

CURRICULUM VITAE  
The Johns Hopkins University School of Medicine

November 2, 2016

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Joshua Benjamin Ewen, MD

## DEMOGRAPHIC AND PERSONAL INFORMATION

### Current Appointments

- 2010-present Assistant Professor, Department of Neurology, Johns Hopkins University School of Medicine  
2015-present Assistant Professor, Department of Psychological and Brain Sciences, Johns Hopkins University Krieger School of Arts and Sciences  
2007-present Attending Physician, Department of Pediatrics, Johns Hopkins Hospital  
2007-present Attending Physician, Kennedy Krieger Institute

### Personal Data

Kennedy Krieger Institute  
707 North Broadway  
Baltimore, MD 21205  
Tel: 443-923-9170  
Fax: 443-923-9540  
E-mail: Ewen@kennedykrieger.org

### Education and Training

- 1992-1996 A.B., Egyptology, Brown University, Providence, RI  
1996-2000 M.D., Tulane University School of Medicine, New Orleans, LA  
2000-2002 Residency, Pediatrics, Cincinnati Children's Hospital Medical Center, Cincinnati, OH  
2002-2006 Residency, Neurodevelopmental Disabilities/Child Neurology, The Johns Hopkins Hospital/Kennedy Krieger Institute, Baltimore, MD  
2006-2007 Fellowship, Clinical Neurophysiology, The Johns Hopkins Hospital, Baltimore, MD

### Professional Experience

- 2007-present Pediatric Neurologist and Clinical Neurophysiologist, Kennedy Krieger Institute  
2007-2010 Instructor, Department of Neurology, Johns Hopkins University School of Medicine  
2010-present Assistant Professor, Department of Neurology, Johns Hopkins University School of Medicine  
2015-present Assistant Professor, Department of Psychological and Brain Sciences, Krieger School of Arts and Sciences, Johns Hopkins University

## PUBLICATIONS:

### Original Research [OR]

1. Hatfield LA, Crone NE, Kossoff EH, **Ewen JB**, Pyzik PL, Lin DDM, Kelley TM, Comi AM. Quantitative EEG asymmetry correlates with clinical severity in unilateral Sturge-Weber syndrome. *Epilepsia*. 2007; 48(1): 191-5. PMID 17241228 Role: I contributed data analysis and review of the manuscript
2. Boatman DF, Trescher WH, Smith C, **Ewen J**, Los J, Wied HM, Gordon B, Kossoff EH, Gao Q, Vining EP. Cortical Auditory Dysfunction in Benign Rolandic Epilepsy. *Epilepsia* 2008; 49(6): 1018-26. PMID 18266745 Role: I contributed ERP analysis and review of the manuscript
3. **Ewen JB**, Kossoff EH, Crone NE, Lin DDM, Lakshmanan BM, Ferenc LM, Comi AM. Use of Quantitative EEG in Infants with Port-Wine Birthmark to Assess for Sturge-Weber Brain Involvement. *Clinical Neurophysiology* 2009; 120(8): 1433-40. (Corresponding Author) PMID 19589723
4. Jacobson LA, Ryan M, Martin RB, **Ewen J**, Mostofsky SH, Denckla MB, Mahone EM. Working Memory Influences Processing Speed and Reading Fluency in ADHD. *Child Neuropsychology* 2011; 17(3): 209-224. Role: My review of the literature (for publication #6, below) contributed toward the situation of the work in the literature

