

Justin M. Campbell

MD/PHD CANDIDATE

justin-campbell.github.io

EDUCATION

M.D. (Expected 05/2027) University of Utah School of Medicine, Salt Lake City, UT	6/2019-Present
Ph.D. in Neuroscience (Expected 05/2025) University of Utah, Salt Lake City, UT	8/2021-Present
M.S. in Biomedical Engineering (Expected 05/2024) <i>Neuroengineering Track</i> University of Utah, Salt Lake City, UT	8/2023-Present
B.S. in Philosophy, B.S. in Psychology <i>University Honors, Cum Laude, Minors in Chemistry & Biology</i> Utah State University, Logan, UT	8/2013-5/2018

RESEARCH EXPERIENCE

Graduate Student <i>PIs: Cory Inman, Ph.D., John Rolston MD, PhD</i> Interdepartmental Program in Neuroscience University of Utah School of Medicine, Salt Lake City, UT	6/2021-Present
Research Assistant <i>PI: Anthony Hudetz, D.B.M., Ph.D.</i> Center for Consciousness Science University of Michigan Medical School, Ann Arbor, MI	8/2018-5/2019
Research Assistant <i>PI: Kerry Jordan, Ph.D.</i> Department of Psychology Utah State University, Logan, UT	6/2014-8/2018

HONORS & AWARDS

John H. Weis Memorial Graduate Student Travel Award	5/2023
Blackrock Neurotechnology Society for Neuroscience Travel Award	11/2022
Associated Students of the University of Utah Travel Award	11/2022
Early Career & Professional Development Program Award	8/2022
Bench to Bedside Eccles & Marriott Libraries Award	4/2021
Atlantis Leaders Scholarship & Clinical Fellowship in Lisbon, Portugal	3/2018
College of Education and Human Services Undergraduate Researcher of the Year	2/2018

Psychology Department Undergraduate Researcher of the Year	2/2018
Philosophy Department Student of the Year	2/2018
Best Oral Presentation at Utah State University Research Symposium	4/2017
Koch Scholar	4/2017
Brett E. Blanch Memorial Scholarship in Philosophy	4/2017
Lyon, Maas, Mueggler Outdoor Leadership Scholarship	10/2016
Best Poster Presentation at Utah State University Research Symposium	4/2016

GRANTS AWARDED

3. **NIH NINDS T32 NS115723** (Role: PI) 7/2022-7/2024
Training in the Development of Novel Interventions for the Treatment of Neurological and Neurobehavioral Disorders
 Two-year training fellowship that provides formal instruction in moving basic science discoveries to clinical practice. The funded project focuses on developing closed-loop intracranial electrical stimulation of the amygdala to enhance episodic memory.
2. **NSF Innovation Corps** (Role: PI) 10/2020-4/2021
Improving the controllability and stability of neuroendovascular devices
 This project involves collecting survey data and conducting interviews with neurosurgeons and other endovascular specialists to better understand the common shortcomings of devices used in neuroendovascular procedures.
1. **Undergraduate Research & Creative Opportunities Grant** (Role: PI) 4/2016-4/2017
Differences in contingent negative variation (CNV) when using social dilemma strategies
 This project employed wireless electroencephalography (EEG) and analysis of event-related potentials to explore the neural signatures of cooperation and defection in simulated social dilemmas.

