

LAWRENCE GREGORY APPELBAUM

July 10, 2022

Personal Information

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Education

2004 Ph.D. Psychology, University of California, Irvine.
Thesis advisor: Dr. George Sperling
2002 M.S. Psychology, University of California, Irvine
1995 B.A. Psychology, Emory University, Atlanta, GA

Academic and Professional Experience

Appointments

2021 – present Professor with tenure. Dept of Psychiatry, University of California, San Diego.
Neuroscience Graduate Program Faculty, UCSD
Joint Doctoral Program Graduate Faculty, UCSD/SDSU
2021 – present Adjunct Associate Professor. Dept of Psych and Behavioral Sciences, Duke University
2017 – 2021 Associate Professor. Dept of Psychiatry and Behavioral Sciences, Duke University, NC
Secondary Appointment, Department of Psychology & Neuroscience, Duke University, NC
Core Member, Center for Cognitive Neuroscience, Duke University, NC
2011 – 2017 Assistant Professor. Dept of Psychiatry and Behavioral Sciences, Duke University, NC
Secondary Appointment, Department of Psychology & Neuroscience, Duke University, NC
2012 Visiting Faculty Fellow, University of Western Sydney, Sydney Australia.
2007 – 2008 Instructor, Department of Psychology, University of North Carolina at Chapel Hill, NC
2006 – 2011 Postdoctoral Fellow, Center for Cognitive Neuroscience, Duke University, NC
2005 – 2006 Instructor, Department of Psychology, San Francisco State University, San Francisco, CA
2004 – 2006 NSRA Postdoctoral Fellow, Smith-Kettlewell Eye Research Institute, San Francisco, CA

Center Directorships

2021 – present Director of Research, UCSD Interventional Psychiatry Program
2015 – 2021 Founding Director, Brain Stimulation Research Center, Duke University School of Medicine

Research Laboratory

Head – [Human Performance Optimization Laboratory \(Opti Lab\)](#), University of California, San Diego.

Other Professional Activities

2020 – 2022	Consultant – Personal Greatness Index, LLC
2019 – Present	Board of Directors, International Sports Vision Association
2018 – Present	Advisory Board – NeuroTrainer, LLC
2016 – Present	Advisory Board – NeuroPlus, LLC
2015 – Present	Founder and President – Psychometric Consulting, LLC,

Honors and Awards

2018	Outstanding Postdoc Mentor awardee, Duke University School of Medicine
2018	Finalist, MIT Sloan Sports Analytics research paper competition
2017 – 2021	Faculty Associate of the Duke Initiative for Science & Society
2017	Senior Honors, Honoree, Duke University
2012	Duke University, Dean’s Service Recognition for Teaching
2012 - 2013	Visiting Faculty Fellow, Australian International Research Initiatives, U. Western Sydney.
2003	Jack I. Yellot Graduate Student Fellowship, U.C. Irvine
2001 - 2003	University of California Regent’s Fellowship
2002	University of California Regent’s Pre-Dissertation Fellowship
2001 - 2004	University of California Irvine Dean’s Service Award for excellence in teaching

Funding

Active Research Support (Reverse chronologically by end date. Dollar amounts for direct costs only.)

Title: Combined Neuromodulation and Cognitive Training for Post-mTBI Depression
Funding Source: US. Department of Defense, Congressionally Directed Medical Research Program
Role: Co-Investigator (PI: Elizabeth Twamley)
Grant Period: Pending (NOA May 1, 2022)
Total funding: \$1,906,956 direct costs
Summary: The goal of this project is to evaluate the effectiveness of combined Personalized Augmented Cognitive Training (PACT) and intermittent theta burst stimulation (iTBS) on symptom improvements in patients with mild traumatic brain injury.

Title: Adaptive Neuromodulation of Working Memory Networks in Aging and Dementia
Funding Source: NIH (R01AG068257-01A1)
Role: Co-Investigator (PI: Simon Davis)
Grant Period: Pending (NOA April 21, 2022)
Total funding: \$2,428,270 direct costs
Summary: This project is to study and promote brain activity patterns that support healthy memory function in healthy aging and in people at elevated risk for Alzheimer’s disease.

Title: Personalized Therapeutic Neuromodulation for Anhedonic Depression
Funding Source: Wellcome Leap
Role: Co-Investigator (PI: Conor Liston)
Grant Period: November 1, 2021 through October 31, 2024
Total funding: \$10,013,701 direct costs (15% effort covered)
Summary: The goal of this project is to assess the biological targets of rTMS in Anhedonic Depression and test individualized treatment methods for accelerated intermittent theta burst stimulation.

Title: Ascertaining Neurocircuitry to Enhance Neuromodulation Development (ASCEND)
Funding Source: National Institute of Mental Health (R01 MH119285)
Role: Study Site PI (Program PI: Shawn McClintock)
Grant Period: April 05, 2019 – February 29, 2024
Total funding: \$2,171,905, direct costs
Summary: The goal of this project is to collect neuroimaging biomarkers of Transcranial Magnetic Stimulation, Magnetic Seizure Therapy to evaluate plasticity and determine modulators of treatment response.

Title: Neuroimaging correlates and feasibility of transcranial magnetic stimulation to improve smoking cessation outcomes in veterans with PTSD.
Funding Source: CDA-1 IK1 CX002187: Veterans Administration, Career Development Award
Role: Mentor for Dr. Jonathan Young (with Dr. Jean Beckham)
Grant Period: July 4, 2021 through July 3, 2023
Total funding: \$429,000
Summary: The goal of this project is to evaluate the feasibility and acceptability of fMRI-guided rTMS as an adjunctive treatment to cognitive behavioral therapy for smoking cessation and nicotine replacement in veterans with PTSD.

Title: Sensorimotor function in elite soldiers and athletes
Funding Source: United States Army Research Office [W911NF-15-1-0390]
Role: PI
Grant Period: July 10, 2015 through November 16, 2022
Total funding: \$1,045,725
Summary: This ARO proposal is investigate sensorimotor function in elite athletes and soldiers and relate this function to injury and achievement.

Title: Using network-guided TMS to ameliorate memory deficits in early Alzheimer's disease
Funding Source: NIH R21 AG058161-01A1
Role: Co-I (PI: Simon Davis)
Grant Period: September 5, 2020 through September 4, 2022
Total funding: \$431,216
Summary: This application is for the development of network-guided TMS to alleviate memory decline associated with early Alzheimer's Disease

Equipment Grants

Equipment: BrainSight Neuronavigation System, Rogue Research
Funding Source: Duke University School of Medicine
Role: PI
Date: July 1, 2019
Total funding: \$51,678

Equipment: MagVenture, MCF-B70 TMS coil
Funding Source: Duke University School of Medicine
Role: PI
Date: July 1, 2021
Total funding: \$7,715

Title: A High-Performance 3T MRI Scanner for Brain Imaging
Funding Source: NIH HEI program
Role: Major User and Advisory Committee Member
Status: Awarded May 20, 2021

Total funding: \$2,100,000
Summary: This High-End Instrumentation application is for Premier Ultrahigh Performance 3T GE MRI scanner to add cutting-edge brain imaging capabilities to the Duke Brain Imaging and Analysis Center.

Completed Research Support

Title: Identifying the Optimal Neural Target for Misophonia Interventions
Funding Source: REAM Foundation
Role: Co-I (PI Andrada Neacsiu)
Grant period: July 1, 2020 through June 30, 2022
Total funding: \$250,000
Summary: This research award is for dedicated physician time and experimental costs to support TMS interventional studies in adults with Misophonia.

Title: Safety and Feasibility of Transcranial Direct Current Stimulation to Enhance Auditory Rehabilitation in Cochlear Implant Recipients
Funding Source: Duke MEDx
Role: Co-I (PIs: Howard Francis and Angel Peterchev)
Grant Period: October 1, 2020 through September 30, 2021
Total funding: \$49,691
Summary: This application is to test the safety and feasibility of home-based tDCS applied during audiological therapy in recent cochlear implant recipients.

Title: Impact of Timing, Targeting and Brain State on rTMS of Human and Non-Human Primates
Funding Source: RF1MH114253; BRAIN Initiative Award
Role: Co-I (PI Mark Sommer)
Grant Period: August 1, 2017 through June 30, 2022
Total funding: \$1,936,033 (home department sub-award \$1,138,584)
Summary: This project tests neural dose-response relationships of rTMS in human and non-human primates. Includes subaward to Psychiatry for the portions supervised by Drs. Appelbaum and Peterchev.

Title: Transcranial Magnetic Stimulation with Enhanced Focality and Depth (fdTMS)
Funding Source: RF1MH114268; BRAIN Initiative Award
Role: Co-I (PI Angel Peterchev)
Grant Period: July 21, 2017 through July 20, 2021 (1 year NCE)
Total funding: \$1,000,000
Summary: This project will develop TMS coils with improved depth-focality tradeoffs.

Title: Quiet TMS: A Low-Acoustic-Noise Transcranial Magnetic Stimulation System
Funding Source: NIH: R01 MH111865: BRAIN Initiative Award
Role: Co-I (PI: Angel Peterchev)
Grant period: September 26, 2016 through June 30, 2021 (in NCE)
Total funding: \$900,000
Summary: This award is to develop a novel quiet Transcranial Magnetic Stimulation coil that produces substantially less audible noise during operation.

Title: Using fMRI-guided TMS to increase central executive function in older adults
Funding Source: National Institute of Aging [U01 AG050618]
Role: PI (multi PI award with Roberto Cabeza)
Grant Period: September 1, 2015 through March 31, 2021

Total funding: \$2,483,010
Summary: This NIA U01 investigates the capacity for fMRI-guided transcranial magnetic stimulation to produce lasting and generalizable enhancement of working memory in older adults.

Title: Using fMRI-guided TMS to increase central executive function in older adults – Administrative Supplement
Funding Source: National Institute of Aging [U01 AG050618-05S1]
Role: PI (multi PI award with Roberto Cabeza)
Grant Period: June 15, 2019 through March 31, 2021
Total funding: \$379,688
Summary: This Administrative Supplement to the NIA U01 award extends fMRI-guided transcranial magnetic stimulation enhancement of working memory to adults with Mild Cognitive Impairments.

Title: Effect of Connectivity-based rTMS and State-Dependency on Amygdala Activation
Funding Source: Duke Institute for Brain Sciences, Germinator Award
Role: Co-PI (with Lysianne Beynel and Nate Kimbrel)
Grant period: January 1, 2019 through December 31, 2019
Total funding: \$25,000
Summary: This award was used to develop and test fMRI connectivity targeting of Transcranial Magnetic Stimulation to modulate Amygdala activity as a potential therapeutic for PTSD.

Title: Attentional Mechanisms in Multisensory Environments
Funding Source: NIH: R01-NS051048-06
Role: Co-I (PI: Marty Woldorff)
Grant period: September 1, 2012 through August 30, 2017
Total funding: \$1,200,000
Summary: This research utilized simultaneously recorded EEG & fMRI to study the mechanisms of multisensory attention.

Title: SSNAP: Scientific Social Network Analysis Project
Funding Source: Duke University Bass Connections
Role: Co-PI
Grant period: June 1, 2016 through May 30, 2017
Total funding: \$12,500
Summary: This award through the Duke University Bass Connections built network analysis tools to examine collaborations within different fields of study within the larger research community.

Title: Transcranial Magnetic Stimulation modulation of insula-based functional connectivity
Funding Source: Duke University Institute for Brain Sciences
Role: Co-PI (with Merideth Addicott)
Grant period: July 1, 2016 through June 30, 2017
Total funding: \$75,000
Summary: Duke Institute for Brain Sciences, Incubator Award to investigate the use of TMS to strengthen brain connectivity with the insula as a potential treatment for smoking addiction.