5. **Ewen JB**, Vining PE, Smith CA, Trescher WH, Kossoff EH, Gordon B, Boatman-Reich D, Cognitive and EEG Fluctuation in Benign Childhood Epilepsy with Central-Temporal Spikes: A Case Series. *Epilepsy Research* 2011; 97(1-2): 214-9. (Corresponding Author) PMID 21920705
6. **Ewen JB**, Moher JS, Lakshmanan BM, Ryan M, Xavier P, Crone NE, Denckla MB, Egeth H, Mahone EM. Multiple Task Interference is Greater in Children with ADHD. *Developmental Neuropsychology* 2012;37(2):119-33. (Corresponding Author) PMID 22339226
7. Tailor YI, Suskauer SJ, Sepeta LN, **Ewen JB**, DeMatt EJ, Trovato MK, Salorio CF, Slomine BS. Functional status of children with encephalitis in an inpatient rehabilitation setting: A case series. *Journal of Pediatric Rehabilitation Medicine*. 2013;6(3):163-73. PMID 24240837 Role: I assisted in the interpretation of EEG data
8. Moher JS, Lakshmanan BM, Egeth HE, **Ewen JB**. Inhibition drives early feature-based attention. *Psychological Science* 2014;25(2):315-24. PMID 24390823
9. Kossoff EH, Bachur C, Quain AM, **Ewen JB**, Comi AM. EEG evolution in Sturge-Weber syndrome. *Epilepsy Research* 2014;108(4):816-9. PMID 24560844 Role: I contributed to the methodology, analysis of EEG and interpretation of the results
10. Schreiber JM, Lanham DC, Trescher WH, Sparks SE, Wassif CA, Caffo BS, Porter FD, Tierney E, Gropman AL, **Ewen JB**. Variations in EEG Discharges Predict ADHD Severity Within Individual Smith-Lemli-Opitz Patients. *Neurology* 2014;83(2):151-9. (Corresponding Author) PMID 24920862
11. Ikkai A, Blacker KJ, Lakshmanan BM, **Ewen JB**, Courtney S. Maintenance of Relational Information in Working Memory Leads to Suppression of the Sensory Cortex. *Journal of Neurophysiology* 2014 112(8):1903-15. PMID 25031260 Role: Mentoring both Drs. Ikkai and Blacker, particularly in ERP techniques, I contributed substantial technical expertise in EEG experimental design, analysis and interpretation.
12. **Ewen JB**, Lakshmanan BM, Hallett M, Mostofsky SH, Crone NE, Korzeniewska A. Dynamics of Functional and Effective Connectivity Within Human Cortical Motor Control Networks. *Clinical Neurophysiology* 2015; 126(5):987-96. (Corresponding Author) PMID 25270239
13. Simon A, Chan W, Adler DA, Lakshmanan BM, Gupta SS, **Ewen JB**, Johnston MV, Marcus CL, Naidu S, Kadam SD. Heightened delta power during slow-wave-sleep in patients with Rett syndrome associated with poor sleep efficiency. *PLoS ONE* 2015 Oct 7;10(10):e0138113. doi: 10.1371/journal.pone.0138113. PMID26444000 Role: I provided expertise in the interpretation of signal-processed EEG activity
14. Gunnarsdottir K, Kang YM, Kerr M, Sarma SV, **Ewen J**, Allen R, Gamaldo C, Salas R. (2015) A look at the strength of micro and macro EEG analysis for distinguishing insomnia within an HIV cohort. Paper presented at Engineering in Medicine and Biology Society, 2015 37th Annual International Conference of the IEEE, Milan, Italy, 25-29 August. (pp. 6622-6625). Red Hook, NY: Curran Associates, Inc. PMID 26737811
15. Kang YM, Gunnarsdottir K, Kerr M, Salas R, **Ewen J**, Allen R, Gamaldo C, Sarma SV. (2015) To Score or Not to Score? A look at the distinguishing power of micro EEG analysis on an annotated sample of PSG studies conducted in an HIV cohort. Paper presented at Engineering in Medicine and Biology Society, 2015 37th Annual International Conference of the IEEE, Milan, Italy, 25-29 August. (pp. 6626-6629). Red Hook, NY: Curran Associates, Inc. PMID 26737812
16. **Ewen JB**, Pillai AS, McAuliffe D, Lakshmanan BM, Ament K, Hallett M, Crone NE, Mostofsky SH. Practicing Novel, Praxis-Like Movements: Physiological Effects of Repetition. *Front Hum Neurosci*. 2016 Feb 5;10:22. doi: 10.3389/fnhum.2016.00022. PMID 26903835
17. **Ewen JB**, Lakshmanan BM, Pillai AS, McAuliffe D, Nettles C, Hallett M Crone NE, Mostofsky SH. Decreased Modulation of EEG Oscillations in High-Functioning Autism During a Motor Control Task. *Front Hum Neurosci*. doi: 10.3389/fnhum.2016.00198
18. Blacker KJ, Ikkai A, Lakshmanan BM, **Ewen JB**, Courtney SM. The Role of Alpha Oscillations in Deriving and Maintaining Spatial Relations in Working Memory. *Cognitive, Affective and Behavioral Neuroscience*. (in press) Role: Mentoring both Drs. Ikkai and Blacker, particularly in ERP techniques, I contributed substantial technical expertise in EEG experimental design, analysis and interpretation.
19. McAuliffe D, Pillai AS, Tiedemann A, Mostofsky SH, **Ewen JB**. Dyspraxia in ASD: Impaired Coordination of Movement Elements. *Autism Research* (in press).

#### Review Articles [RA]

1. **Ewen JB**, Shapiro BK. Disorders of Attention and Learning in Children with Neurodevelopmental Disabilities. *Seminars in Pediatric Neurology*. 2005; 12(4): 229-41.
2. Mostofsky SH, **Ewen JB**. Altered Connectivity and Action Model Formation in Autism Is Autism. *The Neuroscientist* 2011; 17:437-48. (Corresponding Author) PMID 21467306

3. Lo W, Marchuk DA, Ball KL, Juhász C, Jordan LC, **Ewen JB**, Comi AM. The Vascular Malformation Consortium National Sturge-Weber Syndrome Workgroup. Updates and Future Horizons on the Understanding, Diagnosis and Treatment of Sturge-Weber Syndrome Brain Involvement. *Developmental Medicine and Child Neurology* 2012;54:214-23. (Peer-reviewed review article relevant to my research) PMID 22191476
4. Vasa RA, Mostofsky SH, **Ewen JB**. The disrupted connectivity hypothesis of autism spectrum disorders: Time for the next phase in research. *Biological Psychiatry: Cognitive Neuroscience and Neuroimaging* 2016;1:245-252. (Peer-reviewed review article relevant to my research) PMID pending

#### Case Reports [CR]

1. **Ewen JB**, Comi AM, Kossoff EH. Myoclonic-Astatic Epilepsy in Sturge-Weber Syndrome. *Pediatric Neurology*. 2007; 36(2): 115-7. (Corresponding Author) PMID 19589723

#### Book Chapters, Monographs [BC]

1. **Ewen JB**, Shapiro BK. Specific Learning Disabilities. In: Accardo, PJ, editor. *Developmental Disabilities in Infancy and Childhood*, 3ed. Baltimore: Paul H. Brookes Publishing Co. 2008.
2. **Ewen JB**. Convulsions. In: Levy, M, editor. *Patient Encounters: The Neurology and Psychiatry Work-Up*. New York: Lippincott Williams & Wilkins. 2009.
3. Suskauer SJ, **Ewen JB**. Encephalitis. In: Nelson M, editor. *Rehabilitation Medicine Quick Reference: Pediatrics*. New York: Demos Medical Publishing. 2010.
4. **Ewen JB**. Angelman Syndrome. In: Gilman, S., editor. *MedLink Neurology*. San Diego: MedLink Corporation. 2004-2011.
5. **Ewen JB**, Mostofsky SH. Procedural memory. In: Volkmar Fred R. (ed). *Encyclopedia of Autism Spectrum Disorders*. New York: Springer. 2012.
6. **Ewen JB**, Mostofsky SH. Sensory-Motor Integration. In: Foxe, JJ and Molholm, S. *Multisensory Integration and Sensory Regulation in Autism*. Cambridge: MIT Press (in press).
7. **Ewen JB**, Beniczky S. Validating Biomarkers and Diagnostic Tests in Clinical Neurophysiology: Developing Strong Experimental Designs and Recognizing Confounds. In: Schomer, D, Lopes da Silva, F (eds.) *Niedermeyer's Electroencephalography* (seventh edition). Oxford: Oxford University Press (in press).

