JUSTIN A. BRANTLEY

@ justin.a.brantley@gmail.com 505.321.3366
E413 Engineering Bldg. II, 77204 Houston, TX, USA @JABrantl
linkedin.com/in/justin-brantley researchgate.net/profile/Justin_Brantley

RESEARCH INTERESTS

Brain/Human-Machine Interfaces | Prosthetics & Orthotics | Rehabilitation | Biomechanics | Robotics & Mechatronics | Engineering in Clinical Medicine | Machine Learning | Motor Control

EDUCATION

Ph.D Electrical & Computer Engineering — Expected 2019

University of Houston

Houston, TX

- Advisor: Jose Luis Contreras-Vidal, Ph.D
- Thesis: A Multimodal Neural-Machine Interface for Control of a Powered Lower-Limb Prosthesis
- NIH Doctoral Fellow—NIH Blueprint Diversity Specialized Predoctoral to Postdoctoral Advancement in Neuroscience (D-SPAN) Award (NIH 1F99NS105210-01)

M.S., Biomedical Engineering — Dec 2014

University of New Mexico

Albuquerque, NM

- Advisor: Mahmoud Reda Taha, Ph.D, PEng
- Thesis: A Biomechanical Analysis of One-Third Tubular Plates for the Treatment of Benign Lesions in the Distal Femur. * *Available here*
- *Graduated with Distinction*

B.S., Mechanical Engineering — Dec 2011

New Mexico State University

Las Cruces, NM

- Minor: Mathematics
- NIH Building Research Achievement in Neuroscience (BRAiN) Scholar (Advisor: Elba Serrano, Ph.D.)

RESEARCH EXPERIENCE

Laboratory for Non-Invasive Brain Machine Interfaces — Aug 2014–Present

Electrical & Computer Engineering, University of Houston

Supervisor: Jose L. Contreras-Vidal, Ph.D.

UNM Orthopaedic Biomechanics & Biomaterials Laboratory — Aug 2012–Aug 2014

Dept. of Orthopaedics & Rehabilitation, University of New Mexico

Supervisors: Mahmoud Reda Taha, Ph.D, PEng; Deana Mercer, MD;
Christina Salas, Ph.D; Robert Schenck, MD

Building Research Achievement in Neuroscience (BRAiN) Aug 2011–May 2012

Dept. of Biology, New Mexico State University

Supervisor: Elba Serrano, Ph.D

Building Research Achievement in Neuroscience (BRAiN) Jun 2011 - Aug 2011

Department of Bioengineering, Center for NeuroScience
University of Colorado Anschutz Medical Campus

Supervisors: Emily Gibson, Ph.D. and Diego Restrepo, Ph.D.

NASA Lunabotics Mining Competition Jan 2011 - Aug 2012

Dept. of Mechanical Engineering, University of New Mexico

Supervisor: Gabe Garcia, Ph.D

FELLOWSHIPS & AWARDS

UH Graduate Research Showcase 3-Minute Thesis (3MT) Finalist	Jan 2019
SFN Trainee Professional Development Award	Nov 2018
UH Cullen Fellowship Travel Grant	May 2016, Oct 2017, Nov 2018
NIH Blueprint D-SPAN Award **NIH 1F99NS105210-01**	Sep 2017
1st Place Urvish Medh & Betty Barr Award, ECE GRC 2017	May 2017
UH College of Engineering Future Faculty Program	Aug 2016
MS Defense Passed with Distinction	Aug 2014
UNM Graduate & Professional Student Association Travel Award	Feb 2014
UNM Department of Orthopaedics Research Assistantship	Aug 2012
BP ENDURE BRAiN Cohort Participant **NIH R25GM097633**	Jan 2011
NMSU Engineering College Scholarship	Aug 2011
NMSU Regents Scholarship	Aug 2007

PUBLICATIONS

A list of my publications can be found at:

*** Indicates joint first authorship*

Book Chapters

1. ****Brantley**, **JA**, **Paek, A, Steele, A, and Contreras-Vidal, JL. Springer Handbook of Neuroengineering. In: ed. by Thakor, NV. *In preparation*. Springer Nature, chap. BMI for Upper and Lower Limb Prostheses.

Journal Articles

1. **Brantley**, **JA**, Luu, TP, Nakagome, S, Zhu, F, and Contreras-Vidal, JL. Full body mobile brain-body imaging data during unconstrained locomotion on stairs, ramps, and level ground. Scientific data 2018;5. PubMed PMID: 29989591; PubMed Central PMCID: PMC6038848.:180133.

