

Lauren Ostrowski

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Education

2020–present M.D./Ph.D., Neurosciences Graduate Program

University of California, San Diego, USA

Supervisors: Dr. Timothy Gentner and Dr. Vikash Gilja

2014–2018 B.Sc., Computational Neuroscience with Honors

Brown University, USA

Honors distinction for thesis work in developmental epilepsy

Research Positions

2022–present PhD Student, Gentner and Translational Neuroengineering Labs

University of California, San Diego, USA

- Studying multi-regional neural population dynamics underlying the biomechanical control of learned vocal motor sequences in the songbird model system for speech production
 - *Developed novel neurosurgical techniques, custom software and custom 3D-printed hardware for Neuropixels 2.0 probes, obtaining the first large-scale recordings of simultaneous single-unit activity in songbird HVC and RA across hundreds of song renditions*
- Research residency at the Neural Interfacing Lab (PI: Christian Herff), Maastricht University, The Netherlands (March–July 2025, funded by Merkin Graduate Fellowship) investigating neural mechanisms of bilingual speech production and low-dimensional manifold geometry of language selectivity in intracranial recordings in Dutch-English speakers
 - *Designed two complementary paradigms, picture naming and unscripted dialogue with synthetic interlocutors, to elicit bilingual speech under ecologically valid conditions*
- Investigating temporal dynamics of linguistic and paralinguistic feature processing during speech perception across native and non-native languages using magnetoencephalography (MEG) and time-resolved neural decoding

2021 Rotation Student, Halgren Lab

University of California, San Diego, USA

- Explored neural activity in the human brain during speech perception using intraoperative data from high-density micro-ECoG electrodes placed over the superior temporal gyrus
- Using custom MATLAB-based analysis, found that phoneme-specific high-frequency oscillations phase-locked and co-occurred when phonemes were bound in consonant-vowel pairs

2020 Rotation Student, Computational Neural DNA Dynamics Lab

University of California, San Diego, USA

- Studied the frequency of atypical allele counts in healthy brain tissue using cytosine DNA methylation and chromatin profiles of post-mortem human frontal cortex tissue
- Developed and validated a pipeline in Python to detect partial aneuploidy at the single cell level

2019–2020 Data Analyst, Angelman Research Team at Biogen

Cambridge, MA, USA

- Analysis of EEG data in Angelman Syndrome and design of a robust, non-invasive EEG biomarker for Phase 1 clinical trial
- EEG findings eliminated the need for serial lumbar punctures in deployment of clinical trial

2018–2019 Research Assistant, BrainGate Consortium

Brown University and VA Medical Center, Providence, RI, USA

- Engineered software for neural signal processing with multi-institutional distribution
- Analyzed EEG activity in patients with recent stroke for future implementation in brain-computer interface

2016–2018 Research Assistant, Chu Lab

Massachusetts General Hospital, Boston, MA, USA

- Combined non-invasive physiological imaging techniques and behavioral data to identify biomarkers associated with seizure activity and neuropsychological impairments in developmental epilepsy
- Found correlation between white matter microstructure in language regions and comorbid language impairments
- Modeled whole-brain structural connectivity and analyzed network responses to electrical stimulation

2015–2016 Research Assistant, The Feinstein Institute for Medical Research

New Hyde Park, NY, USA

- Analyzed efficacy and interventional design of long-term health program to combat obesity and type 2 diabetes

Grants and Awards

2026 UCSD Neurosciences Graduate Access and Enrichment Grant

2024 Sanford Institute for Empathy and Compassion Research Fellowship

2024 UCSD Diversity in Neuroscience Enrichment Grant

2023 Merkin Graduate Fellowship

Supported research residency at Maastricht University, The Netherlands

2023 ACM SIGHPC Computational & Data Science Fellowship

2018 Sigma Xi Scientific Research Honor Society

2018 Bachelor of Science in Neuroscience with Honors Designation

2017 Presidential LINK Award, Brown University

2014 U.S. Presidential Scholar semi-finalist

2014 New Hampshire Red Sox Service Scholarship

2014 Milford Rotary Scholarship

2014 Joshua Sayvon Scholarship

Publications

Preprints

- [1] Weger P, Ottenhoff MC, Verwoert M, Gimple SV, **Ostrowski LM**, ..., Kubben P, Herff C. Insular error network enables self-correcting intracranial brain-computer interface. *bioRxiv* 2025.11.17.688824.