#### Other Publications

##### Proceedings Reports [PR]

1. Moher J, Lakshmanan BM, Egeth HE, **Ewen J**. (2012). Perseveration in attention: Inhibitory feature-based attentional sets automatically carry over to novel task contexts. *Information Sciences and Systems (CISS)*, Princeton, NJ, IEEE Information Theory Society, 1-3.

##### Editorials [ED]

1. **Ewen JB**. The eternal promise of EEG-based biomarkers: getting closer? *Neurology* (in press)

##### Methods and Techniques, "How I Do It" articles [MT]

1. Paasch V, Hoosier T, Accardo J, **Ewen JB**, Slifer K. Technical Tips: Performing EEGs and Polysomnograms on Youth with Neurodevelopment Disabilities. *The Neurodiagnostic Journal*. 2012; 52(4): 333-48. (\*Corresponding Author). PMID 23301283 Role: Originated the idea, built the team, managed the project

##### Other Media [OM] (Videos, Websites, Blogs, Social Media, etc.)

1. "If Your Child Has Seizures" (brochure for parents of children with newly diagnosed epilepsy), editor. Distributed in the Baltimore community (with plans for broader distribution) 2013
2. Parent Tips: "Seizures and Autism," co-author, Pathfinders for Autism Website. 2015

## FUNDING

### EXTRAMURAL Funding

Research Extramural Funding

Current

09/30/2015 – 06/30/2017

“Direct Examination of Imitation-Based Learning in Autism”

R21 NS091569

NINDS/NIH

\$275,000

PI: J. Ewen

PI, 40% (4.8 calendar)

05/01/2014 – 04/30/2017

“Rethinking the Reaction Time”

NSF 1358756

NSF

\$674,030

PI: J. Krakauer

PI of sub-contract, 4% (in kind)

09/01/2006 – 04/30/2017

“Anomalous Motor Physiology in ADHD”

R01 MH078160

NIMH/NIH

\$2,522,592

PI: S. Mostofsky

Co-Investigator (supplement), 5% (in kind) (Supplement awarded summer 2014)

Pending

None

Previous

8/01/2000 – 02/29/2016

“Cortical and Subcortical Mechanisms of Human Cognitive Control”

R01 DA013165

NIDA/NIH

\$6,578,016

PI: S. Yantis

Sub-Contract PI, 10% (in kind)

09/18/2002 – 09/19/2007

“Multicenter Therapeutic Trials of X-Linked ALD”

R01 HD03927

NICHD/NIH

\$7,664,315

PI: G. Raymond

Sub-Contract, 5% (in kind)

07/01/03 – 06/30/08

“Pathogenesis of Rett Syndrome”

P01 HD24448

NICHD/NIH

\$1,023,100

PI: S. Naidu

Co-Investigator, 10% (2.4 calendar)

08/2003 – 08/2008

“Hunter’s Dream for a Cure Grant”

Hunter’s Dream for a Cure Foundation

\$250,000

PI: A. Comi

Co-Investigator, 10% (1.2 calendar)

9/30/2004 – 9/29/2009	<p>“Dexamethorphan in Rett Syndrome”          FD-R-002408          FDA          \$1,190,281          PI : S. Naidu          Co-Investigator, 10% (in kind)</p>
01/01/2006 –	<p>“Clinical Investigations of Smith-Lemli-Opitz Syndrome”          ZIA HD008825          NICHD Intramural Program (NIH)          PI: F.D. Porter          PI of Sub-Contract, 10% (in kind)</p>
09/29/06 – 07/31/11	<p>“Reading Disability in Grades 3-8: Neurocognitive Factors”          P50 HD052121-02          NICHD/NIH          \$1,327,986          PI: M. Denckla          Co-Investigator, 15% (1.8 calendar)</p>
07/01/2008 – 06/30/2012	<p>“Neurological Sciences Academic Development Award”          K12 NS001696          NINDS/NIH          \$4,270,987          PI: H. Singer          Co-Investigator, 66% (7.92 calendar)</p>
09/07/2009 – 06/30/2015	<p>“Information &amp; Hierarchical Organization in the Neural Systems for Working Memory”          R01 MH082957          NIMH/NIH          \$2,244,413          PI: S. Courtney          PI of sub-contract, 3% (in kind)</p>
03/08/2010 – 12/21/12	<p>“Clinical Trial in Down Syndrome”          Roche Study #BP25543          F. Hoffmann-La Roche Ltd.          \$372,532          Site PI: J. Hoover-Fong          Sub-Investigator, 1% (in kind)</p>
07/01/2011 – 06/30/2016	<p>“EEG-Based Assessment of Functional Connectivity in Autism”          K23 NS073626          NINDS/NIH          \$525,394 (to date)          PI: J. Ewen          PI, 75% (9 calendar)</p>
09/01/2013 – 08/31/2014	<p>“Relationship of APOE-Status and Cognitive Reserve to Neural Efficiency”          Johns Hopkins Alzheimer’s Disease Research Center (P50AG05146, NIA/NIH, PI: M. Albert)          \$26,432          PI: A. Soldan          Collaborator, 1% (in kind)</p>

