IUCRC BRAIN Symposium – August 4, 2023
09:00 AM – 12:00 Noon
MD Anderson Library
Elizabeth D. Rockwell Pavilion
4333 University Dr

Program:

09:00 AM – 10:00 AM
Review of the program and post assessment
Pepe Contreras-Vidal, Parikh Pranav, Stuart Long, Jenny Fula

10:00 AM – 11:00 AM
REU and REM Trainees poster presentations

11:00 AM – 12:00 PM
NSAP Trainees and BRAIN-France Polytechnic America Program

Poster session

<table>
<thead>
<tr>
<th>Poster #</th>
<th>Program</th>
<th>Presenter</th>
<th>Authors</th>
<th>School/ Affiliation</th>
<th>Project</th>
<th>Faculty Advisor/ Graduate mentors</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>REU</td>
<td>Joy Agus</td>
<td>Joy Agus, Jeff Feng, Jose Contreras-Vidal</td>
<td>Arizona State University</td>
<td>Electroencephalogram Validation With Virtual Reality-Based Vestibular Ocular Motor Screening for Concussion Detection</td>
<td>Jeff Feng</td>
</tr>
<tr>
<td>2</td>
<td>REU</td>
<td>Max Bluhm,</td>
<td>Max Bluhm, David Mayerich</td>
<td>Middlebury College</td>
<td>Full Automation of MUVE: Milling With Ultraviolet Excitation</td>
<td>David Mayerich</td>
</tr>
<tr>
<td>3</td>
<td>REU</td>
<td>Abigail Clement</td>
<td>Abigail Clement, Saba Yazdekhasti, Stacey Gorniak</td>
<td>University of Kansas</td>
<td>Evaluating the effects of sports bra design on postural control in exercise</td>
<td>Stacey Gorniak</td>
</tr>
<tr>
<td>4</td>
<td>REU</td>
<td>Al Gardner</td>
<td>Alexander Gardner, Alexander Steele, Shahn Alipour, Amir Faraj, Jose Contreras-Vidal</td>
<td>Columbia University</td>
<td>Support Vector Machine to Map Sensorimotor Networks in Lower Limbs</td>
<td>Jose Contreras-Vidal</td>
</tr>
<tr>
<td>5</td>
<td>REU</td>
<td>Premal Gorroochurn</td>
<td>Premal Gorroochurn, Julien Leclerc, Yitong Lu, Aaron Becker</td>
<td>Columbia University</td>
<td>Implementation of an In-Vitro Pulmonary Artery Model and Control of Robotic Magnetic Swimmer</td>
<td>Aaron Becker</td>
</tr>
<tr>
<td>6</td>
<td>REU</td>
<td>Alyssa Holloway</td>
<td>Alyssa Holloway, Pranav Parikh, Komal Kukkar</td>
<td>Austin College</td>
<td>The Changes in Sample Entropy Between Stroke and Healthy Patients During a Continuous Balance Task</td>
<td>Pranav Parikh</td>
</tr>
<tr>
<td>7</td>
<td>REU</td>
<td>Charles Hong,</td>
<td>Charles Hong, Yitong Lu, Aaron Becker, Julien Leclerc</td>
<td>Georgia Institute of Technology</td>
<td>Detection of Magnetic Swimmers Using Ultrasoundography and Real-Time Data Transfer for Automated 3D Navigation</td>
<td>Aaron Becker</td>
</tr>
<tr>
<td>8</td>
<td>REU</td>
<td>Amy Lam</td>
<td>Amy Lam, Nanki Chugh, Anthony Brandt, Jose Contreras-Vidal</td>
<td>Rice University</td>
<td>Mobile Brain-Body Imaging Data Collection during the World Premiere of “Diabelli 200” - an Interdisciplinary Exploration of Neuroscience, Music, and the Arts</td>
<td>Jose Contreras-Vidal</td>
</tr>
<tr>
<td>9</td>
<td>REU</td>
<td>William Lau</td>
<td>William Lau, Xin Fu, Xuqing Wu, Jiefu Chen</td>
<td>University of Houston</td>
<td>Deploying a Convolutional Neural Network on a Mobile Computing Platform</td>
<td>Xin Fu</td>
</tr>
<tr>
<td>10</td>