Title: Real-Time Workload Detection in Supervisory Control Applications using fNIRS
Funding Source: Duke University Institute for Brain Sciences
Role: Co-PI (with Missy Cummings)
Grant period: July 1, 2014 through June 30, 2016 (in No-Cost Extension)
Total funding: \$30,000

Summary: This incubator award through the Duke Institute for Brain Sciences supported research using functional Near-Infrared Spectroscopy to measure cognitive workload.

Title: Mapping the Semantic Structure of Neuroscience
Funding Source: Duke University Institute for Brain Sciences
Role: Co-PI (with Scott Huettel)
Grant period: July 1, 2013 through August 30, 2015
Total funding: \$25,000
Summary: This incubator award through the Duke Institute for Brain Sciences funded the development and application of quantitative methods for synthesizing the neuroscience literature.

Title: Tracking Neurological Function in Warrior-Athletes: A Multidisciplinary Approach
Funding Source: United States Army Special Operations Command/DARPA [H92236-14-P-5193]
Role: Co-I (PI: Jason Mihalik, UNC)
Grant Period: July 1, 2014 through June 30, 2015
Sub-Contract: \$25,000
Summary: This research sub-contract (prime contractor, UNC-Chapel Hill) was to develop a database of sensorimotor function before and after head trauma in US Special Operations soldiers.

Title: Self-Guided Parameter Fitting for Cochlear Implant Users
Funding Source: Duke University Bass Connections
Role: Co-PI
Grant period: June 1, 2014 through May 30, 2015
Total funding: \$12,500
Summary: This award through the Duke University Bass Connections established a user-end, self-guided system for the optimization of electronic parameters for cochlear implant users.

Title: Operational Neuroscience for Warfighter Performance
Funding Source: Naval Health Research Center (NHRC BAA 13-001)
Role: PI
Grant Period: May 1, 2014 through April 30, 2015
Sub-Contract: \$89,162
Summary: This grant supported research testing the effectiveness of vision screening and training techniques in Navy Special Operations soldiers.

Title: Identifying, Assessing, and Enhancing Human Perceptual and Cognitive Abilities
Funding Source: DARPA: D12AP00025-002
Role: Corresponding PI (multi PI award with Steve Mitroff)
Grant period: October 1, 2012 through July 31, 2014
Total funding: \$987,000
Summary: This research studied how perceptual and visual-motor abilities vary across the population though large-scale psychometrics, neuroimaging, and genetics.

Title: The Neural Mechanisms of Texture Segmentation
Funding Source: NIH: F32-EY14536
Role: PI (NRSA Postdoctoral Fellow)
Grant period: October 1, 2004 through June 30, 2006
Total funding: \$92,347
Summary: This NRSA award used EEG and fMRI to study the neural mechanisms underlying visual perception and volitional attention – Mentor, Dr. Tony Norcia.

Publications

Refereed Journal Articles (in reverse chronological order)

H-Index = 32/24, Citations = 3646/2261, Google Scholar/Scopus) – As of June 20, 2022

1. Appelbaum, L.G., Shensa, M.A., Stolz, L., & Daskalakis, Z. (2022) Synaptic plasticity and mental health: methods, challenges and opportunities. *Neuropsychopharmacology*.
2. Laby, D., Appelbaum, L.G., Hülsdünker, T., and Putrino, D., (2022) Editorial: Neural Mechanisms of Perceptual-Cognitive Expertise in Elite Performers. **Frontiers in Human Neuroscience**.
3. Neacsiu, A.D., Beynel, L., Graner, J.L., Szabo, S.T., Appelbaum, L.G., Smoski, M.J. & LaBar, K.S (2022) Enhancing Cognitive Restructuring with Concurrent fMRI-guided Neurostimulation for Emotional Dysregulation: A Randomized Controlled Trial. **Journal of Affective Disorders**. 301(15), 378-389
4. Donaldson, R., Liu, S., & Appelbaum, L.G., (in press) Can Electricity Help Surgeons' Brains Learn Faster? **Frontiers in Young Minds**. Accepted Jan 14, 2022
5. Dubljevic, V., Young, J.R., & Appelbaum, L.G., (2022) Diversifying the bioethics funding landscape: the case of TMS. **American Journal of Bioethics**. 22(1), 28-30
6. Beynel, L., Dannhauer, M., Palmer, H., Hilbig, S., Crowell, C.A., Wang, J.E-H., Michael, A.M., Wood, E.A., Lubner, B., Lisanby, S.H. Peterchev, A.V., Cabeza, R., Davis, S.W., & Appelbaum, L.G., (2021) Network-based rTMS to modulate working memory: the difficult choice of effective parameters for online interventions. **Brain and Behavior**. 40(35) 6770-6778.
7. Liu, S., Folstein, J.R., Appelbaum, L.G., and Tenenbaum, G. (2021) The mechanism of controlling unwanted intrusive thoughts: A randomized controlled study with choking experiences in athletes. **Journal of Experimental Psychology: Human Perception and Performance**. 47(10): 1395-1408
8. Neacsiu, A.D., Beynel, L., Powers, J.P., Szabo, S., Appelbaum, L.G., Lisanby, S.H., & LaBar, K.S (2021) Enhancing Cognitive Restructuring with Concurrent Repetitive Transcranial Magnetic Stimulation: A Transdiagnostic Randomized Controlled Trial. **Psychotherapy and Psychosomatics**. Online ahead of print. doi: 10.1159/000518957.
9. Young, J.R., Galla, J.T., & Appelbaum, L.G., (2021) Transcranial Magnetic Stimulation Treatment for Smoking Cessation: An Introduction for Primary Care Clinicians. **American Journal of Medicine**. 134(11): 1339-1343
10. Laby, D. & Appelbaum, L.G. (2021) Vision and On-field Performance: A Critical Review of Visual Assessment and Training Studies with Athletes. **Optometry and Vision Science**. 98(7):723-731
11. Fogt, N., Appelbaum, L.G., Dalton, K., Erickson, G. & Gray, R. (2021) Guest Editorial: Visual function and sports performance. **Optometry and Vision Science**. 98(7):669-671, July 2021.
12. Liu, S., Clements, J.M., Kirsch, E.P., Rao, H., Zielinski, D. J., Lu, Y., Mainsah, B.O., Potter, N.D., Sommer, M. A., Kopper, R., and Appelbaum, L. G. (2021) Psychophysiological Markers of Performance and Learning during Simulated Marksmanship in Immersive Virtual Reality. **Journal of Cognitive Neuroscience**. 33(7); 1253-1270
13. Laby, D.M. & Appelbaum, L.G., (2021) Comment on Nascimento et al. Citations Network Analysis of Vision and Sport. **International Journal of Environmental Research and Public Health**. 2021; 18(12):6488.
14. Beynel, L. Campbell, E., Naclerio, M., Galla, J.T., Ghosal, A., Michael, A. M, Kimbrel, N.A., Davis, S.W., & Appelbaum, L.G. (2021). The effects of functionally-guided, connectivity-based rTMS on amygdala activation. **Brain Sciences**. 11(4), 494.

15. Liu, S., Donaldson, R., Subramaniam, A., Palmer, H., Champion, C., Cox, M., & Appelbaum, L.G. (2021) Developing Expert Gaze Pattern in Laparoscopic Surgery Requires More than Behavioral Training. **Journal of Eye Movement Research**. 14(2)
16. Powers, J., Davis, S.W., Neacsu, A.D., Beynel, L., Appelbaum, L.G. & LaBar, K.S., (2020) Examining the Role of Lateral Parietal Cortex in Emotional Distancing Using TMS. **Cognitive, Affective, and Behavioral Neuroscience**. 20, 1090-1102.
17. Gamboa Arana, O. L, Palmer, H., Dannhauer, M., Hile, C., Liu, S., Hamdan, R., Brito, A., Cabeza, R., Davis, S.W., Peterchev, A. V., Sommer, M., & Appelbaum, L.G. (2020) Intensity-and timing-dependent modulation of motion perception with transcranial magnetic stimulation of visual cortex. **Neuropsychologia**. 147(1).
18. Beynel, L., Deng, L., Crowell, C.A., Dannhauer, M., Palmer, H., Hilbig, S., Peterchev, A.V., Luber, B., Lisanby, S.H. Cabeza, R., Appelbaum, L.G., and Davis, S.W. (2020) Structural controllability predicts functional patterns and neuromodulatory benefits associated with working memory. **Journal of Neuroscience**. 40(35) 6770-6778.
19. Liu, S., Ferris, L.M., Hilbig, S., Asamo, E., LaRue, J.L., Lyon, D., Connolly, K., Port, N., & Appelbaum, L.G., (2020) Dynamic vision training transfers positively to batting performance among collegiate baseball batters. **Psychology of Sports and Exercise**. 51(1)
20. Liu, S., Edmunds, F., Burris, K., & Appelbaum, L.G., (2020). Visual and oculomotor abilities predict professional baseball batting performance. **International Journal of Performance Analysis in Sport**. 20(4). 683-700.
21. Crowell, C.A., Davis, S.W., Beynel, L., Deng, L., Lakhiani, D., Hilbig, S.A., Palmer, H., Brito, A., Peterchev, A.V, Luber, B., Lisanby, S.H., Appelbaum, L.G., and Cabeza, R. (2020) Older adults benefit from more widespread brain network integration during working memory. **NeuroImage**. 218, 116959.
22. Gamboa Arana, O. L, Brito, A., Abzug, Z., D'Arbeloff, T., Beynel, L., Wing, E., Dannhauer, M., Palmer, H., Hilbig, S.A., Crowell, C.A., Liu, S.L., Donaldson, R., Cabeza, R., Davis, S.W., Peterchev, A.V., Sommer, M., & Appelbaum, L.G. (2020) Application of long-interval paired-pulse transcranial magnetic stimulation to motion-sensitive visual cortex does not lead to changes in motion discrimination. **Neuroscience Letters**. 730(21).
23. Beynel, L., Davis, S., Crowell, C., Dannhauer, M., Lim, W., Palmer, H., Hilbig, S., Brito, A., Hile, C., Luber, B., Lisanby, S., Peterchev, A., Cabeza, R., & Appelbaum, L.G. (2020) Site-specific effects of online rTMS during a working memory task in healthy older adults. **Brain Sciences**. 10(5), 255.
24. Cox, M.L., Deng, Z-D, Palmer, H., Beynel, L., Watts, A., Young, J.R., Lisanby, S.H., Migaly, J. & Appelbaum, L.G. (2020) Utilizing Transcranial Direct Current Stimulation to Enhance Laparoscopic Technical Skills Training: A Randomized Controlled Trial. **Brain Stimulation**. 13(3). 863-872.
25. Young, J.R., Smani, S.A., Kritzer, M.D., Mischel, N.A., Appelbaum, L.G., and Patkar, A.A. (2020) Non-invasive brain stimulation modalities for the treatment and prevention of opioid use disorder: a systematic review of the literature. **Journal of Addictive Diseases**. 38(2).
26. Beynel, L., Powers, J.P. & Appelbaum, L.G. (2020) Effects of repetitive transcranial magnetic stimulation on resting state connectivity A qualitative and mapping review. **NeuroImage**, 211(1).
27. Luber, B., Jangraw, D.C., Appelbaum, L.G., Harrison, A., Hilbig, S., Beynel, L., Jones, T., Sajda, P. and Lisanby, S.H. (2020) Using Transcranial Magnetic Stimulation to Test a Network Model of Perceptual Decision Making in the Human Brain. **Frontiers in Human Neuroscience**. 14(4).
28. Burris, K., Liu, S., & Appelbaum, L.G., (2020). Visual-motor expertise in athletes: Insights from semiparametric modeling of 2317 athletes tested on the Nike SPARQ Sensory Station. **Journal of Sports Sciences**. 38(3).

