

CURRICULUM VITAE
The Johns Hopkins University School of Medicine

January, 2020

William S. Anderson, Ph.D., M.D.

DEMOGRAPHIC AND PERSONAL INFORMATION

Current Appointments

2013-present Associate Professor of Neurosurgery, The Johns Hopkins University School of Medicine
2011-present Attending Neurosurgeon, The Johns Hopkins Hospital
2019-present The A. Earl Walker, MD Professorship in Functional Neurosurgery

Personal Data

The Johns Hopkins Hospital
Department of Neurosurgery, Meyer 8-181
600 N Wolfe Street
Baltimore, MD 21287
Phone: +1(443)287-1609
Fax: +1(443)287-8044

Education and Training:

Undergraduate

1990 B.S., (*summa cum laude*), Physics, Texas A&M University

Doctoral Graduate

1992 M.A., Physics, Princeton University
1997 Ph.D., Physics, Princeton University
2001 M.D., The Johns Hopkins University

Postdoctoral

2001-02 Intern, General Surgery, The Johns Hopkins Hospital
2002-08 Resident, Neurosurgery, The Johns Hopkins Hospital

Professional Experience:

2008-10 Instructor of Surgery, Harvard Medical School
2008-10 Associate Surgeon, The Brigham and Women's Hospital
2011-13 Assistant Professor of Neurosurgery, The Johns Hopkins University School of Medicine
2011-pres Attending Neurosurgeon, The Johns Hopkins Hospital
2012-pres Core Faculty, Institute for Computational Medicine, The Johns Hopkins University, Whiting School of Engineering
2013-pres Associate Professor of Biomedical Engineering, The Johns Hopkins University

RESEARCH ACTIVITIES

Peer Reviewed Original Science Publications:

1. **Anderson WS**, Armitage JC, Dunn E, Heinrich JG, Lu C, McDonald KT, Weckel J, Zhu Y. Electron attachment, effective ionization coefficient, and electron drift velocity for CF₄ gas mixtures. *Nucl Instr Meth* 1992;A323:273-279.
2. Young AR, **Anderson WS**, Calaprice FP, Cates GD, Jones GL, Krieger DA, Vogelaar RB. Laser oriented 36K for time reversal symmetry measurements. *Phys Rev C* 1995; 52:R464-R467.
3. **Anderson WS**. Development of a Test of Time Reversal Invariance in 19Ne Beta Decay. Doctoral dissertation. Princeton University 1997.
4. **Anderson WS**, Sheth RN, Bencherif B, Frost JJ, Campbell JN. Naloxone increases pain induced by topical capsaicin in healthy human volunteers. *Pain* 2002;99:207-216.