<td>REU</td>
<td>Natalie Linde</td>
<td>Natalie Linde, Alana Maluszczak, Sydney Jeffcoat, Michelle Patrick Kreuger, Jose Contreras-Vidal</td>
<td>University of Houston</td>
<td>Assaying Neural Individuality and Variation in Freely Behaving Children Based on qEEG</td>
<td>Jose Contreras-Vidal</td>
</tr>
<tr>
<td>11</td>
<td>REU</td>
<td>Alana Maluszczak</td>
<td>Alana Maluszczak, Jose Contreras-Vidal, Jose Gonzalez-Espaňa</td>
<td>Arizona University</td>
<td>Real-time C++ implementation of H infinity Algorithm for Removal of Ocular Artifacts of Electroencephalography for Brain-Machine Interface Application</td>
<td>Jose Contreras-Vidal</td>
</tr>
<tr>
<td>12</td>
<td>REU</td>
<td>Jacob Jose Mendez-Araque</td>
<td>Jacob Jose Mendez-Araque, José Gonzalez-Espaňa, Jose Contreras-Vidal</td>
<td>University of Central Florida</td>
<td>Choosing the Right Protocol: A Critical Examination of Bluetooth and Wi-Fi Power Efficiency in IoT</td>
<td>Jose Contreras-Vidal</td>
</tr>
<tr>
<td>REU</td>
<td>Cailey Varnell</td>
<td>Cailey Varnell, Hana Kabak, Shantanu Sarkar, Jose Contreras-Vidal</td>
<td>Austin College</td>
<td>A Soft Pediatric Wearable Exosuit For Gait Diagnosis, Assistance, and Rehabilitation</td>
<td>Jose Contreras-Vidal</td>
<td></td>
</tr>
<tr>
<td>-----</td>
<td>----------------</td>
<td>---------------------------------------------------------------</td>
<td>---------------</td>
<td>--------------------------------------------------------------------------------</td>
<td>---------------------</td>
<td></td>
</tr>
<tr>
<td>NSAP</td>
<td>Amr Alshatnaw</td>
<td>Amr Alshatnaw, Manuel Portilla, Jinsook Roh</td>
<td>University of Chicago</td>
<td>A Comparative Study on Neurorehabilitation Gamification: Measuring Engagement, Motivation, and Perceived Challenge</td>
<td>Jinsook Roh</td>
<td></td>
</tr>
<tr>
<td>NSAP</td>
<td>Nanki Chugh</td>
<td>Nanki Chugh, Amy Lam, Anthony Brandt, Jose Contreras-Vidal</td>
<td>Rice University</td>
<td>Investigating Neural Dynamics Between Conductor and Pianist During Live Music Performance</td>
<td>Jose Contreras-Vidal</td>
<td></td>
</tr>
<tr>
<td>NSAP</td>
<td>Leah Karles</td>
<td>Leah Karles, Stacey Gorniak, Sally Kenworthy</td>
<td>Baylor College of Medicine (BCM)</td>
<td>Establishing Trailing Limb Angle in Healthy Older Adults</td>
<td>Stacey Gorniak</td>
<td></td>
</tr>
<tr>
<td>NSAP</td>
<td>Julia Kramer</td>
<td>Julia Kramer, Talukdar Raian Ferdous, Zain Jamjoom, Luca Pollonini</td>
<td>Arizona State University</td>
<td>Testing of Multimodal Neuroimaging Device for Objectively Assessing Brain Activity</td>
<td>Luca Pollonini</td>
<td></td>
</tr>
<tr>
<td>NSAP</td>
<td>Megan Anne Lauzon</td>
<td>Megan Anne Lauzon, Anna Linnea Rives, Shuo-Hsiu Chang</td>
<td>University of Colorado Boulder</td>
<td>Developing a wearable IMU-based device for spasticity assessment and</td>
<td>Shuo-Hsiu Chang</td>
<td></td>
</tr>
<tr>
<td>NSAP</td>
<td>Danny Magruder</td>
<td>Robert ‘Danny’ Magruder, Mansoor Mughal, Komal Kukkar, Pranav Parikh, Jose Contreras-Vidal</td>
<td>Carnegie Mellon University</td>