29. Wilkins, L. and Appelbaum, L.G., (2020) An Early Review of Stroboscopic Visual Training: Insights, Challenges and Accomplishments to Guide Future Studies. **International Review of Sport and Exercise Psychology**. 13(1), 65-80.
30. Beynel, L., Appelbaum, L.G., Luber, B., Crowell, C.A., Hilbig, S.A., Lim, W., Nguyen, D., Chrapliwy, N., A., Davis, S.W., Cabeza, R. Lisanby, S.H., & Deng, Z-D. (2019). Effects of Online Repetitive Transcranial Magnetic Stimulation (rTMS) on Cognitive Processing: A Meta-Analysis and Recommendations for Future Studies. **Neuroscience & Biobehavioral Reviews**. 107: 47-58.
31. Beynel, L., Davis, S., Crowell, C., Hilbig, S., Lim, W., Palmer, H., Brito, A., Peterchev, A., Luber, B., Lisanby, S., Cabeza, R., & Appelbaum, L. (2019). Online repetitive transcranial magnetic stimulation during working memory in younger and older adults: a randomized within-subject comparison. **PLoS ONE**. 1-14.
32. Addicott MA, Luber B, Nguyen D, Palmer H, Lisanby SH, Appelbaum LG (2019). Low and high frequency rTMS effects on resting-state functional connectivity between the postcentral gyrus and the insula. **Brain Connectivity**. 9(4): 322-328.
33. Addicott, M.A., Daughters, S.B., Strauman, T.J., and Appelbaum, L.G. (2018). Distress tolerance to auditory feedback and functional connectivity with the auditory cortex. **Psychiatry Research: Neuroimaging**. 282(30), 1-10.
34. Teel, E.F., Marshall, S.W., Appelbaum, L.G., Battaglini, C.L., Carneiro, K.A., Guskiewicz, K.M., Register-Mihalik, J.K., & Mihalik, J.P. (2019) A randomized controlled trial investigating the feasibility and adherence to an aerobic training program in healthy individuals. **Journal of Sports Rehabilitation**. 28(7), 692-698.
35. Davis, S.W., Crowell, C.A., Beynel, L., Deng, L., Lakhani D., Hilbig, S.A., Lim, W., Palmer, H., Nguyen, D., Peterchev, A. V., Luber, B., Lisanby, S.H., Appelbaum, L.G., Cabeza, R. (2018) Complementary topology of maintenance and manipulation brain networks in working memory. **Nature Scientific Reports**. 8:17827.
36. Teel, E.F, Register-Mihalik, J.K., Appelbaum, L.G., Battaglini, C.L., Carneiro, K.A., Guskiewicz, K.M., Marshall, S.W., & Mihalik, J.P. (2018). Randomized controlled trial evaluating effectiveness of aerobic training on common sport-related concussion outcomes in healthy participants. **Journal of Athletic Training**. 53(12):1156-1165.
37. Wang, W-C., DeLang, M.D., Vittetoe, K., Ramger, B. & Appelbaum, L.G. (2018) Laterality Preferences in Athletes: Insights from a Database of 1770 Male Athletes. **American Journal of Sports Science**; 6(1): 20-25.
38. Rao, H.M., Khanna, R., Zielinski, D.J., Lu, Y., Clements, J.M., Potter, N.D., Sommer, M.A., Kopper, R. & Appelbaum, L.G. (2018) Sensorimotor learning during a marksmanship task in immersive virtual reality. **Frontiers in Psychology**. 9(58).
39. Burris, K., Vittetoe, K., Ramger, B., Suresh, S., Tokdar, S.T., Reiter, J.P. & Appelbaum, L.G. (2018) Sensorimotor abilities predict on-field performance in professional baseball. **Nature Scientific Reports**. 8(116), 1-9.
40. Klemish, D., Ramger, B., Vittetoe, K., Reiter, J.P., Tokdar, S. & Appelbaum, L.G (2018). Visual Abilities Distinguish Pitchers from Hitters in Professional Baseball. **Journal of Sports Sciences**. 36(2), 171-197.
41. Appelbaum, L.G. & Erickson, G. (2018). Sports Vision Training: a review of the state-of-the-art in digital training techniques. **International Review of Sport and Exercise Psychology**. 11(1).
42. Devyatko, D., Appelbaum, L.G., & Mitroff, S.R. (2017). A common mechanism for perceptual reversals in motion-induced blindness, the Troxler effect, and perceptual filling-in. **Perception**. Vol. 46(1), 50-77.

43. van den Berg, B., Appelbaum, L.G., Clark, K., Lorist, M.M., & Woldorff, M.G. (2016). Visual search performance is predicted by both prestimulus and poststimulus electrical brain activity. **Nature Scientific Reports**.
44. Appelbaum, L.G., Lu, Y., Khanna, R., & Detwiler, K.R. (2016). The effects of sports vision training on sensorimotor abilities in collegiate softball athletes. **Athletic Training and Sports Health Care**. 8(4), 154-163.
45. Krasich, K., Ramger, B., Holton, L., Wang, L., Mitroff, S.R., & Appelbaum, L.G. (2016). Perceptual and visual-motor learning in a computerized training battery. **Journal of Motor Behavior**. 48(5), 401-412.
46. Donahue, S., Appelbaum, L.G., McKay, C.C., & Woldorff, M.G. (2016). The neural dynamics of stimulus and response conflict processing as a function of response complexity and task demands. **Neuropsychologia**. 84, 14-28.
47. San Martín, R., Appelbaum, L.G., Pearson, J.M., Huettel, S.A., & Woldorff, M.G., (2016). Cortical brain activity reflecting attentional biasing toward reward-predicting cues covaries with economic decision-making performance. **Cerebral Cortex**. 26(1): 1-11.
48. Norcia, A.M., Appelbaum, L.G., Ales, J.M., Cottareau, B., & Rossion, B. (2015). The steady state visual evoked potential in vision research: a review. **Journal of Vision**. 15(4).
49. Grooms, D., Appelbaum, L.G., & Onate, J. (2015) The Implication of Visual-Motor Processing in Anterior Cruciate Ligament Injury and Rehabilitation. **Journal of Orthopaedic and Sports Physical Therapy**. 45(5): 381-393.
50. Wang, L.L., Krasich, K., Bel-Bahar, T., Hughes, L., Mitroff, S.R., & Appelbaum, L.G. (2015). Mapping the Structure of Perceptual and Visual-Motor Abilities in Healthy Young Adults. **Acta Psychologica**. 157, 74-84.
51. Clark, K., Appelbaum, L.G., Mitroff, S.R., & Woldorff, M.G. (2015) Improvement in visual search with practice: Mapping learning-related changes in neurocognitive stages of processing. **Journal of Neuroscience**. 35(13): 5351-5359.
52. McClintock, S.M., Choi, J., Deng, Z.D., Appelbaum, L.G., Krystal, A.D., & Lisanby, S.H. (2014) Multifactorial determinants of the neurocognitive effects of electroconvulsive therapy. **Journal of Electroconvulsive Therapy**. 30(2): 165-176.
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Book Chapters and Sections

1. Beynel, L., Appelbaum, L.G., & Kimbrel, N. A. (2020). Neurobiology and neuromodulation of emotion in posttraumatic stress disorder. In M.T. Tull and N.A. Kimbrel (Eds.). *Emotion in Posttraumatic Stress Disorder*. Academic Press, Cambridge, MA.
2. Jack, J., Appelbaum, L.G., Beam, E., Huettel, S.A., & Moody, J. (2017). "Mapping Rhetorical Topologies in Cognitive Neuroscience." *Persuasive Topologies: Equipment for a Post-Critical Rhetoric of Technoscience, Media, and Culture*. Eds. Walsh, L. and Boyle, C. New York: Palgrave Macmillan.
3. Appelbaum, L.G. & Harris, J.A., (2012). "Attention and the processing of visual scenes". In Norbert, M. (Ed.) *Science of Learning*. Springer.
4. Appelbaum, L.G. (2011) *The influence of attention on figure-ground processing*. *The Encyclopedia of the Sciences of Learning*, Springer Press.
5. Appelbaum, L.G. (2009). "Perceptual Segregation". In B. Goldstein (Ed.), *Encyclopedia of Perception* (pp. 793-796): SAGE Press.
6. Mills, D.L.; Alvarez, T.D.; St George, M.; Appelbaum, L.G.; Bellugi, U.; & Neville, H. (2001). Neurophysiological markers of face processing in Williams syndrome. *Journey from cognition to brain to gene: Perspectives from Williams syndrome*. 73-104. MIT Press.

Refereed Conference Papers

1. Appelbaum, L.G., Deng, Z-D, Palmer, H., Beynel, L., Watts, A., Young, J.R., Lisanby, S.H., Migaly, J. & Cox, M.L., (2019) *Proceedings #2: Transcranial Direct Current Stimulation to Enhance Laparoscopic Technical Skill Learning: A Preregistered Randomized Controlled Trial*. **Brain Stimulation**. 12(2). 57-59.
2. Clements, J. M., Kopper, R., Zielinski, D. J., Rao, H., Sommer, M. A., Kirsch, E., Mainsah, B. O., Collins, L. M., and Appelbaum, L. G. (2018) *Neurophysiology of visual-motor learning during a simulated*

marksmanship task in immersive virtual reality. In **Proceedings of the 25th IEEE Conference on Virtual Reality and 3D User Interfaces**, March 18-22, 2018, Reutlingen, Germany.

3. Burris, K & Appelbaum, L.G. (2018) Eye on the ball: the relationship between sensorimotor abilities and on-field performance in professional baseball. **MIT Sloan Sports Analytics**, Boston MA. *Research paper competition finalist.
4. Zielinski, D., Rao, H.M., Potter, N., Appelbaum, L.G., and Kopper, R. (2016). Evaluating the effects of image persistence on dynamic target acquisition in low frame rate virtual environments. In **IEEE Symposium on 3D User Interfaces (3DUI)**.