01/01/2014 – 12/31/2015	<p>“Phase II Trial in Down Syndrome”          Roche Study #BP27832          F. Hoffmann-La Roche Ltd.          \$280,674          Site PI: J. Hoover-Fong          Sub-Investigator, 1% (in kind)</p>
<b>Educational Extramural Funding</b>	
Current	None
Pending	None
<b>Previous</b>	
09/01/91 – 04/30/08	<p>“Research Training in Brain Injury Rehabilitation”          T32 HD07414          NICHD/NIH          \$3,095,421          PI: M. Johnston          Trainee, 0%; funded my training in clinical and research EEG</p>
 05/01/2004 – 06/30/2015	<p>“Training Program in Neuroengineering”          T32 EB003383          NIBIB/NIH          \$350,446 per annum          PI: N. Thakor          Collaborator, 1% (9 calendar; in kind)</p>

**INTRAMURAL Funding**

Research Intramural Funding  
 05/02/2013 – 04/30/2014

“Spatio-Temporal Dynamics of Sleep EEG in a Sero-positive HIV Cohort”  
 Johns Hopkins University Center for AIDS Research  
 \$5,000  
 PI: R. Salas  
 Peer Mentor, 1.5% (in kind); work continues on this project

01/01/2014 – 09/01/2014

“Disengagement Hypothesis of Feature Search”  
 Johns Hopkins Collaborative Research Award  
 \$1,000  
 PI: H. Egeth  
 Collaborator, 1% (in kind); this was an in-house grant to mentor students from Psychological and Brain Sciences

07/01/2014 – 07/01/2016

“Learning to Ignore: A Behavioral and Electrophysiological Inquiry”  
 Johns Hopkins Science of Learning Institute  
 \$150,000  
 PI: J. Ewen and H. Egeth  
 PI, 6% (0.7 calendar)

**CLINICAL ACTIVITIES**

**Clinical Focus**

My principal clinical activity is centered in the Clinical Neurophysiology Laboratory, interpreting EEGs and related studies. I also see patients with epilepsy and co-morbid neurodevelopmental disabilities in the KKI Neurology clinic

**Certification**

Medical, other state/government licensure  
 2007- State of Maryland, Physician and Surgeon, 2007-2018, No. D0066172

## Boards, other specialty certification

- 2006-2018 American Board of Pediatrics, Diplomate, No. 086106  
2006-2018 American Board of Psychiatry and Neurology, Certification in Neurology with Special Qualification in Child Neurology, No. 11642  
2009-2019 American Board of Psychiatry and Neurology, Certification in the Subspecialty of Clinical Neurophysiology, No. 1858  
2009-2019 American Board of Psychiatry and Neurology, Certification in the Subspecialty of Neurodevelopmental Disabilities, No. 69

## Clinical (Service) Responsibilities

- 2007-current KKI Neurology Clinic, 2 × ½-day clinic per month; general child neurology and particularly epilepsy in children with co-morbid neurodevelopmental disabilities  
2007-current KKI Neurodevelopmental Disabilities Fellowship Continuity Clinic, general child neurology and neurodevelopmental disabilities  
2007-current KKI Inpatient Acute Pediatric Rehabilitation Neurology Consults, currently 4 weeks per year  
2008-2012 KKI Inpatient Acute Pediatric Rehabilitation Backup Attending

## Clinical Productivity

Approximately 400 EEGs per year, focused on overnight EEGs; equivalent to about 1 day per week

## Clinical Draw from outside local/regional area (*reflecting national/international reputation*)

While my clinical practice is a small portion of my professional commitment currently, most referrals currently “special request” are family members of KKI staff, colleagues at KKI/JHH or colleagues nationally. For example, I have one patient who flies in from Arizona to see me about twice-a-year.

## Clinical Program Building / Leadership

- 2007- I run the KKI Clinical Neurophysiology Laboratory. Our focus is primarily on the JHM community. Over my tenure, we have systematically upgraded technical, training, scheduling, data maintenance and financial and record-keeping, added several additional service lines (including PSG, combined PSG/EEG, SSEP, ambulatory EEG), hired two sleep faculty/started sleep program, expanded technical staff, promoted and trained lab manager, formed educational partnership with PSG technology training program, and now provides services to three times as many patients. Revenues have increased over 700%.

## EDUCATIONAL ACTIVITIES

### Teaching

#### Classroom instruction

- 2006-2009 JHUSOM 2nd year Medical Student Pathophysiology Course, Lab on Pediatric Neuropathology

#### Clinical instruction

- 2001-2002 Preceptor, “Introduction to Clinical Medicine” Medical Interviewing Course, First-Year Medical Students, University of Cincinnati College of Medicine  
2003-Present Lecturer, “Neurodevelopmental Disabilities Monthly Lecture Series” for General Pediatrics residents rotating on NDD service, Kennedy Krieger Institute  
2004-2005 Lecturer, KKI Neuropsychology Clinical Practice Seminar for Neuropsychology Interns, Externs and Fellows  
2005-2009 Lecturer, KKI Neuropsychology Seminar for Neuropsychology Interns, Externs and Fellows  
2005 Preceptor, “Neurology Section, Second Year Clinical Skills Course,” Johns Hopkins University School of Medicine  
2006 Lecturer, JHH Child Psychiatry Fellowship Seminar  
2006-2007 EMU Noon Conference presentations for Neurology Residents, Presenter, Johns Hopkins University School of Medicine  
2007 Lecturer, JHH Neurology Residents’ Noon Conference  
2007-Present Lecturer, KKI NDD Resident Lecture Series  
2007-Present Preceptor, Kennedy Krieger/Johns Hopkins Neurodevelopmental Disabilities Residency Continuity Clinic (approximately 1 clinic per month)  
2008-2012 Backup Attending, KKI Acute Pediatric Rehabilitation Inpatient Unit