<td>Cross-Task Electroencephalographic Sources of Activation for Balance Control in Healthy and Stroke Individuals</td>
<td>Jose Contreras-Vidal &amp; Pranav Parikh</td>
<td></td>
</tr>
<tr>
<td>NSAP</td>
<td>Megan Merrow</td>
<td>Megan Merrow, William Amonette, Brock Futrell, Charles Layne</td>
<td>University Of Houston- Clear Lake</td>
<td>Kinematic and metabolic effects of a stand-up paddleboard exercise device</td>
<td>Charles Layne</td>
<td></td>
</tr>
<tr>
<td>NSAP</td>
<td>Anna Linnea Rives</td>
<td>Anna Linnea Rives, Megan Anne Lauzon, Shuo-Hsiu Chang</td>
<td>University of Colorado Boulder</td>
<td>Clinical applications of a wearable IMU to measure spasticity in patients with acquired brain injuries</td>
<td>Shuo-Hsiu Chang</td>
<td></td>
</tr>
<tr>
<td>NSAP</td>
<td>Amir Srour,</td>
<td>Amir Srour, Pranav Parikh, Komal Kukkar</td>
<td>Stevenson University</td>
<td>Time-frequency analysis to assess dynamic changes during balance control</td>
<td>Pranav Parikh</td>
<td></td>
</tr>
<tr>
<td>REM</td>
<td>Adaeze Nnadi,</td>
<td>Adaeze Nnadi, Joy Agus, and Sarah Wong</td>
<td>Clear Lake High School</td>
<td>VR Development in Unity for Improved Sideline Assessment of Concussions</td>
<td>Shahin Alipour</td>
<td></td>
</tr>
<tr>
<td>REM</td>
<td>Patrick Hoang, Ryan Lorente</td>
<td>Patrick Hoang, Ryan Lorente, Shahin Alipour</td>
<td>Clear Lake High School</td>
<td>VR &amp; Gamified Systems for Rehabilitation</td>
<td>Michelle Patrick Krueger</td>
<td></td>
</tr>
<tr>
<td>REM</td>
<td>Sydney Jeffcoat, Surya Fincke</td>
<td>Sydney Jeffcoat, Alex Daube, Natalie Linde, Surya Fincke, Michelle Patrick Krueger</td>
<td>Clear Falls High School, Clear Lake High School</td>
<td>Assaying the Effects of Nature on Brain Activity and Well-Being</td>
<td>Michelle Patrick Krueger</td>
<td></td>
</tr>
<tr>
<td>REM</td>
<td>Ryan Noorbakhsh</td>
<td>Ryan Noorbakhsh, David Mayerich</td>
<td>Clear Creek High School</td>
<td>Neural Network to Segment Brain Vessels</td>
<td>David Mayerich</td>
<td></td>
</tr>
<tr>
<td>BRAIN-France Polytechnic America</td>
<td>Louise Manson</td>
<td>Louise Manson, Ayman Alamir, Hamssa Moua &amp; Jose Contreras-Vidal</td>
<td>Polytech Sorbonne</td>
<td>Current spikes investigation in pediatric exoskeleton for rehabilitation and mobility</td>
<td>Jose Contreras-Vidal</td>
<td></td>
</tr>
<tr>
<td>BRAIN-France Polytechnic America</td>
<td>Hana Kabak</td>
<td>Hana Kabak, Cailey Varnell, Shantanu Sarkar, Jose Contreras-Vidal</td>
<td>Polytech Tours</td>
<td>EXOSuit - Shaping and activating Nitinol’s shape memory capacity</td>
<td>Jose Contreras-Vidal</td>
<td></td>
</tr>
<tr>
<td>BRAIN-France Polytechnic America</td>
<td>Hamssa Moua</td>
<td>Hamssa Moua, Ayman Alamir, Louise Manson, Jose Contreras-Vidal</td>
<td>Polytech Sorbonne</td>
<td>Modeling Torque Sensing for Assist-As-Needed Control</td>
<td>Jose Contreras-Vidal</td>
<td></td>
</tr>
<tr>
<td>BRAIN-France Polytechnic America</td>
<td>Jeremie Noel</td>
<td>Jeremie Noel, José Gonzalez-Españo Jose Contreras-Vidal</td>
<td>Nantes University</td>
<td>Power supply of the NeuroExo project</td>
<td>Jose Contreras-Vidal</td>
<td></td>
</tr>
</tbody>
</table>