Publicly Available Pre-Print Papers

1. Deng, L., Gamboa, O.L., Dannhauer, M., Jonnalagadda, A., Hamdan, R., Crowell, C., Worth, T., Peterchev, A.V., Sommer, M.A., Cabeza, R., Applebaum, L.G., & Davis, S.W. Concurrent fMRI demonstrates propagation of TMS effects across task-related networks. **BioRxiv preprint**. <https://www.biorxiv.org/content/10.1101/2022.01.06.475293v2>
2. Neacsiu, A.D., Beynel, L., Graner, J.L., Szabo, S.T., Appelbaum, L.G., Smoski, M.J. & LaBar, K.S (2021) Enhancing Cognitive Restructuring with Concurrent fMRI-guided Neurostimulation for Emotional Dysregulation: A Randomized Controlled Trial. **MedRxiv preprint**. <https://www.medrxiv.org/content/10.1101/2021.11.17.21266477v1>
3. Bukhari-Parlakturk, N., Lutz, M., McConnell, A., Al-Khalidi, H., Wang, J., Scott, B., Termsarasab, P., Appelbaum, L.G., & Calakos, N. (2021). Designing research studies in writer's cramp dystonia: an analysis of automated writing measures. **MedRxiv preprint**. <https://www.medrxiv.org/content/10.1101/2021.03.02.21252036v1>
4. Neacsiu, A.D., Beynel, L., Power, J., Szabo, S.T., Appelbaum, L.G., Lisanby, S.H., & LaBar, K.S (2021) Enhancing Cognitive Restructuring with Concurrent Repetitive Transcranial Magnetic Stimulation for Transdiagnostic Psychopathology: A Proof of Concept Randomized Controlled Trial. **MedRxiv preprint**. <https://www.medrxiv.org/content/10.1101/2021.01.18.21250060v2>
5. Liu, S., Donaldson, R., Subramaniam, A., Palmer, H., Champion, C., Cox, M., & Appelbaum, L.G. (2020) Skill acquisition and gaze behavior during laparoscopic surgical simulation. **BioRxiv preprint**. <https://www.biorxiv.org/content/10.1101/2020.07.17.206763v1>
6. Beynel, L. Campbell, E., Naclerio, M., Galla, J.T., Ghosal, A., Michael, A. M, Kimbrel, N.A., Davis, S.W., & Appelbaum, L.G. (2020). The effect of functionally-guided-connectivity-based rTMS on amygdala activation. **BioRxiv preprint**. <https://www.biorxiv.org/cgi/content/short/2020.10.13.338483v1>
7. Gamboa Arana, O. L, Palmer, H., Dannhauer, M., Hile, C., Liu, S., Hamdan, R., Brito, A., Cabeza, R., Davis, S.W., Peterchev, A. V., Sommer, M., & Appelbaum, L.G. (2020) Dose-dependent enhancement of motion direction discrimination with transcranial magnetic stimulation of visual cortex. **BioRxiv preprint**. <https://www.biorxiv.org/content/10.1101/2020.06.14.151118v1>
8. Liu, S., Edmunds, F., Burris, K., & Appelbaum, L.G., (2020) Visual and oculomotor abilities predict professional batting performance. **BioRxiv preprint**. <https://www.biorxiv.org/content/10.1101/2020.01.21.913152v1>
9. Gamboa Arana, O. L, Brito, A., Abzug, Z., D'Arbeloff, T., Beynel, L., Palmer, H., Dannhauer, M., Hilbig, S.A., Crowell, C.A., Wing, E., Sommer, M., Cabeza, R., Davis, S.W., Peterchev, A. V., & Appelbaum, L.G. (2019) Application of long-interval paired-pulse transcranial magnetic stimulation to motion-sensitive visual cortex does not lead to changes in motion perception. **BioRxiv preprint**. <http://www.biorxiv.org/cgi/content/short/766428v1>
10. Davis, S.W., Crowell, C.A., Beynel, L., Deng, L., Lakhani D., Hilbig, S.A., Palmer, H., Wang, J., Peterchev, A. V., Luber, B., Lisanby, S.H., Appelbaum, L.G., Cabeza, R. (2019) Older adults benefit

from more widespread brain network integration during working memory. **BioRxiv preprint.**
<https://www.biorxiv.org/content/10.1101/642447v1>

11. Appelbaum, L.G., Deng, Z-D, Palmer, H., Beynel, L., Watts, A., Young, J.R., Lisanby, S.H., Migaly, J. & Cox, M.L., (2018) Utilizing Transcranial Direct Current Stimulation to Enhance Laparoscopic Technical Skills Training: A Randomized Controlled Trial. **BioRxiv preprint.**
<https://www.biorxiv.org/content/early/2018/10/30/455329.article-info>
12. Luber, B., Jangraw, D.C., Appelbaum, L.G., Harrison, A., Hilbig, S., Beynel, L., Jones, T., Sajda, P., & Lisanby, S.H. (2018) Transcranial magnetic stimulation identifies spatially and temporally localized causal networks underlying perceptual decision making in the human brain. **BioRxiv preprint.**
<https://www.biorxiv.org/content/early/2018/04/18/304063>
13. Beynel, L., Davis, S., Crowell, C., Hilbig, S., Lim, W., Nguyen, D., Peterchev, A., Luber, B., Lisanby, S., Cabeza, R., & Appelbaum, L. (2018) Effects of 5Hz repetitive transcranial magnetic stimulation to dorsolateral prefrontal cortex on working memory manipulation abilities. **BioRxiv preprint.**
<https://www.biorxiv.org/content/early/2018/03/08/278655>

Textbook Contributions

1. Appelbaum, L.G. (2013). "Deriving Event Related Potentials" In Visual Psychophysics: From Theory to Laboratory, by Lu, Z-L. MIT Press.
2. Appelbaum, L.G. (2009). Figure 1.6 "Retinotopy". In Functional Magnetic Resonance Imaging, 2nd Ed. By Huettel S.A., Song, A.W., and McCarthy, G. Sinauer.

Pre-Registered Clinical and Research Trials

1. Appelbaum, L.G., (2016) Using TMS to Increase Executive Function in Older Adults (WMTMS). NCT02767323. <https://clinicaltrials.gov/ct2/show/NCT02767323>.
2. Appelbaum, L.G., (2017) Effects of rTMS on Human Brain Activity Measured with EEG and fMRI. NCT03259568. <https://clinicaltrials.gov/ct2/show/NCT03259568>.
3. Appelbaum, L.G., (2018) Utilizing Transcranial Direct Current Stimulation to Enhance Laparoscopic Technical Skills Training. NCT03083483. <https://clinicaltrials.gov/ct2/show/NCT03083483>
4. Appelbaum, L.G., (2017) Utilizing Gaze Training to Enhance Laparoscopic Skills Training. NCT03413943. <https://clinicaltrials.gov/ct2/show/NCT03413943>
5. Appelbaum, L. G., Liu, S., Hilbig, S., Rankin, K., Naclario, M., Asamo, E., ... Burris, K. (2018). Sports Vision Training in Collegiate Baseball Batters. doi: 10.17605/OSF.IO/496RX.
6. Liu, S., Folstein, J., Appelbaum, L. G., & Tenenbaum, G. (2019). The mechanism of controlling unwanted intrusive thoughts. Retrieved from osf.io/ydmsv

Pre-Registered Meta Analyses and Reviews

1. Beynel, L., Appelbaum, L.G., Davis, S. W., Luber, B., Hilbig, S., and Deng, Z.-D. (2016) Effects of online repetitive transcranial magnetic stimulation (rTMS) on cognitive processes: a systematic review and meta-analysis. PROSPERO #CRD42016038981.
www.crd.york.ac.uk/PROSPERO/display_record.php?ID=CRD42016038981
2. Beynel, L., & Appelbaum, L.G., (2019) Effects of repetitive transcranial magnetic stimulation (rTMS) on resting state connectivity: a qualitative review. PROSPERO #CRD42019119982.
http://www.crd.york.ac.uk/PROSPERO/display_record.php?ID=CRD42019119982

3. Subramaniam, A., Appelbaum, L.G., & Liu, S. (2020) Systematic review of non-invasive brain stimulation and eye-tracking in research on human attention, perception, and behavior. PROSPERO #CRD42020214236. https://www.crd.york.ac.uk/PROSPERO/display_record.php?RecordID=214236

Invited Talks and Colloquia

Feb 2022	UCSD T32 Biological Psychiatry Fellowship	UC San Diego
Nov 2021	International Clinical Neuroergonomics	Virtual
Nov 2021	Addiction Special Interest Group	UC San Diego
Oct 2021	Fechner Day Keynote Speaker	U. Missouri, St. Louis
May 2021	Markou Seminar	UC San Diego
Feb 2020	Palo Alto Research Company, Xerox	Palo Alto, CA
Feb 2020	International Sports Vision Assoc.	San Diego, CA
Feb 2019	International Sports Vision Assoc.	Park City, UT
Nov 2018	Duke University	Future of Surgery Symposium
Apr 2018	U. Waterloo Sports Vision Club	Waterloo Canada
Feb 2018	International Sports Vision Assoc.	Park City, UT
Sept 2017	Duke University	Center for Cognitive Neuroscience
June 2017	Triangle Assessment Network Grp	NetApps Headquarters, Apex NC
Apr 2017	Sports Vision Consortium	VSP Headquarters, Sacramento CA.
Oct 2016	Duke Sports Sciences Institute	Bassett Society Annual Meeting
June 2015	Duke University	Society for Philosophy and Psychology
Mar 2015	NIMBioS, Knoxville TN	Neurobiology of Expertise Workshop
Feb 2015	Womack Army Medical Hospital	Grand Rounds
Jan 2015	Duke University	Data Visualization Workshop – Perkins Library
Mar 2014	U. North Carolina, Chapel Hill	Department of Psychology
Mar 2014	Duke Medical Center	Brain Stimulation Division Meeting
Jan 2014	University of California, Irvine	Department of Cognitive Sciences
Dec 2013	System Planning Corp. (DARPA)	Quantifying Warriors Workshop
Apr 2013	Duke Medical Center	Department of Psychiatry
Dec 2012	University of New South Wales	Sydney Perception Group
Dec 2012	University of Western Sydney	MARCS Auditory Institute Workshop
Nov 2012	Duke University	Digital Scholarship Series – Perkins Library
Oct 2012	Duke University	Center for Cognitive Neuroscience
Mar 2012	Duke University	Computer Science - Visualization Techy Group
Apr 2012	Duke University	Sawyer Seminar Series
Feb 2011	University of Arizona at Tucson	Department of Psychology
Nov 2010	Reed College	Department of Psychology
Sept 2009	Osher Lifelong Learning Institute	Cognitive Neuroscience Lecture Series
Feb 2008	U. North Carolina, Chapel Hill	Department of Psychology
July 2006	Stanford University	Department of Psychology
Feb 2006	Smith-Kettlewell Institute	Brown Bag Talk Series
Jan 2006	Duke University	Center for Cognitive Neuroscience
Apr 2005	U. California San Francisco	Cognitive Neuroscience Working Group

Conference Presentations

2022

1. Appelbaum, L.G., Expediting skills acquisition in surgeons through psychophysiological monitoring and brain stimulation, In, Boosting Performance: The Mind. The Joint Meeting of Neuroergonomics and NYC Neuromodulation, New York City, July 29, 2022
2. Appelbaum, L.G., Vision and on-field performance: do elite athletes have better vision and can training improve performance, In, Boosting Performance: The Body. The Joint Meeting of Neuroergonomics and NYC Neuromodulation, New York City, July 30, 2022
3. Deng, L., Gamboa, O.L., Jonnalagadda, A., Dannhauer, M., Hamdan, R., Crowell, C., Wang, F., Goswami, N., Kothare, R., Peterchev, A.V., Sommer, M.A., Applebaum, L.G., Cabeza, R., & Davis, S.W. Impact of Timing, Targeting, and Brain State on rTMS of Human and Non-Human Primates, 7th Annual BRAIN Initiative Investigators Meeting, Washington, D.C., June 2022.
4. Appelbaum, L.G. & Liu, S. Expediting skill acquisition through psychophysiological monitoring and brain stimulation during surgical simulations. 29th Annual Meeting of the Cognitive Neuroscience Society, San Francisco, CA. April 2022
5. Fogt, N. and Appelbaum, L.G. Research Review: A roadmap to build the evidence base for sports vision. International Sports Vision Association Feb 12, 2022. Kissimmee FL.