2. Salas, C, **Brantley**, **JA**, Clark, J, Taha, MR, Myers, OB, and Mercer, D. Damage in a Distal Radius Fracture Model Treated With Locked Volar Plating After Simulated Postoperative Loading. The Journal of hand surgery 2018;43. PubMed PMID: 29426604; PubMed Central PMCID: PMC6035079:679–e1.

3. **Cruz-Garza, JG, ****Brantley**, **JA**, **Nakagome, S, et al. Deployment of Mobile EEG Technology in an Art Museum Setting: Evaluation of Signal Quality and Usability. Frontiers in human neuroscience 2017;11. PubMed PMID: 29176943; PubMed Central PMCID: PMC5686057:527.

4. **Luu, TP, ****Brantley**, **JA**, Nakagome, S, Zhu, F, and Contreras-Vidal, JL. Electrocortical correlates of human level-ground, slope, and stair walking. PLOS ONE 2017;12. PubMed PMID: 29190704; PubMed Central PMCID: PMC5708801:1–15.

5. **Brantley**, **J**, Majumdar, A, Jobe, JT, Kallur, A, and Salas, C. A Biomechanical Comparison Of Pin Configurations Used For Percutaneous Pinning Of Distal Tibia Fractures In Children. The Iowa orthopaedic journal 2016;36. PubMed PMID: 27528850; PubMed Central PMCID: PMC4910788:133.

6. Contreras-Vidal, JL, Bhagat, NA, **Brantley**, **J**, et al. Powered exoskeletons for bipedal locomotion after spinal cord injury. Journal of neural engineering 2016;13. PubMed PMID: 27064508:031001.

8. Evans, S, **Brantley**, **J**, Brady, C, Salas, C, and Mercer, D. Structures at risk during volar percutaneous fixation of scaphoid fractures: a cadaver study. The Iowa orthopaedic journal 2015;35. PubMed PMID: 26361453; PubMed Central PMCID: PMC4492137:119.

9. Kontson, K, Megjhani, M, **Brantley**, **JA**, et al. Your Brain on Art: Emergent cortical dynamics during aesthetic experiences. Frontiers in human neuroscience 2015;9. PubMed PMID: 26635579; PubMed Central PMCID: PMC4649259:626.

Conference Proceedings

1. **Brantley**, **JA**, Luu, TP, Nakagome, S, and Contreras-Vidal, JL. Prediction of lower-limb joint kinematics from surface EMG during overground locomotion. In: *2017 IEEE International Conference on Systems, Man, and Cybernetics (SMC)*. IEEE. 2017:1705–1709.

2. **Brantley**, **JA**, Luu, TP, Nakagome, S, and Contreras-Vidal, JL. Towards the development of a hybrid neural-machine interface for volitional control of a powered lower limb prosthesis. In: *2017 International Symposium on Wearable Robotics and Rehabilitation (WeRob)*. IEEE. 2017:1–1.

3. Luu, TP, **Brantley**, **JA**, Zhu, F, and Contreras-Vidal, JL. Cortical features of locomotion-mode transitions via non-invasive EEG. in: *2017 IEEE International Conference on Systems, Man, and Cybernetics (SMC)*. IEEE. 2017:2437–2441.

4. Luu, TP, **Brantley**, **JA**, Zhu, F, and Contreras-Vidal, JL. Electrocortical amplitude modulations of human level-ground, slope, and stair walking. In: *2017 39th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)*. PubMed PMID: 29190704; PubMed Central PMCID: PMC5708801. IEEE. 2017:1913–1916.

5. Nakagome, S, Luu, TP, **Brantley**, **JA**, and Contreras-Vidal, JL. Prediction of EMG envelopes of multiple terrains over-ground walking from EEG signals using an unscented Kalman filter. In: *2017 IEEE International Conference on Systems, Man, and Cybernetics (SMC)*. IEEE. 2017:3175–3178.

6. **Brantley**, **JA**, Luu, TP, Ozdemir, R, et al. Noninvasive EEG correlates of overground and stair walking. In: *2016 38th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)*. PubMed PMID: 28325029. IEEE. 2016:5729–5732.

7. Winslow, AT, **Brantley**, **J**, Zhu, F, Vidal, JLC, and Huang, H. Corticomuscular coherence variation throughout the gait cycle during overground walking and ramp ascent: a preliminary investigation. In: *2016 38th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)*. PubMed PMID: 28269308. IEEE. 2016:4634–4637.

Publically Contributed Data

1. **Brantley**, **J**, Luu, TP, Zhu, F, Nakagome, S, and Contreras-Vidal, JL. Full body mobile brain-body imaging data (EEG, EMG, and kinematics) during unconstrained locomotion on stairs, ramps, and level ground. 2018. DOI: 10.6084/m9.figshare.5616109.v5. URL: https://figshare.com/articles/EEG_Data/5616109/5.