5. Kim JH, Veldhuijzen D, **Anderson WS**, Lee J-I, Lee H-T, Ohara S, Lenz FA. Pain and temperature encoding in the human thalamic somatic sensory nucleus (ventra caudal – Vc): Inhibition-related bursting mediates sensations evoked by somatic stimuli. *Thal Rel Sys* 2005; 3(4):305-314.
6. Ohara S, **Anderson WS**, Lawson HC, Lee HT, Lenz FA. Endogenous and exogenous modulators of potentials evoked by a painful cutaneous laser (LEPs). *Acta Neurochir* 2006;99:77-79.
7. **Anderson WS**, Ohara S, Lawson HC, Treede R-D, Lenz FA. Plasticity of pain-related neuronal activity in the human thalamus. *Prog Brain Res* 2006;157:353-364.
8. **Anderson WS**, Kudela P, Cho RJ, Bergey GK, Franaszczuk P. Studies of stimulus parameters for seizure disruption using neural network simulations. *Biol Cybern* 2007;97:173-194.
9. **Anderson WS**, Lawson HC, Belzberg AJ, Lenz FA. Selective denervation of the levator scapulae muscle: an amendment to the Bertrand procedure for the treatment of spasmodic torticollis. *J Neurosurg* 2008;108:757-763.
10. **Anderson WS**, Kossoff EH, Bergey GK, Jallo GI. Implantation of a responsive neurostimulator in patients with refractory epilepsy. *Neurosurg Focus* 2008;25(3):E12.
11. **Anderson WS**, Weinberg S, Kudela P, Bergey GK, Franaszczuk PJ. Phase dependent stimulation effects on bursting activity in a neural network cortical simulation. *Epi Res* 2009;84:42-55.
12. **Anderson WS**, Weiss N, Lawson HC, Ohara S, Rowland L, Lenz FA. Demonstration of imagined- and phantom-movement related neuronal signals in human thalamus. *Neuroreport* 2011;22(2):78-82.
13. Truccolo W, Donoghue J, Hochberg L, Eskandar E, Madsen JR, **Anderson WS**, Halgren E, Cash SS. Single neuron dynamics during human focal seizures. *Nature Neurosci* 2011;14(5):635-641.
14. Santaniello S, Burns SP, Madsen J, Singer J, **Anderson WS**, Sarma SV. Quickest detection of seizure onsets in drug-resistant patients: An optimal control approach. *Epilepsy and Behavior* 2011;22:49-60.
15. **Anderson WS**, Azhar F, Kudela P, Bergey GK, Franaszczuk PJ. Epileptic seizures from abnormal networks: Why some seizures defy predictability. *Epi Res* 2012;99(3):202-213.
16. Peyrache A, Dehghani N, Eskandar E, Madsen J, **Anderson WS**, Donoghue J, Hochberg L, Halgren E, Cash S, Destexhe A. Spatio-temporal dynamics of neocortical excitation and inhibition during human sleep. *PNAS* doi: 10.1073/pnas.1109895109.
17. Chen LL, Madhavan R, Rapoport BI, **Anderson WS**. A method for real-time cortical oscillation detection and phase-locked stimulation. *Conf Proc IEEE Eng Med Biol Soc* 2011;2011:3087-3090.
18. Azhar F, **Anderson WS**. Prediction of single neuron spikes in sensorimotor cortex may reflect generic properties of locally connected networks. *Neural Comp* 2012;24(10):2655-2677.
19. Bansal A, Singer J, **Anderson WS**, Golby A, Madsen J, Kreiman G. Temporal stability of visually selective responses in intracranial field potentials recorded from human occipital and temporal lobes. *J Neurophysiol* 2012;108(11):3073-3086.
20. Lewis LD, Weiner VS, Mukamel EA, Donoghue JA, Eskandar EN, Hochberg L, Madsen JR, **Anderson WS**, Cash SS, Brown EN, Purdon PL. Rapid fragmentation of neuronal networks at the onset of propofol-induced unconsciousness. *PNAS* doi:10.1073/pnas.121090109.
21. Hotson G, Fifer MS, Acharya S, **Anderson WS**, Thakor NV, Crone NE. Electrographic decoding of ipsilateral reach in the setting of contralateral arm weakness from a cortical lesion. *Conf Proc IEEE Eng Med Biol Soc* 2012;2012:4104-4107.
22. Burns SP, Sritharan D, Jouny C, Bergey G, Crone N, **Anderson WS**, Sarma SV. A network analysis of the dynamics of seizure. *Conf Proc IEEE Eng Med Biol Soc* 2012;2012:4684-4687.
23. Chen LL, Madhavan R, Rapoport BI, **Anderson WS**. Real-time brain oscillation detection and phase-locked stimulation using autoregressive spectral estimation and forward prediction. *IEEE Trans Biomed Eng* 2013;60(3):753-762. PMID: 21292589.
24. Fifer M, Hotson G, Brock W, Wang Y, Johannes M, Katyal K, Helder J, Para M, Vogelstein RJ, **Anderson W**, Thakor N, Crone N. Intuitive online ECoG control of reaching and grasping with the modular prosthetic limb. *Trans Neural Systems Rehab Eng* 2014;22(3):695-705.
25. McMullen D, Hotson G, Fifer MS, Katyal KD, Wester BA, McGee TG, Harris A, Johannes MS, Vogelstein RJ, **Anderson WS**, Thakor NV, Crone NE. Demonstration of a semi-autonomous hybrid brain-machine interface using human intracranial EEG, eye tracking, and computer vision to control a robotic upper limb prosthetic. *IEEE Trans Neural Sys Rehab Eng* 2014;22(4):784-796.
26. Hao S, Subramanian S, Jordan A, Yaffe R, Santaniello S, Jouny C, Bergey G, **Anderson WS**, Sarma SV. Computing network-based features from intracranial EEG time series data: Application to seizure focus localization. *Conf Proc IEEE Eng Med Biol Soc* 2014;2014:5812-5815.
27. Basu I, Kudela P, **Anderson WS**. Determination of seizure propagation across microdomains using spectral measures of causality. *Conf Proc IEEE Eng Med Biol Soc* 2014;2014:6349-6352.
28. Tang H, Buia C, Madhavan R, Crone N, Madsen J, **Anderson WS**, Kreiman G. Spatiotemporal dynamics underlying object completion in human ventral visual cortex. *Neuron* 2014;83(3):736-748.