2021

1. Dannhauer, M., Huang, Z., Beynel, L., Wood, E., Li, Y., Palmer, H., Hilbig, S., Davis, S.W., Cabeza, R., & Applebaum, L.G., TAP: Targeting and analysis pipeline for optimization and verification of TMS coil placement. Human Brain Mapping. November 1. 2021, Brain Stimulation 14:P1620 (2021) 1589e1707. DOI: <https://doi.org/10.1016/j.brs.2021.10.102>
2. Peterchev, A.P., Koponen, L., Gomez, L., Zeng, Z., Hamdan, R., Wood, E., Dannhauer, M., Li, Z., Applebaum, L.G., & Murphy, D., How focal and quiet can TMS be? Human Brain Mapping. November 1. 2021, Brain Stimulation 14:6 (2021) <https://doi.org/10.1016/j.brs.2021.10.547>
3. Deng, L., Gamboa Arana, O.L, Davis, S., Jonnalagadda, M., Hamdan, R., Crowell, C, Wang, F., Goswami, N., Kothare, R., Peterchev, A., Sommer, M.A., Applebaum, L.G., Cabeza, R., Davis, S.W., Impact of Timing, Targeting, and Brain State on rTMS of Human and Non-Human Primates. 7th Annual BRAIN Initiative Investigators Meeting, Washington, D.C., June 2021.
4. Appelbaum, L.G., Liu, S., Ferris, L.M., Hilbig, S., Asamo, E., LaRue, J.L., Lyon, D., Connolly, K., & Port, N. Dynamic vision training transfers positively to batting performance among collegiate baseball batters. Expertise and Skill Acquisition Network (EASN) Virtual Conference, May 2021.
5. Liu, S., Donaldson, R., Subramaniam, A., Palmer, H., Champion, C. D., Cox, M. L., & Appelbaum, L. G. (2021, June). Developing expert gaze pattern in laparoscopic surgery requires more than behavioral training. Verbal presentation at the annual conference of the North American Society for the Psychology of Sport and Physical Activity (NASPSPA), Virtual Conference.
6. Luber, B., Beynel, L. , Appelbaum, L.G., Deng, Z.-D. , Jones, T., Harrison, A., Lo, E., McKinley, A. R., & Lisanby, S.H. (2021). Individualized alpha frequency rTMS to the inferior frontal junction enhances visual search. 27th Annual Meeting of Organization of Human Brain Mapping.

2020

7. Sommer, M., Appelbaum, L.G., Cabeza, R., Davis, S., Peterchev, A., Gamboa-Arana, O-L., Brito, A., Goswami, N., Camalier, C. R., Crowell, C.A., Dannhauer, M., D'Arbeloff, T., Hamdan, R., Palmer, H., Liu, S., & Wang, F., Impact of Timing, Targeting, and Brain State on rTMS of Human and Non-Human Primates. (2020) BRAIN Initiative Investigators Meeting, June 2020, Washington DC.
8. Neacsu, A.D., Beynel, L., Szabo, S.A, Appelbaum, L., Smoski, M., & LaBar, K. (2020). Establishing a Neural Target for Neuromodulation Enhanced Cognitive Therapy for Transdiagnostic Emotion

Dysregulation. Poster to be presented at the presented at the 51st annual convention of the Society of Biological Psychiatry. New York, NY. (Conference Canceled due to COVID).

9. Vander Vegt CB, Appelbaum LG, Mihalik JP, Guskiewicz KM, Register-Mihalik JK. Pupillary Responses Indicate Working Memory Processing Differences: Implications For Healthy And Clinical Populations. ACSM, San Francisco, CA May 2020
10. Vander Vegt CB, Appelbaum LG, Mihalik JP, Guskiewicz KM, Register-Mihalik JK. Pupillary Responses Indicate Neurocognitive Processing Differences in Working Memory Following Concussion. NATA, Atlanta, GA June 2020

2019

11. Young, J. R., Smani, S. A., & Appelbaum L.G. (2019, October). Non-Invasive Brain Stimulation (NIBS) modalities for the treatment of Opioid Use Disorder (OUD): a qualitative review of the literature. Poster presented at the Addiction Medicine Essentials Conference, Durham, NC
12. Beynel, L., Davis, S.W., Crowell, C.A., Hilbig, S.A., Palmer, H., Brito, A., Hile, C., Lim, W., Nguyen, D., Dannhauer, M., Peterchev, A.V., Cabeza, R., Lisanby, S.H., Luber, B., & Appelbaum, L.G. (October 2019) Site-, timing-, and load-specific effects of online repetitive transcranial magnetic stimulation (RTMS) on working memory (WM). Special nanosymposium “The Use of Transcranial Magnetic Stimulation to Modulate Human Memory”, Society for Neuroscience, Chicago, Ill
13. Ferris LM, Liu S., Hilbig S., Port N.L., Applebaum L.G. Enhancing Performance through Vision: Sports Vision Training in Collegiate Baseball Hitters. In: Military Health Systems Readiness Symposium; Kissimmee, FL: Kissimmee, FL; 2019
14. Edmunds, F.R., Liu, S., Appelbaum, L.G. (2019, October) Predictive Assessments in Hitting Performance in Professional Baseball. Poster presentation at the 3rd World Congress of Optometry, Orlando, FL.
15. Beynel, L., Davis, S.W., Crowell, C.A., Dannhauer, M., Lim, W., Palmer, H., Hilbig, S.A., Brito, A., Hile, C., Luber, B., Lisanby, S.H., Peterchev, A.V., Cabeza, R., Appelbaum, L.G. (2019). Testing the feasibility and efficacy of a new dosing approach for rTMS. Carolina Neurostimulation Conference, Chapel Hill, NC, USA.
16. Dannhauer, M., Gomez, L., Lim, W., Beynel, L., Crowell, C.A., Davis, S.W., Palmer, H., Hilbig, S.A., Brito, A., Hile, C., Luber, B., Lisanby, S.H., Cabeza, R., Appelbaum, L.G., Peterchev, A.V. (2019). Computational approaches for targeting brain areas in transcranial magnetic stimulation to brain areas across subjects. Carolina Neurostimulation Conference, Chapel Hill, NC, USA.
17. Gamboa, OL, Camalier, C. R., Dannhauer, M., Hamdan R., Connor Hile, C., Crowell, C., Wing, E., Beynel, L., Hilbig, S. A., Palmer, H., Wang, F., Appelbaum, L.G, Roberto Cabeza, R., Davis, S.W., Peterchev, A., Sommer, M. Impact of timing, targeting, and brain state on rTMS of human and non-human primates. (2019) Carolina Neurostimulation Conference, June 2019, Chapel Hill, NC.
18. Crowell, C.A., Beynel, L., Palmer, H., Hilbig, S.A., Brito, A., Luber, B., Lisanby, S.H., Peterchev, A.V., Appelbaum, L.G., Cabeza, R., & Davis, S.W., (2019). Connectivity-based predictions of age-related response to rTMS. Carolina Neurostimulation Conference, Chapel Hill, NC, USA.
19. Sommer, M., Appelbaum, L.G., Cabeza, R., Davis, S., Peterchev, A., Gamboa-Arana, O-L., Brito, A., Camalier, C. R., Crowell, C.A., Dannhauer, M., D’Arbeloff, T., Hamdan, R., Hile, C., Hilbig, S., Palmer, H., & Wang, F., Impact of Timing, Targeting, and Brain State on rTMS of Human and Non-Human Primates. (2019) BRAIN Initiative Investigators Meeting, April 2019, Washington DC.
20. Liu, S., Folstein, J. R., Appelbaum, L. G., & Tenenbaum, G. (2019, June). Time, control strategy, and working memory capacity affect thinking a recalled experience of choking under pressure in student athletes. Presentation at the annual conference of the North American Society for the Psychology of Sport and Physical Activity (NASPSPA), Baltimore, MD.

21. Appelbaum, L.G., (2018) Sports Vision Training: A Research Perspective. Presented at the International Sports Vision Association Feb 10, 2019. Park City, UT.
22. Beynel, L., Appelbaum, L.G., Lubner, B., Crowell, C.A., Hilbig, S., Lim, W., Nguyen, D., Chrapliwy, N., Davis, S.W., Cabeza, R., Lisanby, S.H., & Deng, Z.D. (2019) Effects of online repetitive transcranial magnetic stimulation (rTMS) on cognition: a meta-analysis and recommendations for future studies. 3rd International Brain Stimulation Conference, Vancouver.
23. Beynel, L., Davis, S.W., Crowell, C.A., Hilbig, S., Palmer, H., Brito, A., Hile, C., Lim, W., Nguyen, D., Dannhauer, M., Peterchev, A.V., Cabeza, R., Lisanby, S.H., Lubner, B., Appelbaum, L.G. (2019). Site-specific effects of online repetitive transcranial magnetic stimulation (rTMS) on working memory (WM). 3rd International Brain Stimulation Conference, Vancouver.

2018

24. Appelbaum, L.G., Deng, Z-D, Palmer, H., Beynel, L., Watts, A., Young, J.R., Lisanby, S.H., Migaly, J. & Cox, M.L., (2018) Transcranial Direct Current Stimulation to Enhance Laparoscopic Technical Skill Learning: A Preregistered Randomized Controlled Trial. NYC Neuromodulation Conference & NANS Summer Seminar Series, New York, NY.
25. Crowell, C.A., Davis, S.W., Beynel, L., Lakhani D., Hillbig, S.A., Brito, A., Palmer, H., Peterchev, A. V., Lubner, B., Lisanby, S.H., Appelbaum, L.G., Cabeza, R. Older adults benefit from more widespread network integration during working memory functioning. Society for Neuroscience, 2018, "Human Cognition and Behavior: Working Memory II" Nanosymposium.
26. Beynel, L., Deng, L., Crowell, C.A., Hilbig, S.A., Brito, A., Palmer, H., Lim, W., Peterchev, A.V., Lubner, B., Lisanby, S.H., Cabeza, R., Appelbaum, L.G., & Davis, S.W. (2018). Network controllability predicts rTMS-induced benefits to working memory ability. Society for Neuroscience, San Diego.
27. Beynel, L., Davis, S.W., Crowell, C.A., Hilbig, S.A., Lim, W., Palmer, H., Brito, A., Peterchev, A.V., Lubner, B., Lisanby, S.H., Cabeza, R., & Appelbaum, L.G. (2018). 5Hz repetitive transcranial magnetic stimulation to enhance working memory and neural factors underlying the rTMS-induced behavioral plasticity in old and young adults. Society for Neuroscience, San Diego.
28. Beynel, L., Davis, S.W., Crowell, C.A., Hilbig, S.A., Lim, W., Palmer, H., Brito, A., Peterchev, A.V., Lisanby, S.H., Cabeza, R., Appelbaum, L.G., & Lubner, B. (2018). Online repetitive transcranial magnetic stimulation enhances working memory performance in younger and older adults. American College of NeuroPsychoPharmacology Conference, Florida.
29. Cox, M.L., Deng, Z-D, Palmer, H., Watts, A., Beynel, L., Young, J.R., Migaly, J. & Appelbaum, L.G., (2018) tDCS accelerates learning of laparoscopic surgical skills in a pre-registered, double-blind, randomized control design. Carolina Neurostimulation Conference, Chapel Hill, NC.
30. Brito, A., Abzug, Z., D'Arbeloff, T., Arana, O.L.G., Beynel, L., Crowell, C., Dannhauer, M., Hamdan, R., Hilbig, S.A., Palmer, H., Wing, E.A., Sommer, M., Cabeza, R., Davis, S.W., Peterchev, A.V., & Appelbaum, L.G. (2018) Online Paired-Pulse Transcranial Magnetic Stimulation (TMS) Alters Motion Perception in an Individually-Titrated Motion Discrimination Task. Carolina Neurostimulation Conference, Chapel Hill, NC.
31. Beynel, L., Appelbaum, L.G. Lubner, B., Crowell, C.A.C., Hilbig, S.A., Lim, W., Nguyen, D., Chrapliwy, N., Davis, S.W., Cabeza, R., Deng, Z.-D. (2018). Effects of online repetitive transcranial magnetic stimulation on cognitive processes: a meta-analysis. Carolina Neurostimulation Conference, Chapel Hill, NC.
32. Burris, K & Appelbaum, L.G. (2018) Eye on the ball: the relationship between sensorimotor abilities and on-field performance in professional baseball. MIT Sloan Sports Analytics, Boston MA. *Research paper competition finalist.
33. Cox, M. L., Palmer, H., Watts, A., Beynel, L., Deng, Z.-D., Migaly, J., & Appelbaum, L. G. (2018). Utilizing Brain Stimulation to Enhance Laparoscopic Technical Skills Training: A Randomized

Controlled Trial. Paper presented at the American College of Surgeons, Surgical Simulation Summit, Chicago, IL.