2011-Present Lecturer, JHH Clinical Neurophysiology Fellowship Didactic Series  
2014-Present Attending, KKI/JHH NDD Residency/KKI Inpatient Pediatric Rehabilitation Unit “Neuro Doc”  
Consult Attending (approximately 4 weeks per year)

#### CME instruction

##### JHMI/Regional

2006 “Sleep and Epilepsy,” Lecturer, Professionals (physicians, nurses), Advances in Epilepsy: Important Comorbidities and Coexisting Conditions, Epilepsy Foundation of the Chesapeake Region  
2006 “The Value of Comprehensive Clinical Evaluations in the Post-Genetic Era,” Lecturer, Physicians/Allied Health (and trainees), Kennedy Krieger Institute Grand Rounds  
2008 “Seizures and Epilepsy in Individuals with Neurodevelopmental Disabilities,” Lecturer, Physicians/Allied Health (and trainees), Kennedy Krieger Institute Grand Rounds  
2014 “Electrophysiology of Autism,” JHH Neurocritical Care Conference

##### National

2012 “ADHD: A Matter of Timing”, Lecturer, principally practicing physicians from out-of-state, Spectrum of Developmental Disabilities XXIV, Johns Hopkins University (Primary research/CME presentation)  
2012 “Quantitative EEG as a Clinical Tool in Sturge-Weber Syndrome,” Lecturer, practicing child neurologists, Child Neurology Society Annual Meeting, Savannah, GA (Primary research/CME presentation)  
2013 “How to Succeed: Preparing the Challenging Pediatric Patient for NDT Testing and Obtaining Optimal Results,” Lecturer and Symposium Organizer, practicing electroneurodiagnostic technologists, American Society for Electroneurodiagnostic Technologists Annual Meeting, Reno, NV  
2014 “Development of Biomarkers and Clinical Tests from Basic EEG Research,” Lecturer and Symposium Organizer, practicing clinical neurophysiologists, American Clinical Neurophysiology Society Annual Meeting, Atlanta, GA

#### Workshops /Seminars

##### JHMI/Regional

2010-2012 Founder/Organizer, Regional EEG/ERP Research Meetings, Students and Faculty, Baltimore, MD  
2012 Co-Organizer, “An Update on Brain Injury and Epilepsy,” Epilepsy Foundation of the Chesapeake Region, families, practicing professionals, Baltimore, MD  
2013 Host/Organizer, Epilepsy Forum for Parents, in conjunction with JHH and the Epilepsy Foundation of the Chesapeake Region, families, Baltimore, MD  
2015 Organizer, “Rationality and Bias in the Consent Process: Perspectives from Behavioral Economics and the Social Sciences,” Berman Institute of Bioethics Seminar Series, graduate students, post-doctoral fellows, faculty, Baltimore, MD

##### National

2012 Organizer, “EEG/ERP Research Bootcamp,” Kennedy Krieger Institute, graduate students and faculty, Baltimore, MD (attendees from across the country)  
2013 Co-Organizer, “Performing Clinical Neurophysiology Testing in Children with Neurodevelopmental Disabilities” Symposium, American Society of Electroneurodiagnostic Technologists Annual Meeting, electroneurodiagnostic technicians, Reno, NV  
2014 Director, “EEG as a Basic Neuroscience and Psychology Research Tool” Symposium, American Clinical Neurophysiology Society, practicing clinical neurophysiologists, Annual Meeting, Atlanta, GA



**Mentoring** (see also underlined names in Publications)

Pre-doctoral Advisees /Mentees

- 2008-2013 Jeff Moher, PhD candidate, Department of Psychological and Brain Sciences, Johns Hopkins University. Advisor for Event-Related Potential Technique and collaborated on experimental design, development of tasks for children with ADHD. Mentor for NRSA application.  
*Joint Productivity:* Several conference abstracts/talks and two original manuscripts (Multiple Task Interference is Greater in Children with ADHD, Developmental Neuropsychology; Inhibition drives early feature-based attention. Psychological Science—he was first author, and I was senior author).
- Assistant Professor, Department of Psychology, Williams College, Williamstown, MA. Note, our mentoring relationship continues—as of March 2016, I am participating as a clinical research mentor on Jeff's NARSAD Young Investigator grant submission
- 2014- Chirag Mehra, MSc; MBBS Candidate, Kings College London. 10-week research rotation relating to cognitive neuroscience techniques in developmental disabilities.
- 2014- Corbin Cunningham, Graduate Student, Department of Psychological and Brain Sciences, Johns Hopkins University, Advisor for Event-Related Potential Technique  
*Joint Productivity:* Several abstracts
- 2015- Danielle McAuliffe, Research Assistant/Pre-Medical Student.  
*Joint Productivity:* Conference abstract, one manuscript (Dyspraxia in ASD: Impaired Coordination of Movement Elements)