2. Cruz-Garza, JG, **Brantley, JA, **Nakagome**, **S**, Kontson, K, Robleto, D, and Contreras-Vidal, JL. Mobile EEG Recordings in an Art Museum Setting. 2017. DOI: 10.21227/H2TM00. URL: http://dx.doi.org/10.21227/H2TM00.

Thesis

1. **Brantley**, **J**. A Biomechanical Analysis of One-Third Tubular Plates for the Treatment of Benign Lesions in the Distal Femur. University of New Mexico. 2015.

INVITED PRESENTATIONS

1. Recent Advances in NeuroRobotics for Rehabilitation — Mar 2019
   - 9th International IEEE EMBS Conference on Neural Engineering, San Francisco CA
2. Enhancing Neurocience Diversity through Undergraduate Research Education Experiences (ENDURE) 8th Annual Meeting — Nov 2018
   - Society for Neuroscience (SFN 2018), San Diego CA

PROFESSIONAL AFFILIATIONS

Institute of Electrical and Electronics Engineers (IEEE) 2016-Present

Society for Neuroscience 2014-Present

PROFESSIONAL SERVICE

Ad hoc reviewer: Neuroscience, IEEE Society for Systems, Man, and Cybernetics, BCI Society

MENTORSHIP

NSF Research Experiences for Undergraduates (REU) Student May 2018 - Present

Dana Seibert - BS, Mechanical Engineering *expected 2020*

LANGUAGUES

Proficiency in conversational Spanish

MEDIA COVERAGE

News Articles

1. Researchers Map Brain Activity to Improve Prosthetic Design — Nov 2017
2. Researchers Observe Effects of Art on the Brain - Wall Street Journal — Dec 2015
3. At the intersection of neuroscience and art — Nov 2015

Videos

1. Your Brain On Art - Exquisite Corpse — Oct 2015
2. Minecraft Brainwave Reading Event — Aug 2015
3. Dario Robleto: The Boundary of Life is Quietly Crossed — Nov 2014

OUTREACH & SERVICE

- Your Brain on Art: The Exquisite Corpse — Summer 2018
  STEAM outreach–demonstrating neuroimaging during art creation
  Childrens Museum of Houston, Houston, TX
- Your Brain on Music: : The Exquisite Corpse — Summer 2018
  Demonstrated neuroimaging technology and recorded EEG during live music presentation
  Houston Health Museum, Houston, TX
- UTHealth Stomp Out Stroke Festival — Summer 2017
  Demonstration of brain imaging devices and rehabilitation robotics
  Discovery Green, Houston, TX
- Seminar for Baylor Orthotics & Prosthetics Students — Spring 2017
  Demonstration of brain imaging devices, rehabilitation robotics, and neuro-prosthetics
  Non-Invasive Brain-Machine Interfaces Lab, University of Houston, Houston, TX
- UTHealth Stomp Out Stroke Festival — Summer 2016
  Demonstration of brain imaging devices and rehabilitation robotics
  Bray's Bayou, Houston, TX
- Your Brain on Art: The Exquisite Corpse — Fall 2016
  STEAM outreach–demonstrating neuroimaging during art creation
  Childrens Museum of Houston, Houston, TX
- National Engineers Week — Spring 2016
  Demonstration of brain imaging devices and rehabilitation robotics
  The Childrens Museum of Houston, Houston, TX

- Minecraft Mayhem — Summer 2015
  Recorded brain activity of over 200 children while playing Minecraft
  The Childrens Museum of Houston, Houston, TX
- UTHealth Stomp Out Stroke Festival — Summer 2015
  Demonstration of brain imaging devices and rehabilitation robotics
  Discovery Green, Houston, TX
- The Menil Collection *STEAM* Outreach — Fall 2014
  Discussed interface of art and science. Recorded brain activity of 430 participants during weekly four hour session every Saturday for fourteen weeks
  The Menil Collection, Houston TX
- Middle School Structures Seminar — Spring 2014
  Day long workshop on structures. Provided lessons and demos on the human body as a mechanical structure.
  Bosque School, Albuquerque, NM
- The Perry Initiative Volunteer — Fall 2013
  Assisted in planning and organization. Led station on engineering in medicine
  UNM Health Sciences Center, Albuquerque, NM
- FIRST Robotics Mentor (Las Cruces, NM Team) — Spring 2012
  Provided semester-long mentorship to highschool robotics team
  Las Cruces, NM
- FIRST Robotics Mentor (Deming, NM Team) — Spring 2012
  Provided semester-long mentorship to highschool robotics team
  Deming, NM
- FIRST Robotics Competition Volunteer — Spring 2012
  Assisted in competition setup and daily maintenance
  NMSU, Las Cruces, NM