34. Teel EF, Register-Mihalik JK, Appelbaum LG, Battaglini CL, Carneiro KA, Guskiewicz KM, Marshall SP, & Mihalik JP (2018, June). The Effect of a Brief Aerobic Training Program on Concussion-Like Symptoms in Healthy University Students. To be presented at the National Athletic Trainer's Association Annual Meeting, New Orleans, Louisiana.
35. Sommer, M., Davis, S., Appelbaum, L.G., Cabeza, R., Peterchev, A., Beynel, L., Hamdan, R., Wing, E., & Abzug Z., Impact of Timing, Targeting, and Brain State on rTMS of Human and Non-Human Primates. (2018) BRAIN Initiative Investigators Meeting, April 2018, Washington DC
36. Appelbaum, L.G., Clements, J., Kirsch, E., Rao, H., Potter, N., Kopper, R. & Sommer, M. Psychophysiology of Visual-Motor Learning during a Simulated Marksmanship Task in Immersive Virtual Reality. (2018) Vision Science Society Annual Meeting, St. Pete Beach, FL.
37. Appelbaum, L.G., Visual hardware or software? What is the root of perceptual expertise in elite athletes and can it be trained? (2018) presented at the International Sports Vision Association Feb 9, 2018. Park City, UT.
38. Teel, E.F., Register-Mihalik, J.K., Appelbaum, L.G., Battaglini, C.L., Carneiro, K.A., Guskiewicz, K.M., Marshall, S.P., Mihalik, J.P. The Effect of a Brief Aerobic Training Program on Concussion-Like Symptoms in Healthy University Students. (2018) National Athletic Trainers' Association, New Orleans, LA.

2017

39. Beynel, L., Davis, S.W., Crowell, C., Hilbig, S.A., Lim, W., Nguyen, D., Peterchev, A.V., Lisanby, S.H., Cabeza, R., Appelbaum, L.G., Luber, B. (2017) fMRI- and computationally-guided rTMS enhances performance in working memory manipulation. Presented at the 56th annual meeting of the American College of Neuropsychopharmacology.
40. Hilbig, S, Appelbaum, L.G., Jangraw, D, Harrison, A, Jones, T, Sajda, P, Lisanby, S.H., Luber, B. TMS selectively modulates cortical networks underlying perceptual decision making (2017). Human Brain Mapping conference.
41. Crowell, C., Davis, S.W., Beynel, L., Hilbig, S. Peterchev, A.V., Luber, B., Lisanby, S.H., Appelbaum, L.G., Cabeza, R. Dissociating maintenance and manipulation operations in working memory. (2017) Human Brain Mapping conference.
42. Beynel, L., Davis, S.W., Crowell, C., Hilbig, S.H., Lim, W., Nguyen, D., Peterchev, A.V., Luber, B., Lisanby, S.H., Cabeza, R., Appelbaum, L.G. Neuroimaging factors predicting benefits in working memory accuracy associated with rTMS. (2017) Human Brain Mapping conference, Vancouver Canada.
43. Appelbaum, L.G., Clements J, Rao HM, Khanna R, Zielinski DJ, Lu Y, Vittatoe K, Potter ND, Kopper R, Sommer MA. Changes in EEG and movement kinematics accompany sensorimotor learning in immersive virtual reality. 2017, 24th Annual Meeting of the Cognitive Neuroscience Society, San Francisco, CA.
44. Luber, B., Appelbaum, L.G., Beynel, L., & Lisanby, S.H. Individualized alpha-band rTMS to the inferior frontal junction selectively enhances visual search performance. 2017, 24th Annual Meeting of the Cognitive Neuroscience Society, San Francisco, CA.

2016

45. Appelbaum, L.G., Clements, J., Lu, Y., Rao, H.M., Khanna, R., Zielinski, D.J., Vittatoe, K., Potter, N.D., Kopper, R., and Sommer, M.A. (November 2016). Sensorimotor orienting in immersive virtual reality: EEG correlates of skill learning. Society for Neuroscience, San Diego, CA.

46. Rao, H.M., Khanna, R., Zielinski, D.J., Lu, Y., Potter, N.D., Kopper, R., Sommer, M.A., and Appelbaum, L.G. (November 2016). Sensorimotor learning during a marksmanship task in immersive virtual reality. Society for Neuroscience, San Diego, CA.
47. Zielinski, D., Rao, H.M., Potter, N., Appelbaum, L.G., and Kopper, R. (March, 2016). Evaluating the effects of image persistence on dynamic target acquisition in low frame rate virtual environments. In IEEE Symposium on 3D User Interfaces. Greenville South Carolina. Honorable Mention for Best Poster Award
48. Sakraney, N., Morgan, J., Huettel, S.A., Moody, J., & Appelbaum, L.G. (April, 2016) The Semantics of Cognitive Neuroscience: Mapping Structure and Evolution. Cognitive Neuroscience Society. New York.
49. Morgan, J., Sakraney, N., Moody, J., Huettel, S.A., & Appelbaum, L.G. (April, 2016) Bridges and Communities: The Impact of Shared Concepts in Cognitive Neuroscience. Cognitive Neuroscience Society. New York.
50. Ruzic, L., Ngo, L., Appelbaum, L.G., De Brigard, F., & Huettel, S.A. (April, 2016) The neural components of cognition. Rethinking the Taxonomy of Psychology Conference. Rotman Annual Conference, Ontario, CA

2015

51. Appelbaum, L.G. (June, 2015) Neurorhetoric: Mapping the semantic evolution of cognitive neuroscience. Society for Philosophy and Psychology. Durham NC.
52. Teel, E.F., Lynall, R.C., Appelbaum, L.G., & Mihalik, J.P., (June, 2015) The Effect of Sex, Sport, and Concussion History on Vision and Sensorimotor Performance in Healthy College Athletes. National Athletic Trainers' Association, St. Louis, MO.

2014

53. van den Berg, B., Appelbaum, L.G., Clark, K., Mitroff, S.R., & Woldorff, M.G. (November 2014). The neural cascade of processing underlying response time variability in visual search. Society for Neuroscience, Washington D.C.

2013

54. Appelbaum, L.G., Bel-Bahar, T., Wang, L., Krasich, K., Hughes, L. & Mitroff, S.R. (November 2013). Mapping the Core Factors of Visual Perceptual Performance. Psychonomic Society, Toronto CA.
55. Bel-Bahar, T., Gentzler, E., Adamo, S., Wang, L., Krasich, K., Hughes, L. Mitroff, S.R., & Appelbaum, L.G., (November 2013). Visualmotor performance is predicted by ERP amplitudes in a rapid serial visual presentation (RSVP) protocol. Psychonomic Society, Toronto CA.
56. Krasich, K., Hughes, L., Wang, L., Bel-Bahar, T., Mitroff, S.R., & Appelbaum, L.G., (November 2013). Visual Perception and Motor Skills Across the Day. Psychonomic Society Satellite – Objects, Perception, Attention, and Motion. Toronto CA.
57. Appelbaum, L.G., Cain, M.S., Schroeder, J.E., Darling, E.F., & Mitroff, S.R. (May, 2013). Improving visual cognition through stroboscopic training. Vision Sciences Society, Naples, FL.
58. Devyatko, D., Appelbaum, L.G., & Mitroff, S.R. (May, 2013). A common mechanism for perceptual reversals in motion-induced blindness, the Troxler effect, and perceptual filling-in. Vision Sciences Society, Naples, FL.
59. Appelbaum, L.G., Beam, E., Jack, J., Moody, J., & Huettel, S.A. (April, 2013). NeuroRhetoric: Mapping the Semantic Structure of Cognitive Neuroscience. Cognitive Neuroscience Society. San Francisco, CA.
60. Donohue, S.E., Appelbaum, L.G. & Woldorff, M.G. (April, 2013). The Effects of Response Number and Task on the Electrophysiological Correlates of Conflict Processing. Cognitive Neuroscience Society. San Francisco, CA.

61. San Martín, R., Appelbaum, L.G., Huettel, S.A., & Woldorff, M.G. (April, 2013). Neural signatures of value-driven attentional capture predict individual differences in economic choice. Cognitive Neuroscience Society. San Francisco, CA.

2012

62. Appelbaum, L.G., Clark, K., Mitroff, S.R., & Woldorff, M.G. (October 2012). Cognitive and Neural Plasticity due to Visual Search Training. Society for Neuroscience, New Orleans, LA.
63. Krebs, R., Boehler, C.N., Appelbaum, L.G. & Woldorff, M.G. (May 2012). Reward increases early attentional control in the Stroop task and modulates interference-related ERP components. European Society for Cognitive and Affective Neuroscience. Marseille, France.
64. Clark, K., Appelbaum, L.G., Mitroff, S.R., & Woldorff, M.G. (May 2012). Neural correlates of learning during a visual search task. Vision Sciences Society, Naples, FL.
65. Appelbaum, L.G., Boehler, C.N., & Woldorff, M.G. (April 2012). Proactive and reactive cognitive control in the human brain. Cognitive Neuroscience Society. Chicago, IL.

2011

66. Beam, E., Appelbaum, L.G., Jack, J., Moody, J., & Huettel, S.A. (November, 2011). Mapping the Intrinsic Structure of Cognitive Neuroscience. Society for Neuroscience, Washington, D.C.
67. San Martín, R., Appelbaum, L.G., Pearson, J.M., Huettel, S.A., & Woldorff, M.G. (November, 2011). Feedback-related activity predicts individual differences in Gain maximizing and Loss minimizing in a probabilistic decision-making task. Society for Neuroscience, Washington, D.C.
68. Mitroff, S.R., Appelbaum, L.G., Schroder, B, J., & Cain, M.S. (November 2011). Improved Visual Cognition Through Stroboscopic Training. Annual Meeting of the Psychonomic Society, Seattle, WA.
69. Appelbaum, L.G., Boehler, C.N., Won, R., Davis, L., & Woldorff, M.G. (April 2011). Strategic orientation of attention reduces temporally predictable stimulus conflict. Cognitive Neuroscience Society, San Francisco, CA.
70. Schroder, B, J., Appelbaum, L.G., Cain, M.S., & Mitroff, S.R. (May, 2011). Examining the Effects of Stroboscopic Vision. Vision Science Society, Naples, FL.
71. Appelbaum, L.G., Chen, W.D., Smith, D.S. Boehler, C.N., Woldorff, M.G. (November, 2011). Functional dynamics of stimulus conflict resolution in the human brain. Society for Neuroscience, San Diego, CA.

