimulation.”