29. Eliades S, Crone N, **Anderson W**, Ramadoss D, Lenz F, Boatman-Reich D. Adaptation of auditory high-gamma responses in human cortex. *J Neurophysiol* 2014;**112**(9):2147-2163.
30. Burns SP, Santaniello S, Yaffe RB, Jouny C, Crone N, Bergey G, **Anderson WS**, Sarma SV. Network dynamics of the brain and influence of the epileptic seizure onset zone. *PNAS* 2014; **111**(49):E5321-E5330.
31. Madhavan R, Millman D, Tang H, Crone NE, Lenz FA, Tierney TS, Madsen JR, Kreiman G, **Anderson WS**. Decrease in gamma-band activity tracks sequence learning. *Front Syst Neurosci* 2014;**8**:222.
32. Singer J, Madsen J, **Anderson W**, Kreiman G. Sensitivity to timing and order in human visual cortex. *J Neurophysiol* 2015;**113**(5):1656-1669.
33. Veerakumar A, Cheng JJ, Sunshine A, Zorowitz RD, **Anderson WS**. Baclofen dosage after traumatic spinal cord injury: A multi-decade retrospective analysis. *Clin Neurol Neurosurg* 2015;**129**:50-56.
34. Hotson G, Fifer MS, Acharya S, Benz H, **Anderson WS**, Thakor NV, Crone NE. Coarse electrocorticographic decoding of ipsilateral reach in patients with brain lesions. *PLOS One* 2014;**9**(12):e115236.
35. Qureshi A, Cheng J, Sunshine A, Wu A, Pontone G, Cascela N, Lenz F, Grill S, **Anderson WS**. Postoperative symptoms of psychosis after deep brain stimulation in Parkinson's patients. *Neurosurg Focus* 2015;**38**(6):E5.
36. Holroyd KB, Fosdick L, Smith G, Leoutsakos J-M, Munro C, Oh E, Drake K, Rosenberg PB, **Anderson WS**, Salloway S, Pendergrass C, Burke A, Wolk DA, Tang-Wai DF, Ponce FA, Assad WF, Sabbagh M, Okun MS, Baltuch G, Foote KD, Targum S, Lozano AM, Lyketsos CG. Deep brain stimulation targeting the fornix for mild Alzheimer Dementia: Design of the Advance randomized controlled trial. *Clin Trials: Accepted*, April 2015.
37. McMullen DP, Rosenberg P, Cheng J, Smith GS, Lyketsos C, **Anderson WS**. Bilateral cortical encephalomalacia in a patient implanted with bilateral deep brain stimulation for Alzheimer's Disease: Case report. *Alzheimer Dis Assoc Disord* 2015 PMID: PMC4592682.
38. Basu I, Kudela P, Korzeniewska A, Franaszczuk P, **Anderson WS**. A study of the dynamics of seizure propagation across micro domains in the vicinity of the seizure onset zone. *J Neural Eng* 2015;**12**(4):046016.
39. Ponce FA, Asaad W, Foote KD, **Anderson WS**, Cosgrove GR, Baltuch GH, Beasley K, Fosdick L, Oh ES, Targum SD, Smith GW, Lyketsos CG, Lozano AM. Bilateral fornix deep brain stimulation for Alzheimer's disease: Surgical safety in the ADvance trial. *J Neurosurg* doi/abs/10.3171/2015.6.JNS15716.
40. Kudela P, **Anderson WS**. Computational modeling of subdural cortical stimulation: A quantitative spatiotemporal analysis of action potential initiation in a high density multicompartment model. *Neuromod: Tech Neural Interface* 2015;**18**(7):552-565.
41. Liu CC, Chien JH, Kim JH, Chuang YF, Cheng DT, **Anderson WS**, Lenz FA. Cross-frequency coupling in deep brain structures upon processing the painful sensory inputs. *Neurosci* 2015;**303**:412-421.
42. Wang Y, Fifer M, Flinker A, Korzeniewska A, Cervenka M, **Anderson W**, Boatman D, Crone N. Spatial-temporal functional mapping (STFM) of language with online spectral analysis of electrocorticography. *Neurol* 2016; doi: pii: 10.1212/WNL.0000000000002525.
43. Wei Z, Gordon CR, Bergey GK, Sacks JM, **Anderson WS**. Implant site infection and bone flap osteomyelitis associated with the NeuroPace responsive neurostimulation system. *World Neurosurg* 2016;**88**:687, doi:10.1016/j.wneu.2015.11.106.
44. Hotson G, McMullen D, Fifer M, Johannes M, Para M, Armiger R, **Anderson W**, Thakor N, Brock W, Crone N. Individual finger control of the modular prosthetic limb using high-density electrocorticography in a human subject. *J Neural Eng* 2016;**13**(2):026017.
45. Sacre P, Sarma SV, Guan Y, **Anderson WS**. Electrical neurostimulation for chronic pain: On selective relay of sensory neural activities in myelinated nerve fibers. *Conf Proc IEEE Eng Med Biol Soc* 2015;**2015**:4705-4708.
46. Tang H, Yu H-Y, Chou C-C, Crone NE, Madsen JR, **Anderson WS**, Kreiman G. Cascade of neural processing orchestrates cognitive control in human frontal cortex. *eLife*: 2015-19739, Accepted, Feb, 2016.
47. Salimpour Y, Wei Z, Phan D, **Anderson WS**. Does transcranial direct current stimulation actually deliver DC stimulation. *Brain Stimulation* doi: 10.1016/j.brs.2016.04.008.
48. Lozano AM, Fosdick L, Chakravarty MM, Leoutsakos JM, Munro C, Oh E, Drake KE, Lyman CH, Rosenberg PB, **Anderson WS**, Tang-Wai DF, Pendergrass JC, Salloway S, Asaad WF, Ponce FA, Burke A, Sabbagh M, Wolk DA, Baltuch G, Okun MS, Foote KD, McAndrews M, Giacobbe P, Targum SD, Lyketsos CG, Smith G. *J Alzheimers Dis* 2016; doi:10.3233/JAD-160017.
49. Taylor J, **Anderson WS**, Brandt J, Mari Z, Pontone GM. Neuropsychiatric complications of Parkinson disease treatments: Importance of multidisciplinary care. *Am J Geriatr Psych* 2016; doi: 10.1016/j.jagp.2016.08.017.
50. Babajani-Feremi A, Wheless JW, Papanicolaou JW, Wang Y, Fifer MS, Flinker A, Korzeniewska A, Cervenka MC, **Anderson WS**, Boatman-Reich DF, Crone NE. Spatial-temporal functional mapping of language at the bedside with electrocorticography. *Neurol* 2016;**87**(24):2604.
51. Boothe DL, Yu AB, Kudela P, **Anderson WS**, Vettel J, Franaszczuk PJ. Impact of neuronal membrane damage on the local field potential in a large scale simulation of cerebral cortex. *Front Neurol* 2017;**8**:236.