PUBLICATIONS

12. Inman, C.S., Hollearn, M.K., Augustin, L., **Campbell, J.M.**, Olson, K.L., Wahlstrom, K.L. Discovering how the amygdala shapes human behavior: From lesion studies to neuromodulation. *Neuron* (in press).
11. Caston, R.M.*, **Campbell, J.M.***, Rahimpour, S., Moretti, P., Alexander, M.D., Rolston, J.D. Hemorrhagic safety of magnetic resonance-guided focused ultrasound thalamotomy for tremor without interruption of antiplatelet or anticoagulant therapy. *Stereotact Funct Neurosurg* 1-5 (2023).
10. **Campbell, J.M.**, Davis, T.S., Nesterovich Anderson, D., Arain, A., Inman, C.S., Smith, E.H., Rolston, J.D. Subsets of cortico-cortical evoked potentials propagate as traveling waves. *BioRxiv* (2023).
9. **Campbell, J.M.**, Kundu, B., Lee, J.N, Miranda, M., Arain, A., Taussky, P., Grandhi, R., Rolston, J.D. Evaluating the concordance of functional MRI-based language lateralization and language testing in epilepsy patients: a single-center analysis. *Interventional Neuroradiology* (2022).
8. Shlobin N., Clark, J., **Campbell, J.M.**, Bernstein, M., Jahromi, B., Potts, M. Ethical Considerations in Surgical Decompression for Stroke. *Stroke* 53, 2673-2682 (2022).

7. Radwanski, R.R., Winston, G., Younus, I., Gaudix, S.W., Shlobin, N.A., Rothbaum, M., Kortz, M.W., **Campbell, J.M.**, Evins, A., Greenfield, J.P., Pannullo, S.C. Reevaluating Innovations in Medical Student Neurosurgery Education: Lessons Learned Today from Data Collected Before COVID-19. *World Neurosurg* 163, 171-178 (2022).
6. Crabb, B.T., Hamrick, F., **Campbell, J.M.**, Vignolles-Jeong, J., Magill, S.T., Prevedello, D.M., Carrau, R.L., Otto, B.A., Hardesty, D.A., Couldwell, W.T., Karsy, M. Machine Learning-Based Analysis and Prediction of Unplanned 30-Day Readmissions After Pituitary Adenoma Resection: A Multi-Institutional Retrospective Study With External Validation. *Neurosurgery* 91(2), 263-271 (2022).
5. **Campbell, J.M.**, Ballard, J., Duff, K, Zorn, M., Moretti, P., Alexander, M.D., Rolston, J.D. Balance and cognitive impairments are prevalent and correlated with age in presurgical patients with essential tremor. *Clin Park Relat Disord* 6, 100134 (2022).
4. Shlobin, N. A.*, **Campbell, J. M.***, Rosenow, J. M. & Rolston, J. D. Ethical considerations in the surgical and neuromodulatory treatment of epilepsy. *Epilepsy Behav* 127, 108524 (2022).
3. Nguyen, S., Cox, P., **Campbell, J. M.**, Brockmeyer, D. L. & Karsy, M. Evaluating the utility and quality of large administrative databases in pediatric spinal neurosurgery research. *Child's Nerv Syst* 37(10), 2993–3001 (2021).
2. Mahamane, S., Wan, N., Porter, A., Hancock, A. S., **Campbell, J.**, Lyon, T. E., Jordan, K. Natural Categorization: Electrophysiological Responses to Viewing Natural versus Built Environments. *Front Psychol* 11, 990 (2020).
1. **Campbell, J. M.***, Huang, Z.*, Zhang, J., Wu, X., Qin, P., Northoff, G., Mashour, G. A., Hudetz, A. G. Pharmacologically informed machine learning approach for identifying pathological states of unconsciousness via resting-state fMRI. *Neuroimage* 206, 116316 (2020).

* Indicates equal contribution

PRESENTATIONS

16. **Campbell J.M.** Amygdala-mediated memory enhancement in humans via precision neuromodulation. Oral presentation at National Institute of Neurological Disorders and Stroke T32 Workshop; 2023 Jun 5-7; Philadelphia, Pennsylvania.
15. **Campbell J.M.**, Wahlstrom, K.L., Blanpain, L., Davis, T., Swift, J., Adamek, M., Xie, T., Brunner, P., Hamann, S.B., Arain, A., Eisenman, L., Gross, R.E., Rolston, J.D., Rahimpour, S., Manns, J.R., Willie, J.T., Inman, C.S. Closed-loop direct electrical stimulation to optimize amygdala-mediated memory enhancement in humans. Poster presentation at International Conference on Learning and Memory; 2023 Apr 25-30; Huntington Beach, California.
14. **Campbell J.M.**, Davis, T.S., Smith E.H., Rolston, J.D. Cortico-cortical evoked potentials are traveling waves. Poster presentation at Utah Neuroscience Program Snowbird Symposium; 2022 Oct 28; Snowbird, Utah.
13. **Campbell J.M.**, Davis, T.S., Smith E.H., Rolston, J.D. Cortico-cortical evoked potentials are traveling waves. Poster presentation at International Conference on Spreading Depolarizations; 2022 Oct 10; Salt Lake City, Utah.