Peer-reviewed articles

- [2] Tostado-Marcos P, Arneodo EM, **Ostrowski LM**, Brown DE II, ..., Gentner TQ, Gilja V. Population dynamics in songbird RA and HVC during learned motor-vocal behavior. *J Neurosci* 2026;e0580252026.
- [3] Hardstone R, **Ostrowski LM**, Dusang AN, López-Larraz E, ..., Lin DJ. Extension of voxel-based lesion mapping to multidimensional neurophysiological data. *Sci Rep* 2025;15:41488.
- [4] **Ostrowski LM**, Chinappen DM, Stoyell SM, Song DY, Ross EE, ..., Chu CJ. Children with Rolandic epilepsy have micro- and macrostructural abnormalities in white matter constituting networks necessary for language function. *Epilepsy Behav* 2023;144:109254.

- [5] Chinappen DM, **Ostrowski LM**, Spencer ER, Kwon H, Kramer MA, ..., Chu CJ. Decreased thalamocortical connectivity in resolved Rolandic epilepsy. *Clin Neurophysiol* 2023;153:21-27.
- [6] Spencer ER, Shi W, Komorowski RW, Gilbert JP, **Ostrowski LM**, ..., Chu CJ. Longitudinal EEG model detects antisense oligonucleotide treatment effect and increased UBE3A in Angelman syndrome. *Brain Commun* 2022;4(3):fcac106.
- [7] **Ostrowski LM**, Spencer ER, Bird LM, Thibert R, Komorowski RW, Kramer MA, Chu CJ. Delta power robustly predicts cognitive function in Angelman syndrome. *Ann Clin Transl Neurol* 2021;8(7):1433-1445.
- [8] Crocker B, **Ostrowski LM**, Williams ZM, Dougherty DD, Eskandar EN, ..., Cash SS, Paulk AC. Local and distant responses to single pulse electrical stimulation reflect different forms of connectivity. *Neuroimage* 2021;237:118094.
- [9] Kramer MA, Stoyell SM, Chinappen D, **Ostrowski LM**, Spencer ER, ..., Chu CJ. Focal sleep spindle deficits reveal focal thalamocortical dysfunction and predict cognitive deficits in sleep activated developmental epilepsy. *J Neurosci* 2021;41(8):1816-1829.
- [10] Stoyell SM, Baxter BS, McLaren J, Kwon H, Chinappen DM, **Ostrowski LM**, ..., Chu CJ. Diazepam induced sleep spindle increase correlates with cognitive recovery in a child with epileptic encephalopathy. *BMC Neurol* 2021;21(1):355.
- [11] Thorn EL, **Ostrowski LM**, Chinappen DM, Jing J, Westover MB, ..., Chu CJ. Persistent abnormalities in Rolandic thalamocortical white matter circuits in childhood epilepsy with centrotemporal spikes. *Epilepsia* 2020;61(11):2500-2508.
- [12] **Ostrowski LM**, Song DY, Thorn EL, Ross EE, Stoyell SM, ..., Stufflebeam SM, Chu CJ. Dysmature superficial white matter microstructure in developmental focal epilepsy. *Brain Commun* 2019;1(1):fcz002.
- [13] **Ostrowski LM**, Speiser PW, Accacha S, Altshuler L, Fennoy I, ..., Rosenbaum M. Demographics and anthropometrics impact benefits of health intervention: Data from the Reduce Obesity and Diabetes project. *Obes Sci Pract* 2019;5(1):46-58.
- [14] Kramer MA, **Ostrowski LM**, Song DY, Thorn EL, Stoyell SM, ..., Chu CJ. Scalp recorded spike ripples predict seizure risk in childhood epilepsy better than spikes. *Brain* 2019;142(5):1296-1309.
- [15] Song DY, Stoyell SM, Ross EE, **Ostrowski LM**, Thorn EL, ..., Chu CJ. Beta oscillations in the sensorimotor cortex correlate with disease and remission in benign epilepsy with centrotemporal spikes. *Brain Behav* 2019;9(3):e01237.