52. Gordon CR, Santiago GF, Huang J, Bergey GK, Liu J, Armand M, Brem H, **Anderson WS**. First in-human experience with complete integration of neuromodulation device within a customized cranial implant. *Operative Neurosurg* 2018;**15**(1):39-45.
53. Salimpour Y, Chang-Chia L, Webber WR, Mills KA, **Anderson WS**. Subdural recordings from an awake human brain for measuring current intensity during transcranial direct current stimulation. *Conf Proc IEEE EMBS 2017*;2017:1110-1113.
54. Sadashivaiah V, Sacre P, Guan Y, **Anderson WS**, Sarma SV. Modeling electrical stimulation of mammalian nerve fibers: A mechanistic versus probabilistic approach. *Conf Proc IEEE EMBS 2017*;2017:3868-3871.
55. Salimpour Y, Chien J-H, Liu C-C, Lee S, Guadix S, Mills KA, **Anderson WS**. Touch-free reaching task for Parkinson's disease patients: A motion sensing approach. *Conf Proc IEEE EMBS 2017*;2017:3918-3921.
56. Gault JM, Davis R, Cascella NG, Saks ER, Corripio-Collado I, **Anderson WS**, olincy A, Thompson JA, Pomarol-Clotet E, Sawa A, Daskalakis ZJ, Lipsman N, Abosch A. Approaches to neuromodulation for schizophrenia. *J Neurol Neurosurg Psych* 2017; doi: 10.1136/jnnp-2017-316946.
57. Martinez-Ramirez D, Jimenez-Shahed J, Leckman JF, Porta M, Servello D, Meng FG, Kuhn J, Huys D, Baldermann JC, Foltynie T, Hariz MI, Joyce EM, Zrinzo L, Kefalopoulou Z, Silburn P, Coyne T, Mogilner AY, Pourfar MH, Khandhar SM, Auyeung M, Ostrem JL, Visser-Vandewalle V, Welter ML, Mallet L, Karachi C, Houeto JL, Klassen BY, Ackermans L, Kaido T, Temel Y, Gross RE, Walker HC, Lozano AM, Walter BL, Mari Z, **Anderson WS**, Changizi BK, Moro E, Zauber SE, Schrock LE, Zhang JG, Hu W, Rizer K, Monari EH, Foote KD, Malaty IA, Deeb W, Gunduz A, Okun MS. Efficacy and safety of deep brain stimulation in Tourette syndrome: The international Tourette syndrome deep brain stimulation public database and registry. *JAMA Neurol* 2018; doi: 10.1001/jamaneurol.2017.4317.
58. Usami K, Milsap GW, Korzeniewska A, Collard MJ, Wang Y, Lesser RP, **Anderson WS**, Crone NE. Cortical responses to input from distant areas are modulated by local spontaneous alpha/beta oscillations. *Cereb Cortex* 2018;doi: 10.1093/cercor/bhx361.
59. Wolff A, Santiago GF, Belzberg M, Huggins C, Lim M, Weingart J, **Anderson W**, Coon A, Huang J, Brem H, Gordon C. Adult cranioplasty reconstruction with customized cranial implants: Preferred technique, timing, and biomaterials. *J Craniofac Surg* 2018; doi:10.1097/SCS.0000000000004385.
60. Sadashivaiah V, Sacré P, Guan Y, **Anderson WS**, Sarma SV. Studying the interactions in a mammalian nerve fiber: A functional modeling approach. *Conf Proc IEEE EMBS 2018*;2018.
61. Sadashivaiah V, Sacré P, Guan Y, **Anderson WS**, Sarma SV. Selective relay of afferent sensory induced action potentials from peripheral nerve to brain and the effects of electrical stimulation. *Conf Proc IEEE EMBS 2018*;2018.