12. **Campbell J.M.**, Davis, T.S., Smith E.H., Rolston, J.D. Cortico-cortical evoked potentials are traveling waves. Oral presentation at American Society for Stereotactic and Functional Neurosurgery; 2022 Jun 4-7; Atlanta, Georgia.
11. **Campbell J.M.**, Ballard, J., Duff, K., Zorn, M., Moretti, P., Alexander, M.D., Rolston, J.D. Analysis of balance and cognitive function in presurgical patients with essential tremor. Oral presentation at American Association of Neurological Surgeons; 2021 Aug 21-25; Virtual-Meeting.
10. **Campbell J.M.**, Crabb, B., Hamrick, F., Couldwell, W.T., Karsy, M. Predicting Readmission Following Pituitary Adenoma Resection: A Machine Learning Approach. Oral presentation at Weill Cornell Medicine Neurosurgery Medical Student Neurological Surgery Research Symposium; 2020 Jan 23; Virtual-Meeting.
9. **Campbell J.M.**, Ballard, J., Duff, K., Zorn, M., Moretti, P., Alexander, M.D., Rolston, J.D. Age and cognitive function predict impaired balance in patients with essential tremor. Poster presentation at American Society for Stereotactic and Functional Neurosurgery; 2020 Jun 20; Boston, Massachusetts. (COVID interrupted)
8. **Campbell J.M.**, Davis, T., Rolston J.D. Exploring the Neurophysiology of Pain Perception with the Thermal Grill Illusion (TGI). Poster presentation at University of Utah School of Medicine Medical Student Research Forum; 2020 Jul 30; Salt Lake City, Utah.
7. **Campbell J.M.**, Robinson B., Wan N.J.A., Jordan K. Are you thinking what I'm thinking? Theory of Mind activation in social dilemmas. Poster presentation at Utah State University Biology Undergraduate Research Symposium; 2018 Apr 19; Logan, Utah.
6. **Campbell J.M.** You Think, Therefore I Am: Crowdsourcing Consciousness. Oral presentation at Utah State Student Research Symposium; 2018 Apr 12; Logan, Utah.
5. **Campbell J.M.** Crowdsourcing Consciousness: Attention Schema Theory and the Socially Constructed Self. Oral presentation at Science of Consciousness; 2018 Apr 2-7; Tucson, Arizona.
4. **Campbell J.M.**, Robinson B., Wan N.J.A., Jordan K. Are you thinking what I'm thinking? Theory of Mind activation in social dilemmas. Poster presentation at Cognitive Neuroscience Society; 2018 Mar 24-27; Boston, Massachusetts.
3. **Campbell J.M.**, Robinson B., Wan N.J.A., Jordan K. Are you thinking what I'm thinking? A neuroscientific analysis of mentalization in social dilemmas. Oral presentation at Utah State Student Research Symposium; 2017 Apr 13; Logan, Utah.
2. **Campbell J.M.**, Robinson B., Wan N.J.A., Jordan K. Differences in contingent negative variation (CNV) when using social dilemma strategies. Poster presentation at Utah State Student Research Symposium; 2016 Apr 14; Logan, Utah.
1. **Campbell J.M.**, Robinson B., Wan N.J.A., Jordan K. Differences in contingent negative variation (CNV) when using social dilemma strategies. Poster presentation at Cognitive Neuroscience Society; 2016 Apr 2-5; New York City, New York.