Teaching

- 2023–present** Founder and Workshop Leader, Brain Machine Interface AI/ML Hackathon, *UCSD*
- 2023–2025** Discussion Leader, Neurosciences Graduate Program Journal Club, *UCSD*
- 2024** Teaching Assistant, Minor Proposition, *UCSD*
- 2022** Guest Lecturer, *UCSD School of Medicine*
Lecture: "Health Care for People Experiencing Homelessness in San Diego"
- 2016** Teaching Assistant, General Chemistry, *Brown University*

Supervision

- 2022–present** Undergraduate Research Mentoring
- 2020–present** UCSD Pre-Med Mentoring Program

Service

- 2025–present** Teacher and Curriculum Developer: Las Colinas Detention Center
Prepare and teach classes at grant-funded science education program for incarcerated individuals in Santee, CA

- 2022–2025** Neurosciences Graduate Program Committees: Chair, NGP Student Wellness Committee; Member, NGP Diversity Committee
- 2021–2022** Chapter President: Association of Women Surgeons, UCSD Student Chapter
- 2021–2022** Leadership & Clinical Volunteer: Homeless Health Initiative & Safe Haven Clinic
- 2021–2022** Public Health Advisory Council, Climate Action Campaign
Social Media Manager, patient health advocate at SD County Board of Supervisors meetings
- 2021–2022** Operation Harm Reduction
Volunteer distributing Narcan, clean needles, and first aid supplies
- 2020–present** Medical Scientist Training Program Committees: Member, MSTP Diversity Committee; Member, MSTP LGBTQ+ Health Committee
- 2020–2022** Executive Committee: LGBTQ+ Pharmacy & Medicine
Organized Rainbow Pin Ceremony, SoCal LGBTQ+ Conference, Trans Week of Visibility
- 2020–2022** Executive Committee: Border Health Project
Organized mobile health clinics, supply drives for migrant farmworkers
- 2020–2022** Anti-Racism Coalition at UCSD
Policy & Admissions Subcommittees: combating ICE in healthcare, microaggression reporting
- 2020–2021** Clinic Manager: UCSD Women's Free Clinic
Managed clinic operations and planned contraceptive counseling services
- 2017–2019** Clinical Volunteer: Clínica Esperanza / Hope Clinic, Providence RI
- 2017–2018** President: Women in Science and Engineering at Brown
- 2017–2018** Mentor: The Adolescent Leadership Council, Providence RI
Adolescent chronic illness support group
- 2015–2018** Peer Advisor: The Meiklejohn Peer Advising Program, Brown University

Presentations

- [1] Computational and Systems Neuroscience (COSYNE) 2026, Lisbon, Portugal. (March 12-17, 2026). Poster: "Transient, behavior-dependent coupling of neural population dynamics during learned motor sequences." J. Gorman*, **L. Ostrowski***, et al. [*equal contribution]
- [2] Society for Neuroscience 2025, Chicago, IL, USA. (November 15-18, 2025). Poster: "Cortical temporal dynamics of speech perception: Dissociating linguistic and paralinguistic elements." J. Xing, **L. Ostrowski**, et al.
- [3] Society for Neuroscience 2025, Chicago, IL, USA. (November 15-18, 2025). Poster: "Latent premotor neural dynamics reveal species-specific vocal strategies in songbirds." J. Gorman, **L. Ostrowski**, et al.
- [4] Society for Neuroscience 2025, Chicago, IL, USA. (November 15-18, 2025). Poster: "Species differences in real-time sensorimotor error processing during vocalization." L. Stanwicks, **L. Ostrowski**, et al.
- [5] Society for the Neurobiology of Language 2025, Washington DC, USA. (September 12, 2025). "Cortical temporal dynamics of tracking linguistic and paralinguistic elements." Poster: B. Lang*, J. Xing*, **L. Ostrowski**, et al. [*equal contribution]
- [6] American Society of Neuroradiology 2023, Los Angeles, CA, USA. (March 15, 2023). Poster: "Linking post-stroke neurophysiology to neuroanatomy: Novel method to extend voxel-lesion mapping to multi-dimensional EEG data." R. Hardstone, **L. Ostrowski**, et al.
- [7] American Society of Neuroradiology 2022, Boston, MA, USA. (April 1, 2022). Poster: "Persistent asymmetry of aperiodic resting-state neural activity in cortical and subcortical strokes." R. Hardstone, **L. Ostrowski**, et al.

- [8] Society for Neuroscience 2018, San Diego, CA, USA. (November 3-7, 2018). Poster: "Focal abnormalities in white matter microstructure correspond to neuropsychological comorbidities in BECTS." **L. Ostrowski**, et al.
- [9] American Epilepsy Society 2017, Washington DC, USA. (December 1-5, 2017). Poster: "Dysmature white matter microstructure in developmental epilepsy." **L. Ostrowski**, et al.
- [10] Endocrine Society 2016, Boston, MA, USA. (April 1-4, 2016); Obesity Society 2017, Washington, DC, USA. (October 29 - November 2, 2017). Poster: "Demographics and anthropometrics impact benefits of health intervention: Data from the ROAD Project." **L. Ostrowski**, et al.