62. Moly A, Luan S, Mari Z, **Anderson WS**, Salimpour Y, Constandinou T, Grand L. Embedded phase-amplitude coupling based closed-loop platform for Parkinson's disease. *Conf Proc IEEE EMBS 2018*;2018:527-530.
63. Palepu A, Premanathan CS, Azhar F, Vendrame M, Loddenkemper T, Reinsberger C, Kreiman G, Parkerson K, Sarma SV, **Anderson WS**. Development of an automated interictal spike detector. *Conf Proc IEEE EMBS 2018*;2018.
64. Boone CE, Wojtasiewicz T, Moukheiber E, Butala A, Jordao L, Mills KA, Sair H, **Anderson WS**. MR-guided functional neurosurgery: Laser ablation and deep brain stimulation. *Top Magn Reson Imaging* 2018;**27**(3):171-177.
65. Leoutsakos JS, Yan H, **Anderson WS**, Asaad WF, Baltuch G, Burke A, Chakravarty MM, Drake KE, Foote KD, Fosdick L, Giacobbe P, Mari Z, McAndrews MP, Munro CA, Oh ES, Okun MS, Pengergrass JC, Ponce FA, Rosenberg PB, Sabbagh MN, Salloway S, Tang-Wai DF, Targum SD, Wolk D, Lozano AM, Smith GS, Lyketsos CG. Deep brain stimulation targeting the fornix for mild Alzheimer dementia (the Advance Trial): A two year follow-up including results of delayed activation. *J Alzheimers Dis* 2018; doi: 10.3233/JAD-180121.
66. Kudela P, Boatman-Reich D, Beeman D, **Anderson WS**. Modeling neural adaptation in auditory cortex. *Front Neural Circ* 2018;**12**:72.
67. Li A, Chennuri B, Subramanian S, Yaffe R, Gliske S, Stacey W, Norton R, Jordan A, Zaghoul KA, Inati SK, Agrawal S, Haagenen JJ, Hopp J, Atallah C, Johnson E, Crone N, **Anderson WS**, Fitzgerald Z, Bulacio J, Gale JT, Sarma SV, Gonzalez-Martinez J. Using network analysis to localize the epileptogenic zone from invasive EEG recordings in intractable focal epilepsy. *Netw Neurosci* 2018;**2**(2):218-240.
68. Sheth NM, Zbijewski W, Jacobson MW, Abiola G, Kleinszig G, Vogt S, Soellradl S, Bialkowski J, **Anderson WS**, Weiss CR, Osgood GM, Siewerdsen JH. Mobile C-Arm with a CMOS detector: Technical assessment of fluoroscopy and cone-beam CT imaging performance. *Med Phys* 2018;doi: 10.1002/mp.13244.
69. Sadshivaiah V, Sacré P, Guan Y, **Anderson WS**, Sarma SV. Modeling the interactions between stimulation and physiologically induced APs in a mammalian nerve fiber: Dependence on frequency and fiber diameter. *J Comp Neurosci* <https://doi.org/10.1007/s10827-018-0703-y>
70. Palepu A, Premanathan S, Azhar F, Vendrame M, Loddenkemper T, Reinsberger C, Kreiman G, Parkerson KA, Sarma S, **Anderson WS**. Automating interictal spike detection: Revisiting a simple threshold rule. *Conf Proc IEEE EMBS 2018*;2018: 299-302.
71. Sadashivaiah V, Sacre P, Guan Y, **Anderson WS**, Sarma SV. Studying the interactions in a mammalian nerve fiber: A functional modeling approach. *Conf Proc IEEE EMBS 2018*; **2018**: 3525-3528.