2010

72. Appelbaum, L.G., Boehler, C.N., Woldorff, M.G. (April, 2010). Priming and backward interference in the human brain: stimulus onset asynchrony manipulations reveal processing interactions during the Stroop and reverse Stroop tasks. Cognitive Neuroscience Society, Montreal, Canada.
73. Boehler, C. N., Appelbaum, L.G., Krebs, R. M., Hopf, J.M., & Woldorff, M.G. (April, 2010). Pinning down response inhibition in the brain - conjunction analyses of the Stop-signal task. Cognitive Neuroscience Society, Montreal, Canada.
74. Ales, J., Appelbaum, L.G., Norcia, A.M. (May, 2010). Neural signatures of shape discrimination decisions at threshold. Vision Science Society, Naples, FL.

2009 and earlier

75. Appelbaum, L.G., Chen, W.D., Meyerhoff, K., Davis, L.A., Won, R.J., Woldorff, M.G. (May, 2009). Priming and backward interference in the human brain: SOA manipulations reveal processing interactions during the Stroop and reverse Stroop tasks. Vision Science Society, Naples FL.

76. Appelbaum, L.G., Meyerhoff, K., Chen, W.D., Woldorff, M.G. (October, 2008). Automaticity and information integration in the human brain: EEG insights from SOA variants of the Stroop and reverse Stroop tasks. Optical Society of America, Fall Vision Meeting, Rochester NY.
77. Meyerhoff, K.L., Appelbaum, L.G., and Woldorff, M.W. (April, 2008). The Temporal Sensitivity of the Stroop Color-Word Interference Effect. Cognitive Neuroscience Society, San Francisco, CA.
78. Appelbaum, L.G., Vildavski, V.Y., Pettet, M.W., Wade, A.R., & Norcia, A.M. (November, 2007). Voluntary attention: the influence of feedback on figural processing." Society for Neuroscience, San Diego, CA.
79. Norcia, A.M., Appelbaum, L.G., Pettet, M.W., Vildavski, V.Y., & Wade, A.R. (November, 2007). Neural correlates of temporal attention: anticipatory responses in the human visual cortex to periodic stimuli." Society for Neuroscience, San Diego, CA.
80. Palomares, M., Norcia, A.M., Wade, A.R., Pettet, M.W., Vildavski, V.Y., Appelbaum, L.G. (October, 2007). On the differences and similarities between real and implied motion: a high-density EEG study. Optical Society of America, Fall Vision Meeting, Berkeley, CA.
81. McKee, S., Wade, A.R., Pettet, M.W., Vildavski, V.Y., Appelbaum, L.G., Norcia, A.M. (October, 2007). Disparity processing in the human brain imaged with high density EEG. Optical Society of America, Fall Vision Meeting, Berkeley, CA.
82. Appelbaum, L.G., Vildavski, V.Y., Pettet, M.W., Wade, A.R., & Norcia, A.M. (May, 2007). Neural dynamics of visual scene segmentation. Vision Science Society, Sarasota FL.
83. Norcia, A.M., Wade, A.R., Pettet, M.W., Vildavski, V. and Appelbaum, L.G. (February, 2007). Periodic Visual Stimuli Lead to Anticipatory Responses in Human Prefrontal and Occipital Cortex: Results from EEG Source Imaging. Annual Interdisciplinary Conference, Jackson, WY.
84. Norcia, A.M., Wade, A.R., Vildavski, V.Y., Pettet, M.W., Appelbaum, L.G. (August, 2007). "Anticipatory responses in human visual cortex to predictable stimuli: An EEG source-imaging study. Perception 36. European Conference on Visual Perception.
85. Appelbaum, L.G., Pettet, M.W., Vildavski, V., Wade, A., Norcia, A.M. (February, 2006). Cue-invariant Networks for Figure and Background Processing in Human Visual Cortex. Annual Interdisciplinary Conference, Jackson, WY.
86. Appelbaum, L.G., Pettet, M.W., Vildavski, V., Wade, A., Norcia, A.M. (November, 2006). Cortical networks underlying visual scene segmentation. Society for Neuroscience, Atlanta GA.
87. Appelbaum, L.G., Vildavski, V.Y., Pettet, M.W., Wade, A.R., & Norcia, A.M. (October, 2006). Dynamics of scene segmentation: The role of boundary information. Journal of Vision, 6(13):42. Optical Society of America, Fall Vision Meeting, Rochester NY.
88. Norcia, A.M., Pettet, M.W., Vildavski, V.Y., Wade, A.R., & Appelbaum, L.G. (October, 2006). Regions of human visual cortex sensitive to small vernier offsets as determined by EEG source-imaging. Journal of Vision, 6(13):21. Optical Society of America, Fall Vision Meeting, Rochester, NY.
89. Appelbaum, L.G., Vildavski, V.Y., Pettet, M. W., Wade, A. R., & Norcia, A. M. (May, 2006). Cortical networks underlying scene segmentation. Journal of Vision, 6(6):475. Vision Science Society, Sarasota, FL.
90. Norcia, A.M., Han, Y., Pettet, M.W., Vildavski, V.Y., Wade, A.R., & Appelbaum, L.G. (May, 2006). Modulation of local and global motion responses by sustained visual attention." Journal of Vision, 6(6):588. Vision Science Society, Sarasota, FL.
91. Appelbaum, L.G., Wade, A.R., Pettet, M., Vildavski, V., & Norcia, A. M. (October, 2005). Dynamics of texture segmentation." Journal of Vision, 5(12):12. Optical Society of America, Fall Vision Meeting, Tempe AZ.

92. Sperling, G., Appelbaum, L.G., & Lu, Z-L. (August, 2005). Amplifying the effective perceptual contrast of a grating." Perception 34. European Conference on Visual Perception, Coruna, SP.
93. Hou, C., Pettet, M., Vildavski, V., Appelbaum, L.G., & Norcia, T. (May, 2005). The Temporal Order of Border and Surface Processing: Illusory Contours and Salient Regions. Association of Research in Vision and Ophthalmology, Ft. Lauderdale, FL.
94. Appelbaum, L.G., Lu, Z-L., & Sperling, G. (May, 2005). Neuromagnetic responses to first- and second-order motion. Journal of Vision, 5(8):926. Vision Science Society, Sarasota, FL.
95. Appelbaum, L.G., Pettet, M.W., Vildavski, V., Wade, A., Norcia, A.M. (November, 2005). Dynamics of Texture Segmentation. Society for Neuroscience, Washington, DC.
96. Appelbaum, L.G. and Srinivasan, R. (November, 2003). Neural Correlates of Figure-Ground Segregation during Bistable Perception of the Rubin Face-Vase Illusion." Society for Neuroscience, New Orleans, LA.
97. Appelbaum, L.G., Lu, Z-L., & Sperling, G. (January, 2002). Amplifying Contrast: Example from Motion and Texture. Annual Interdisciplinary Conference, Jackson, WY.
98. Appelbaum, L.G., Lu, Z-L., & Sperling, G., (May, 2001). Contrast Amplification in a Texture Discrimination Task." Association of Research in Vision and Ophthalmology, Ft. Lauderdale, FL.
99. Appelbaum, L.G., Lu, Z-L., & Sperling, G. (October, 2001). Facilitation of Subthreshold Contrasts by Means of Texture-Slant Discrimination." Optical Society of America, Fall Vision Meeting, Irvine, CA.
100. Adamson, A. Mills, D. and Appelbaum, L.G. (April, 1999). Sentence Processing in Adults and Children: Evidence from ERPs. Cognitive Neuroscience Society, San Francisco, CA.
101. Mervis, C.B., Klein, B.P., Bertrand, J., Kwitny, S., & Appelbaum, L.G., (April, 1998). Attention to faces in infancy: Comparison of an infant with Williams syndrome to typically developing infants." 11th International conference on infant studies, Atlanta, GA.

Teaching

Instructor of Record Undergraduate Courses

Neuroplasticity and Expertise (Psych/Neuro 351)	Duke University	2016, Spring
Neural Basis of Cognitive Plasticity (Psych/Neuro 290)	Duke University	2015, Spring
Neural Basis of Cognitive Plasticity (Psych/Neuro 290)	Duke University	2012, Spring
Introduction to Cognitive Psychology (Psych 230)	UNC, Chapel Hill	2008, Summer
Introduction to Cognitive Psychology (Psych 230)	UNC, Chapel Hill	2008, Spring
Sensation and Perception (Psych 225)	UNC, Chapel Hill	2007, Summer
Biological Psychology (Psych 498)	San Francisco State University	2006, Fall
Biological Psychology (Psych 498)	San Francisco State University	2006, Spring
Learning and Memory (Psych 491)	San Francisco State University	2005, Spring
Cognitive Neuroscience (Psych 160)	University of California, Irvine	2004, Summer

Team Taught Graduate Courses

Principles in Cognitive Neuroscience	Duke University	Annually 2009-2020
Neuroscience Bootcamp (TMS Methods)	Duke University	Annually 2017-2020
Advanced fMRI Methods	Duke University	2010 - 2012

Fellowship Courses

Visiting Fellowship in Transcranial Magnetic Stimulation (4 CME hours)

Duke University SOM

Quarterly 2017-19

Continuing Medical Education Courses

Council on Optometric Practitioner Education. Research Review (1 CME hour 75835-FV)

ISVA Conference

2019, 2020, 2022

Research Supervision

Faculty

Noreen Bukhari-Parlakturk, MD PhD	Duke Neurology	2018 – present	KL2 Career Development
Andrada Neacsiu, Ph.D.	Duke Psychiatry	2017 – 2020	KL2 Career Development
Andrada Neacsiu, Ph.D.	Duke Psychiatry	2016 – 2018	NARSAD Young Investigator

Postdoctoral Fellows

Sicong (“Zone”) Liu, PhD	Duke Psychiatry	2018 – 2021
Olga Lucia Gamboa Arana, PhD	Duke Psychiatry	2018 – 2019
Lysianne Beynel, PhD	Duke Psychiatry	2016 – 2020
Lingling Wang, PhD	Duke Psychiatry	2013 – 2014
Tarik Bel-Bahar, PhD	Duke Psychiatry	2012 – 2013

Residents

Jonathan Young, MD (Psychiatry)	Duke Psychiatry	2016 – 2020
Morgan Cox, MD (Surgery)	Duke Surgery	2015 – 2018

Clinical Research Coordinators/Specialists

Liam Lochhead	UCSD Psychiatry	2021 - present
Eleanor Wood	Duke Psychiatry	2020 – 2021
Hannah Palmer	Duke Psychiatry	2017 – 2020
Susan Hilbig	Duke Psychiatry	2015 – 2020
Connor Hile	Duke Psychiatry	2018 – 2019
Alexandra Brito	Duke Psychiatry	2017 – 2018
Duy Nguyen	Duke Psychiatry	2016 – 2017
Courtney Crowell	Duke Psychiatry	2016 – 2019
Kristina Krasich	Duke Psychiatry	2012 – 2014
Lauren Hughes	Duke Psychiatry	2012 – 2013

Ph.D. Theses

Louise Stolz	UCSD, Neuroscience	Class of 2025	Primary Advisor
Lindsey Benster	UCSD/SDSU Joint Doctoral Program	Class of 2026	Secondary Advisor
Christina Vander Vegt	UNC, Exercise Sports Sciences	Defended 2020	Committee member
Kyle Burris	Duke, Statistics	Defended, 2019	Committee member
Jillian Clements	Duke, Engineering	Defended, 2019	Co-Chair

Liz Teel	UNC, Exercise Sports Sciences	Defended, 2017	Committee member
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Master's Thesis