Post-doctoral Advisees/Mentees

Research

- 2012-2014 Elizabeth Felton, MD, JHH Neurology Resident, Junior Mentor on R25
- 2011- Rachel Salas, MD, Assistant Professor, Johns Hopkins Department of Neurology, Peer Mentor. Assisted with preparation of K23 application as well as other grant applications, lent EEG and signal processing expertise in projects, introduced her to opportunities for work in developmental disabilities.  
*Joint Productivity:* Center for AIDS Research Scholar Award; A look at the strength of micro and macro EEG analysis for distinguishing insomnia within an HIV cohort (IEEE 2015); To Score or Not to Score? A look at the distinguishing power of micro EEG analysis on an annotated sample of PSG studies conducted in an HIV cohort (IEEE 2015).
- 2012-2014 John Schreiber, MD, then epilepsy fellow at NIH; currently faculty at Children's National Medical Center. Worked together on dataset (analyses, interpretation, relevance) regarding EEG and neuropsychological variability in Smith-Lemli-Opitz syndrome.  
*Joint Productivity:* Variations in EEG Discharges Predict ADHD Severity Within Individual Smith-Lemli-Opitz Patients (Neurology); he was first author, and I was senior author.
- 2012-2014 Akiko Ikkai, Post-Doctoral Fellow, JHU Psychological and Brain Sciences, currently Data Scientist for New York University and for Fuqua School of Business at Duke University. Mentorship in advanced EEG analysis.  
*Joint Productivity:* Maintenance of Relational Information in Working Memory Leads to Suppression of the Sensory Cortex (J Neurophysiol); The Role of Alpha Oscillations in Deriving and Maintaining Spatial Relations in Working Memory (Cognitive, Affective and Behavioral Neuroscience).
- 2012- Ericka Wodka, PhD, Faculty, Neuropsychology, KKI; Assistant Professor, Department of Psychiatry and Behavioral Sciences. Mentorship on grant applications and experimental design for somatosensory processing research.
- 2013 Pou-Leng "Clara" Cheong, MD, Pediatric Neurologist, Hsinchu General Hospital, Taiwan; Research Training on ERP Technique, one week "mini-fellowship" in Event-Related Potential techniques
- 2013- Kara Blacker, PhD, Post-Doctoral Fellow, Department of Psychological and Brain Sciences, Johns Hopkins University, Advisor for advanced EEG analysis methods  
*Joint Productivity:* Maintenance of Relational Information in Working Memory Leads to Suppression of the Sensory Cortex (J Neurophysiol); The Role of Alpha Oscillations in Deriving and Maintaining Spatial Relations in Working Memory (Cognitive, Affective and Behavioral Neuroscience); JHU Science of Learning Institute Fellowship Award
- 2014- Tara Johnson, MD, Medical Resident/Fellow, Neurodevelopmental Disabilities, Kennedy Krieger Institute/Johns Hopkins University School of Medicine, Research Mentor  
*Joint Productivity:* Abstracts (Child Neurology Society, International Meeting for Autism Research)

## Clinical

- 2013 Intermediate EEG Interpretation Mentorship, Ryan Lee, MD (former NDD trainee, currently Director, Neurodevelopmental Clinic and Director, Medical Research, Shriner's Hospital for Children, Honolulu; President, Autism Society of Hawaii; Assistant Clinical Professor, Department of Pediatrics, John A. Burns School of Medicine). Reviewed EEGs together, in preparation for anticipated EEG interpretation as a practicing neurologist (beyond residency program EEG training).
- 2013 Pediatric EEG Interpretation, Dr. Saba Nia, Neurologisches Zentrum Rosenhügel, Karl Landsteiner Institute for Epilepsy Research and Cognitive Neurology, Vienna, Austria, Neuropsychiatry and Neurology. Specific training in pediatric EEG interpretation per residency requirements.
- 2013-2014 Intermediate EEG Interpretation Mentorship, Mary Gregory, MD (at the time, NDD trainee; currently pediatric epilepsy attending, Georgia Regents University). Reviewed EEGs together, beyond NDD program EEG training, in anticipation of fellowship in clinical neurophysiology.

## Educational Program Building / Leadership

- 2002-2006 Johns Hopkins/Kennedy Krieger Neurodevelopmental Disabilities/Child Neurology Residency, Inaugural Residency Class/Chief Resident
- 2007-Present Neurophysiology Rotation, Kennedy Krieger/Johns Hopkins Neurodevelopmental Disabilities residency, Director
- 2008-Present Research Oversight Committee, Johns Hopkins/Kennedy Krieger Neurodevelopmental Disabilities/Child Neurology Residency, Member

## RESEARCH ACTIVITIES

### Research Focus

The mission of my laboratory is to uncover the processes that lead to the cognitive deficits in developmental disabilities, using behavioral and electrophysiological (EEG) techniques. In particular, our current research focuses on altered skilled motor function in autism, and its relationship to social-communicative deficits, for which we are funded by a K23 and R21. Through a JH Science of Learning grant, we are also focused on distraction and learning to ignore distraction in ADHD. As a preliminary step to our disabilities research, we often publish preliminary findings in neuro-typical adults that are of interest in basic psychology/systems neuroscience in their own right. We have two additional areas of interest. The first is biomarker development, which started with the development of an EEG-based biomarker for Sturge-Weber syndrome and has culminated in a symposium and chapter in the "bible" of clinical EEG. The second is the overlap between epilepsy, EEG findings and developmental disabilities.

### Research Program Building / Leadership

- 2007- Director, Kennedy Krieger Institute Research Neurophysiology Laboratory. Our work has two strands: (1) advancing knowledge about physiological alterations that underlie cognitive impairments in developmental disabilities (via EEG), and (2) as a highly collaborative scalp EEG laboratory, providing research services and collaborations for/with multiple investigators. As part of this, the laboratory has developed an informal team of collaborators from Neurology, Neuropsychology, Psychological and Brain Sciences, Biomedical Engineering and Biostatistics, and have provided opportunities for students and faculty in all of these groups.