72. Sadashivaiah V, Sacre P, Guan Y, **Anderson WS**, Sarma SV. Selective relay of afferent sensory-induced action potentials from peripheral nerve to brain and the effects of electrical stimulation. *Conf Proc IEEE EMBS 2018*; **2018**: 3606-3609.
73. Phan QD, Negoita S, Mahajan U, **Anderson WS**. Timing and prevalence of revision and removal surgeries after spinal cord stimulator implantation. *J Clinical Neurosci* 2019;**62**:80-82.
74. Madhavan R, Bansal AK, Madsen JR, Golby AJ, Tierney TS, Eskandar EN, **Anderson WS**, Kreiman G. Neural interactions underlying visuomotor associations in the human brain. *Cereb Cortex* 2018; doi: 10.1093/cercor/bhy333.
75. Thomas TM, Candrea DN, Fifer MS, McMullen DP, **Anderson WS**, Thakor NV, Crone NE. Decoding native cortical representations for flexion and extension at upper limb joints using electrocorticography. *IEEE Trans Neural Syst Rehab Eng* 2019; doi:10.1109/TNSRE.2019.2891362.
76. Salimpour Y, **Anderson WS**. Cross-frequency coupling based neuromodulation for treating neurological disorders. *Front Neurosci* 2019; doi: 10.3389/fnins.2019.00125.
77. Mills K, Pontone G, **Anderson WS**, Perepezko K, Brasic J, Zhou Y, Brandt J, Butson C, Holt D, Matthews W, Dannals R, Wong D, Mari Z, Smith G. Effect of STN DBS on vesicular monoamine transporter 2 and glucose metabolism in Parkinson's disease. *Parkinsonism and Rel Disord*; doi: 10.1016/j.parkreldis.2019.04.006.
78. Duy PQ, Negoita S, Mahajan UV, Diab NS, Paranjpe MD, **Anderson WS**. Description and assessment of a neurosurgery shadowing and research program. *Transl Neurosci* 2019;**10**:195-199.
79. Strikwerda AC, Sleasman T, **Anderson W**, Awadallah R. Sub-wavelength focusing in inhomogeneous media with a metasurface near field plate. *Sensors* 2019;**19**:4534, doi: 10.3390/s19204534.
80. Siewerdsen JH, Adrales G, **Anderson WS**, Carey J, Creighton P, DiBrito S, Galaiya D, Marohn M, McNutt T, Osgood G, Theodore N, Weiss CR, Viswanathan AN. Surgineering: Curriculum concept for experiential learning in upper-level biomedical engineering. *Int J Comp Assisted Rad Surg* 2019; Accepted November, 2019.