Taryn Gilrein	UNC Exercise Sports Sciences	Defended, 2014	Committee member
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Graduate Practicum and Rotations

Mohammad Shensa	MD. Independent Study Project	UCSD SOM	2022 - 2023
Miles Martinez	Ph.D. Practicum	Duke University	Spring, 2021
Tracy d'Arbaloff	Ph.D. Practicum	Duke University	Spring, 2018
Lifu Deng	Ph.D. Lab Rotation	Duke University	Spring, 2018
Matthew DeLang	DPT Lab Rotation	Duke University	2016 - 2017

Undergraduate Honors Thesis Supervision (Duke University)

Edem Asamoah	Defending, April 2021	Primary advisor
Erikson Nichols	Defended, April 2020	Primary advisor
Rachel Donaldson	Defended, April 2020	Primary advisor
Joyce Wang	Defended, April 2019	Primary advisor
Elayna Kirsch	Defended, April 2018	Primary advisor
Jordan Cohen	Defended, April 2017	Committee member
McKenzie Middlebrooks	Defended, April 2017	Committee member
Natasha Sakraney	Defended, April 2016	Primary advisor
Yvonne Lu	Defended, April 2016	Primary advisor
Annie Apple	Defended, April 2016	Primary advisor
Garland Austin	Defended, April 2016	Primary advisor
Peter Cangialosi	Defended, April 2016	Committee member
Delaney Lagrew	Defended, April 2016	Committee member
Sheetal Hedge	Defended, April 2015	Committee member
April Ratliff	Defended, April 2015	Committee member
Daniela De Albuquerque	Defended, April 2015	Committee member
Eliza Gentzler	Defended, April 2014	Primary advisor
Christopher Mazis	Defended, April 2014	Committee member
Elizabeth Beam	Defended, April 2013	Committee member

Undergraduate Student Mentoring

UCSD

Shelby Bruneniek	2021-present	Ted Feng	2021-present
Jordan Baker	2021-present		

Duke University

Shailen Parmar	2019 – 2020	Garland Austin	2015 – 2016
Jessica Ho	2019 – present	Chrislyn Choo	2014 – 2015
J.T. Gala	2019 – 2021	Sheetal Hedge	2014 – 2015
Ashwin Subramaniam	2019 – present	Natasha Sakraney	2014 – 2016
Angikar Ghosal	2019 – 2020	Kelly Vittetoe	2014 – 2017

Erikson Nichols	2018 – 2020	Rajan Khanna	2014 – 2017
Edem Asamoah	2018 – 2021	Clara Colombatto	2013
Rachel Donaldson	2017 – 2020	Annie Apple	2013 – 2016
Maria Naclerio	2017 – 2020	Ben Ramger	2013 – 2016
Elayna Kirsch	2016 – 2018	Laura Holton	2013 – 2016
Amanda Watts	2016 – 2018	Yvonne Lu	2013 – 2016
Wesley Lim	2016 – 2018	Eliza Gentzler	2013 – 2014
Joyce Wang	2015 – 2019	Floyd Wilks	2013 – 2014
Eliane Schinder	2015 – 2016	Gabriela Asturias	2013 – 2014

Supervised Mentee Research Fellowships and Awards:

2022 University Graduate Fellowship – Awarded with Lindsay Benster, \$30,000.
 2021 VA Career Development Award - Awarded to Dr. Jonathan Young
 2020 Rhodes Information Initiative DATA+ program lead
 2020 American Society of Clinical Psychopharmacology, Early Career Research Award - Dr. Jonathan Young
 2020 Chair's Choice Travel Award, Society of Biological Psychiatry – Awarded to Dr. Jonathan Young
 2019 NIH K99/R01 Award (mentoring consultant) – Awarded to Dr. Luis Gomez
 2019 Summer Neuroscience Program fellowship - Awarded to Mr. Edem Asamoah
 2019 Stanford University Research Conference Travel Award – Awarded to Joyce Wang
 2018 Duke University Psychology and Neuroscience Travel Award – Awarded to Joyce Wang
 2018 DIBS Germinator Award – Awarded to Dr. Lysianne Beynel
 2018 Duke Undergraduate Research Office Travel Award – Awarded to Ms. Sade Abiodun
 2018 IEEE Doctoral Consortium Travel Award - Awarded to Ms. Jillian Clements
 2017 Summer Neuroscience Program fellowship - Awarded to Ms. Elayna Kirsch
 2016 Duke Undergraduate Research Office Travel Award – Awarded to Ms. Natasha Sakraney
 2016 Duke Neuroscience Program in Research - Awarded to Ms. Kelly Vittetoe
 2016 – 2018 Duke BioCoRE Fellowship – Awarded to Ms. Amanda Watts
 2015 Pitzer College Summer Research Fellowship - Awarded to Ms. Sage Lachman
 2013 Duke Student Science Education Outreach Grant - Awarded to Mr. Jonathan Winkle & Ms. Pinar Yoldas
 2013 Duke Psychology Vertical Integration Program - Awarded to Ms. Clara Colombatto and Ms. Kait Clark
 2013 Duke Neuroscience Program in Research - Awarded to Ms. Eliza Gentzler and Mr. Stephen Adamo

Undergraduate Student Advising

Undergraduate Neuroscience Major Advisor, Duke University Classes of 2015, 2016, 2017, 2018

Professional Service and Outreach

Organizational Duties

PhD Candidate Interview Committee, Cognitive Neuroscience Admitting Program, 2020 – Present
 Resident Interview Committee, Psychiatry and Behavioral Sciences, 2019 – Present
 Search Committee, Associate Dean of Education, Duke School of Medicine, 2019 – 2020
 Co-Chair, Psychiatry and Behavioral Sciences Faculty Search Committee, 2018 – 2019
 Brain Stimulation Working Group, Organizer: Biannual symposium for brain stimulation at Duke and surrounding universities. 2018 - Present
 Center for Cognitive Neuroscience, Colloquium Organizer, 2012 – 2013 and 2017 – 2018

Conference Section Chair, Fall Vision Meeting - Optical Society of America, 2006-2009
UC Irvine Neuroscience Symposium, Co-Chair, 2003

Human Subjects Research Oversight

Data Safety Monitor – NIH 1R03HD094614-01A1 – “Realistic measurements of tDCS-modulated activity and electric fields in the human brain in vivo”, PI Pratik Chhatbar.

Data Safety Monitor – Industry Sponsored Trial – “Optimizing parameters of low intensity of focused ultrasound stimulation for stroke patients”, PI Wayne Feng.

Grant Review

NIMH Special Emphasis Panel/ Scientific Review Group 2022/10 ZRG1 BDCN-S(55)

NIMH Special Emphasis Panel/ Scientific Review Group 2022/2 ZMH1 ERB-E(01)

NIH Special Emphasis Panel/Scientific Review Group 2019/05 ZRG1 BBBP-X (02)

NIH Special Emphasis Panel/Scientific Review Group 2017/05 ZRG1 BDCN-J (51)

Army Research Office (2016, 2018, 2020)

National Science Foundation, USA (2018)

Netherlands Organisation for Scientific Research (2016)

Manitoba Medical Service Foundation, Canada (2017)

Ontario Physicians' Services Incorporated Foundation, Resident Research Award (2020)

Duke BASS Connections reviewer (2015 and 2020)

Book Reviewer

Cambridge University Press

Guest Journal Editor

Optometry and Vision Science - Feature Issue: “Visual Function and Sports Performance”

Frontiers in Cognitive Neuroscience – Research Topic: “Neural Mechanisms of Perceptual-Cognitive Expertise in Elite Performers”

Journal Review Board

Brain Topography (2017-2021)

Frontiers in Perception Science

Frontiers in Cognitive Neuroscience

Ad hoc Journal Reviewer

Journal	Year at start of each review
Acta Psychologica	2015
Annals of Biomedical Engineering	2020
BMC Neuroscience	2010
Brain and Behavior	2019
Brain Research	2011
Brain Sciences	2020

Brain Topography	2017
Clinical Neurophysiology	2022
Cognitive, Affective, & Behavioral Neuroscience	2013
Cortex	2014
Current Biology	2020
eNeuro	2019
Experimental Brain Research	2010
Frontiers in Human Neuroscience	2008, 2009, 2016
Human Brain Mapping	2009 (x2), 2011 (x2)
Human Movement Science	2021
International Journal of Sports Physiology and Performance	2018
International Journal of Sports Science and Coaching	2018
International Review of Sports and Exercise Psychology	2019
Journal of Cognitive Enhancement	2017, 2019
Journal of Cognitive Neuroscience	2009, 2010, 2012, 2014, 2016
Journal of Neurophysiology	2007, 2009 (x2), 2012
Journal of Neuroscience	2009, 2011
Journal of Science and Medicine in Sports	2017, 2018
Journal of Sports and Exercise Psychology	2016 (x2), 2018
Journal of Sports Science	2019, 2020
Journal of Vision	2010, 2011, 2014, 2015, 2017 (x2)
Medicine & Science in Sports & Exercise	2020
Motor Control	2016
NeuroImage	2016
Neuropsychologia	2012, 2013, 2014, 2020
Perceptual and Motor Skills	2014
Personality and Individual Differences	2016
PLoS One	2010, 2019
Proceedings of the National Academy of Science	2013
Quest	2019
Scandinavian Journal of Medicine and Science in Sports	2021
Science Advances	2022
Scientific Reports	2016, 2017
Sport Sciences for Health	2019
Sports Medicine	2020
Sports Medicine - Open	2018
Vision Research	2010, 2011

Professional Society Membership

Sigma Xi	Member, 2002 – 2006
Vision Science Society	Member, 2004 – Present

Society for Neuroscience	Member, 2005 – Present
Optical Society of America	Member, 2005 – 2009
Cognitive Neuroscience Society	Member, 2009 – Present
Psychonomic Society	Member, 2013 – 2015
International Sports Vision Association	Member, 2016 – Present
Organization for Human brain Mapping	Member, 2017
American Psychological Association	Member, 2022 - Present

Scientific Outreach

BOOST: Building Opportunities & Overtures in Science & Technology, instructor, 2019
 InnoJam: development program for URM in science. guest instructor, 2018, 2019
 Summer Symposia in Neuroscience and Philosophy, instructor, 2016, 2017, 2018
 Duke Accelerated STEM High School Program, instructor, 2016, 2017, 2018, 2019
 Duke BioCoRE mentor, 2016, 2017, 2018
 Duke Brain Bee, Shadow a Neuroscientist Volunteer, 2011, 2013, 2014, 2015, 2016
 Duke University Outreach; Brain Awareness Week Organizer/Presenter, 2010, 2011, 2012, 2013, 2016
 North Carolina Museum of Life and Science, Heroes and Villains Event Presenter, 2012
 North Carolina Museum of Life and Science, BRAINS! Event Presenter, 2013
 Carolina Science Café Presenter, 2013
 North Carolina Science Festival, The Science of Sports Presenter, 2014, 2016

Professional Training and Certifications

Professional Training

Center for the Improvement of Mentored Experiences in Research (CIMER), Facilitating Entering Mentoring Level 1 Trainer. Virtual, April 2022.

Senior Faculty Mentor Training 2021: Optimizing Health Sciences Faculty Mentoring Relationships at University of California, San Diego.

Visiting Fellowship in Transcranial Magnetic Stimulation – Duke University Medical Center, 2013

Certifications

Basic Life Saving
 U.S. Coast Guard - Operator Uninspected Passenger Vessel (OUPV) License
 Nike SPARQ Sensory Performance Certified Trainer
 NAUI Scuba Diving Instructor