## ORGANIZATIONAL ACTIVITIES

### Institutional Administrative Appointments

- 2000-2002 Resident Observer, Bioethics Committee, Cincinnati Children's Hospital Medical Center
- 2005-2006 Medical Records Committee – Kennedy Krieger Institute
- 2007-2013 Bioethics Committee – Kennedy Krieger Institute
- 2008-2010 Executive Committee of the Medical Staff, Member-at-Large – Kennedy Krieger Institute
- 2011-Present Neurology K and First-Time R Grant Internal Review Committee – Johns Hopkins University School of Medicine Department of Neurology
- 2013 KKI Ethics Committee Chair Search Committee/Strategic Planning Committee

### Editorial Activities

Journal peer review activities

- 2011- Ad hoc reviewer, *BioMed Central Neuroscience*
- 2011- Ad hoc reviewer, *Developmental Neuropsychology*
- 2011- Abstract reviewer, Human Brain Mapping Annual Meeting (annually)

- 2012- Ad hoc reviewer, *Frontiers in Neurology*
- 2012- Ad hoc reviewer, *Research in Developmental Disabilities*
- 2013- Ad hoc reviewer, *PLoS ONE*
- 2013- Ad hoc reviewer, *Medical and Biological Engineering and Computing*
- 2013- Ad hoc reviewer, *Journal of Clinical Neurophysiology*
- 2014- Ad hoc reviewer, *Cerebral Cortex*
- 2014- Ad hoc reviewer, *Neurology*
- 2014- Ad hoc reviewer, *Frontiers in Human Neuroscience*
- 2015- Ad hoc reviewer, *Epilepsia*
- 2015- Ad hoc reviewer, *Psychological Science*
- 2015- Ad hoc reviewer, *Journal of the Neurological Sciences*
- 2016- Ad hoc reviewer, *Genes*
- 2016- Ad hoc reviewer, *Journal of Autism and Developmental Disabilities*

### **Advisory Committees, Review Groups/Study Sections**

- 2007-Present Epilepsy Foundation of the Chesapeake Region, Professional Advisory Board, Member
- 2008-Present Neurobehavioral Research Unit Protocol Review Subcommittee, Voting Member
- 2008 Sleep Subcommittee, Autism Treatment Network, Member
- 2012 Rita G. Rudel Award (International Neuropsychological Society), Ad Hoc Reviewer
- 2013 Johns Hopkins Alzheimer's Disease Research Center Pilot Project Award, Ad Hoc Reviewer
- 2014 NIH Study Section CPDD, Early Career Reviewer (Ad Hoc)
- 2014 National Institute of Standards and Technology and US-Israel Binational Industrial Research and Development Foundation, Ad Hoc Reviewer

### **Professional Societies**

- 1998- American Medical Association
- 2000- American Academy of Pediatrics (Fellow)
- 2002- Kennedy Fellows' Association  
Treasurer, 2008-2010
- 2003- American Academy of Neurology
- 2004- Child Neurology Society  
Resident Liaison, Section on Neurodevelopmental Disabilities, 2005-2006
- 2006- American Epilepsy Society
- 2007- American Clinical Neurophysiology Society (Elected Fellow, 2012)  
Member, Sleep Committee, 2010-2011  
Member, Clinical Research Committee, 2014-2015  
Program Committee, Combined ACNS/International Federation of Clinical Neurophysiology Meeting, 2018
- 2008-2009 Cognitive Neuroscience Society
- 2009- Organization for Human Brain Mapping
- 2009- Society for Neuroscience
- 2016- International Society for Autism Research

### **Conference Organizer**

- JHMI/Regional
- 2010-2012 Founder/Organizer, Regional EEG/ERP Research Meetings, Baltimore, MD
- 2012 Co-Organizer, "An Update on Brain Injury and Epilepsy," Epilepsy Foundation of the Chesapeake Region, Baltimore, MD
- 2012 Organizer, "EEG/ERP Research Bootcamp," Kennedy Krieger Institute, Baltimore, MD (attendees from across the country)

### **International**

- 2018 Program Committee, Combined American Clinical Neurophysiology Society/International Federation of Neurophysiology Societies Congress, Washington, DC

## Session Chair

### JHMI/Regional

- 2013 Host/Organizer, Epilepsy Forum for Parents, in conjunction with JHH and the Epilepsy Foundation of the Chesapeake Region, Baltimore, MD
- 2015 Organizer, "Rationality and Bias in the Consent Process: Perspectives from Behavioral Economics and the Social Sciences," Berman Institute of Bioethics Seminar Series, Baltimore, MD

### National

- 2013 Co-Organizer, "Performing Clinical Neurophysiology Testing in Children with Neurodevelopmental Disabilities" Symposium, American Society of Electroneurodiagnostic Technologists Annual Meeting, Reno, NV
- 2014 Director, "EEG as a Basic Neuroscience and Psychology Research Tool" Symposium, American Clinical Neurophysiology Society, Annual Meeting, Atlanta, GA

## Consultantships

- 2007 Desmond Lab (TMS), Seizure Response, Consultant
- 2007-Present ERP/Research EEG Lab Design consulting, for various local and national colleagues
- 2007-Present R01 NS078311, "The Multiple Components of Motor Memory" (PI: R. Shadmehr), Consultant for seizure response in TMS research
- 2008 KKI Sedation Policy Working Group, Consultant
- 2010 KKI School Seizure Protocol, Consultant
- 2011 KKI Inpatient Unit, Seizure Response Protocol Committee, Member/Consultant
- 2016 Vanderbilt Kennedy Center/IDDRC Psychophysiology Laboratory (Nashville, TN), research EEG signal processing consultation