WORKSHOPS & TRAINING

Blackrock Neurotech Hands-On Electrophysiology Workshop
Salt Lake City, UT

6/2023

Two-day training workshop focused on electrophysiology data acquisition, closed-loop applications, and custom software development.

Cleveland Neurodesign Entrepreneurs Workshop

9/2022

Case Western Reserve University, Cleveland, OH

Four-day event that used the Biodesign process to explore healthcare entrepreneurship with a focus on neurotechnology. Received didactic instruction, mentoring, and one-on-one advising throughout the workshop. Collaborated with a multidisciplinary team in building a business plan to address an unmet clinical need.

Training in Advanced Statistical Methods in Neuroimaging and Genetics

2/2022

University of Utah, Salt Lake City, UT

Intensive two-week course focused on advanced statistical methods applied to neuroimaging and genetics (e.g., network science, multi-modal predictive modeling). Funded by National Institute on Neurological Disorders and Stroke (R25NS117281).

LEADERSHIP & SERVICE

Bench to Bedside 2022 Competition Team Leader

10/2021-4/2022

University of Utah School of Medicine, SLC, UT

Led multidisciplinary team in developing a low-cost device for quantitatively measuring tremor to improve diagnostic accuracy and facilitate long-term disease monitoring. Prepared investor packet containing customer needs assessment, market research, IP regulatory review, and business plan.

Bench to Bedside 2021 Competition Team Leader

10/2020-4/2021

University of Utah School of Medicine, SLC, UT

Led multidisciplinary team in developing a magnetically stabilized catheter system for neuroendovascular surgery. Our team was awarded the Eccles & Marriott Libraries prize (\$5,000). Prepared investor packet containing customer needs assessment, market research, IP regulatory review, and business plan.

Mentor to Students of Refugee Background

7/2020-7/2021

One Refugee, SLC, UT

Served as a professional mentor to students interested in science and medicine. Helped students to grow their professional network and discover opportunities to pursue their interests.

Neurology Clinic Co-Director

2/2020-4/2021

Fourth Street Clinic, SLC, UT

Staffed clinic, trained students, documented patient histories, and performed physical exams. Designed and implemented a plan to transition to a telemedicine system with students, attendings, and patients during COVID-19 pandemic.

Bench to Bedside 2020 Competition Team Leader

10/2019-9/2020

University of Utah School of Medicine, SLC, UT

Led multidisciplinary team in developing a novel two-balloon mechanical thrombectomy device. Prepared investor packet containing customer needs assessment, market research, IP regulatory review, and business plan.

Instructor for Science Power & Science Navigators

10/2019-3/2020

University of Utah School of Medicine, SLC, UT

Planned, organized, and led day camps where elementary school students (K-6) of all backgrounds could learn about science through games, projects, and crafts.

Trip Leader & Outdoors Program Trainer

3/2015-5/2018

Utah State University, Logan, UT

Professionally trained to serve as an outdoor guide across various activities (e.g., backcountry skiing, climbing, backpacking, whitewater rafting, mountain biking). Responsible for training other students in the program.

POSITIONS HELD

American Association of Neurological Surgeons Utah Chapter President	6/2022-Present
Co-Chair Neuroscience Program Snowbird Conference Committee	2/2022-10/2022
Co-President of Academic Medicine Student Interest Group	4/2020-4/2021
Co-President of Neurosurgery Student Interest Group	4/2020-4/2021
Vice President Neurology Student Interest Group	10/2019-4/2021
Co-Chair of Research for Utah Global Surgery Symposium	10/2019-3/2020

TEACHING EXPERIENCE

Undergraduate Teaching Fellow for Bioethics	1/2018-5/2018
<i>Utah State University, Logan, UT</i>	
Undergraduate Teaching Fellow for Introduction to Philosophy	8/2017-5/2018
<i>Utah State University, Logan, UT</i>	
Cadaver Lab Teaching Assistant	11/2016-3/2018
<i>Utah State University, Logan, UT</i>	
Undergraduate Teaching Fellow for Research Methods	1/2016-12/2016
<i>Utah State University, Logan, UT</i>	