



## Neuroengineering: From Cells to Systems

**IGERT retreat January 5-6, 2017**

South Shore Harbour Resort (*Lalique Conference Rm*), 2500 S Shore Blvd, League City, Texas 77573

### AGENDA

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#### January 5, 2017

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| 3:00 – 3:15 pm | Welcome and Introduction, <b>Robert Raphael, PhD</b> , IGERT Program Director  |
| 3:15 – 4:15 pm | <b>Marcie O'Malley, PhD</b> , Professor, Mechanical Engineering, Rice University<br><i>What I did on my Sabbatical</i>                                     |
| 4:15 – 6:30 pm | <b>Jennifer Bell, BSc Eng, MBA</b> , Senior Engineering & Management Professional<br><i>Leadership in Science &amp; Engineering</i>                        |
| 6:30 – 7:30 pm | Dinner   |
| 7:30 – 8:00 pm | <b>Robert Raphael, PhD</b> , Associate Professor, Bioengineering, Rice University<br><i>Discussion: Building Neuroengineering Presence in Social Media</i> |

#### January 6, 2017

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| 9:30 – 10:00 am | Continental Breakfast |
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#### **THEME 1: CELLULAR AND MOLECULAR NEUROENGINEERING**

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| 10:00 – 10:15 am | <b>Dan Sazer</b> , Bioengineering, Rice University<br><i>Low-cost Stereolithography for 3D Printing of Multi-Material Sensory Organ Mimics</i>       |
| 10:15 – 10:30 am | <b>Krishna Badhiwala</b> , Bioengineering, Rice University<br><i>Scalable Microdevices for Neuroscience with Small Organisms</i>                     |
| 10:30 – 10:45 am | <b>Hamin Jeon</b> , Bioengineering, Rice University<br><i>Minimally Invasive High Resolution Imaging of Auditory Neurons Inside a Living Cochlea</i> |
| 10:45 – 11:00 am | <b>BREAKOUT SESSION 1</b>  |

#### **THEME 2: NEURAL CIRCUITS**

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| 11:00 – 11:15 am | <b>Joshua Chu</b> , Electrical & Computer Engineering, Rice University<br><i>Probing Mechanisms of Working Memory and Decision Making Through Manipulation of Hippocampal Circuits</i>                           |
| 11:15 – 11:30 am | <b>Sudha Yellapantula</b> , Electrical & Computer Engineering, Rice University<br><i>Analyzing Language Connectivity Networks during Articulation from Human ECoG data using Mutual Information in Frequency</i> |
| 11:30 – 11:45 am | <b>Elizabeth Halfen</b> , Neuroscience, Baylor College of Medicine<br><i>Population receptive field estimation of visual eccentricity representations in human superior colliculus</i>                           |

11:45 – 12:00 pm **Minh Tan Nguyen**, Electrical & Computer Engineering, Rice University  
*Understanding the brain mechanisms underlying perception*

12:00 – 1:15 pm **LUNCH and Discussion of Neural Circuit Research**

**THEME 3: TRANSLATIONAL NEUROENGINEERING**

1:20 – 1:40 pm **Amanda Wickens**, Applied Physics, Rice University  
*Magnetoelectric Nanomaterials for Neural Modulation*

1:40 – 2:00 pm **Eric Lewis**, Electrical & Computer Engineering, Rice University  
*Deep Brain Stimulation (DBS) therapy and the reduction of symptoms associated with Parkinson's Disease (PD)*

2:00 – 2:20 pm **Matthew Evan Pezent**, Mechanical Engineering, Rice University  
*Design and Control of a Robotic Exoskeletal Device for Hand-Wrist Rehabilitation*

2:20 – 2:40 pm **BREAKOUT SESSION 2: Opportunities for Cross-Disciplinary Collaboration**

2:40 – 3:00 pm Closing, **Dr. Robert Raphael**