## RECOGNITION

### Awards, Honors

- 1999 B. Bernard Weinstein Award for Best Original Research, Tulane History of Medicine Society
- 2013 Top Doctors, "2013 Washington, DC-Baltimore-Northern Virginia Rising Stars"
- 2014 Neurobiology of Disease in Children Young Investigator Program Travel Stipend

### Invited Talks

#### JHMI/Regional

- 2010 "Autism: Praxis and Cerebral Connectivity," Regional EEG/ERP Research Meeting, Baltimore, MD
- 2012 "EEG Fundamentals," Regional EEG/ERP Research Meeting, Baltimore, MD
- 2015 "EEG Measures of Altered Cerebral Connectivity in Autism," Inaugural Indo-US Neuroscience Conference, Baltimore, MD
- 2016 "Role of Inhibition in Attention and Ignoring," US Army Research Laboratory, Aberdeen, MD

#### National

- 2003 "Quantitative Brain Imaging in ADHD," Kennedy Fellows' Association Annual Meeting, Williamsburg, VA
- 2006 "Squiggly Lines: Beyond Epilepsy" (use of event-related potentials and quantitative EEG in research and clinical practice in neurodevelopmental disabilities), Kennedy Fellows' Association Annual Meeting, Williamsburg, VA
- 2010 "Philosophy of Egyptian Medicine," Brown University Department of Egyptology and Ancient Western Asian Studies, Providence, RI
- 2014 Panel Member and Case Discussant, Neurodevelopmental Disabilities Special Interest Group, Child Neurology Society Annual Meeting, Columbus, OH
- 2015 "Implications of Epilepsy for Peri-Operative Care," Grand Rounds, Shriners Hospital, Honolulu, HI
- 2015 "How the NDD Fellowship Prepares Trainees for Academic Careers," Kennedy Fellows' Association Annual Meeting, Williamsburg, VA
- 2016 "Ignoring to Attend & Imitation Deficits in ASD," Perception, Action and Cognition Laboratory, Brown University Department of Cognitive, Linguistic & Psychological Sciences, Providence, RI.
- 2016 "Dissimultaneous Apraxia in ASD," Heilman Laboratory, University of Florida, Gainesville, FL

- 2016 Imitation in Autism: Impaired Coordination, Department of Pediatrics, Michigan State University, Lansing, MI
- 2017 “Altered Network Dynamics in ASD,” American Clinical Neurophysiology Society Annual Meeting, Phoenix, AZ.
- International
- 2010 “Autism: Praxis and Cerebral Connectivity,” INSERM U821 (Dynamique Cérébrale et Cognition), Lyon, France
- 2015 “Test-Retest in EEG: Is the EEG ‘Better?’” Epilepsiezentrum Rosenhügel, Vienna, Austria
- 2017 TBD, Workshop “Time for Action: Reaching for a Better Understanding of the Dynamics of Cognition,” Psychonomic Society Meeting, Vancouver, BC, Canada

## **OTHER PROFESSIONAL ACCOMPLISHMENTS**

### Oral/Podium Presentations

- 2009 “Quantitative EEG Can Predict Clinical Changes in Individuals with Sturge-Weber Syndrome” (platform presentation), International Child Neurology Congress, Cairo, Egypt
- 2012 Moher, J., Lakshmanan, B.M., Egeth, H.E., & Ewen, J. (2012, March). Perseveration in attention: Inhibitory feature-based attentional sets automatically carry over to novel task contexts. Talk presented at the annual Conference on Information Sciences and Systems (CISS), Princeton, NJ. Presented by Jeff Moher.
- 2013 “Inhibition Drives Early Feature-Based Attention,” Psychonomic Society, Toronto, ON (presented by Howard Egeth)
- 2015 Blacker, K.J., Vergara, A., Ewen, J.B., & Courtney, S.M. Distinct oscillatory effects of load on working memory for spatial relations vs. locations. Nanosymposium presented at the Society for Neuroscience annual meeting, Chicago, IL (October 2015).
- 2015 “Predictors of Epilepsy in Children with ASD from a Large National US Sample,” International Meeting for Autism Research, Salt Lake City, UT (Primary research/CME presentation)
- 2015 “Praxis-Related Alterations of Cortical Oscillations in Children with Autism: Associations with Symptom Severity, Repetitive Behaviors and Motor Planning,” International Meeting for Autism Research, Salt Lake City, UT (Primary research/CME presentation)
- 2015 “Predictors of Epilepsy in Children with ASD from a Large National US Sample,” Pediatric Academic Society, San Diego, CA (Primary research/CME presentation; presented by co-author Paul Lipkin)
- 2015 “Quantitative EEG as a Useful Clinical Tool in Sturge-Weber Syndrome,” NINDS-Funded Sturge-Weber Workshop: Leveraging a Gene Discovery; An Agenda for Future Research, Bethesda, MD
- 2015 Cunningham CA, Ewen JB, & Egeth HE. “Inhibition Drives Early Feature-based Attention (even when there are multiple distractor features).” Object Perception, Attention, and Memory (OPAM), Chicago, Illinois. November 2015.

### Community Services

- 2009-2011 Sailing buddy, Downtown Sailing Center Accessible Sailing Program
- 2013-Present Research Initiatives for Student Enhancement program, Kennedy Krieger Institute, Preceptor

### Philanthropic Activities

I am currently the vice president and head of strategic planning for the Downtown Sailing Center (DSC). I have been a member of the DSC since 2008 and have been active in organizational activities since around 2010. I helped initiate the collaboration between KKI and the DSC on adaptive sailing, which has subsequently garnered national academic and media attention. The DSC was named US Sailing’s Community Sailing Center of 2012 and has become a strong Baltimore non-profit.