Extramural Funding:

Current

- | | |
|--------------------|--|
| 7/1/2018-6/30/2019 | Development of a Focused Microwave NeuroAblation System
Johns Hopkins Discovery Award
\$100,000/yr X 1 year
PI: W.S. Anderson, 5% |
| 9/1/2017-8/31/2020 | Neuronal Mechanisms of Human Episodic Memory
1U01NS103792
NIH-NINDS U01 (Brain Initiative)
\$122,137/yr X 3 years
PI: U. Rutishauser
Co-PI, 5% |
| 9/1/2016-8/31/2019 | Subthalamic and Corticosubthalamic Coding of Speech Production
1U01NS098969
NIH-NINDS U01 (Brain Initiative)
\$32,466/yr X 3 years
PI: M. Richardson
Co-PI (with M. Richardson & N Crone), 5% |
| 8/1/2016-5/31/2020 | Towards Pain Control: Synergizing Computational and Biological Approaches to Develop a Tractable Model of the Dorsal Horn Circuit
R01AT009401
NIH/NSF CRCNS
\$57,847/yr X 4 years
PI: S. Sarma
Co-PI (with S. Sarma and Y Guan), 8% |

Previous

- | | |
|---------------------|--|
| 9/30/2012-8/31/2017 | Deep Brain Stimulation for Alzheimer's Disease
1R01AG042165-01A1 PAR-11-100
NIH R01
\$461561/yr X 5 years |
|---------------------|--|

PI: A.M. Lozano, C.G. Lyketsos
Co-I, 8%

- 8/1/2014-7/31/2017 Multi-scale Dynamics of Cortical Adaptation for Human Auditory Detection
W911NF-12-R-0012-02 Proposal No. 65459-LS
\$58,580/yr X 3 years
CoPI (with D. Boatman): W.S. Anderson, 10%
- 4/1/2010-3/31/2015 Computational Modeling of Epileptic Activity Using a Hybrid Compartment Technique
NIH-NINDS K08 (1K08NS066099-01A1)
NIH / NINDS
\$1,378,890
PI: W.S. Anderson, 50%
- 10/1/2012-9/30/2015 Biophysical Model of Cortical Dynamics
W911NF-12-R-0012
Department of the Army
\$276,390
PI: W.S. Anderson, 1%
- 1/1/2014-12/31/2015 Active Computational Modeling of Spinal Cord Stimulation
The Neurosurgery Pain Research Institute at Johns Hopkins Award
\$80,000/yr X 2 years
PI: W.S. Anderson, 0%
- 9/1/2014-8/31/2015 A Novel Tool for Seizure Localization in Medically Refractive Epilepsy
Coulter Foundation Translational Research Award
\$100,000 X 1 year
CoPI (with S. Sarma & N. Crone): W.S. Anderson, 7.5%
- 7/1/2005-6/30/2006 Studies of Stimulus Parameters for Seizure Disruption using Neural Network Simulations
Research and Training Fellowship for Clinicians
Epilepsy Foundation
\$50,000
PI: W.S. Anderson, 100%
- 8/1/2008-7/31/2011 BWH Startup Fund (W. Stanley Anderson Research Fund)
The Brigham and Women's Hospital Department of Neurosurgery
\$300,000
PI: W.S. Anderson, 50%
Funds to support the development of computational simulation work, and functional neurosurgery laboratory.
- 4/1/2010-3/31/2012 The Impact of Interictal Spike Events on Visual Object Recognition
Charles H. Hood Foundation Child Health Research Award
The Charles H. Hood Foundation
\$150,000/yr
PI: W.S. Anderson, 1%
- 10/1/2010-9/30/2011 Memory Alteration through Theta Phase-Locked Electrical Stimulation
CIMIT Innovation Grant
Center for Integration of Medicine & Innovative Technology
\$70,000
PI: W.S. Anderson, 1%
Grant relinquished to G. Kreiman, Children's Hospital Boston upon move to Johns Hopkins
- 11/1/2011-8/31/2013 A Study of Spasticity and Pain in Spinal Cord Injury Patients
The Neurosurgery Pain Research Institute at Johns Hopkins Award
\$107,256
PI: W.S. Anderson, 0%

Research Program Building / Leadership:

- 08/ 2008-12/ 2010 Director of Epilepsy Research, Department of Neurosurgery, Brigham and Women's Hospital, Boston, MA
- 01/2011 – present Studies in Deep Brain Stimulation. Performing deep brain stimulation procedures for a variety of experimental protocols: (Obsessive Compulsive Disorder, Schizophrenia, Alzheimer's Disease, Tourette Syndrome, and Dystonia).
- 01/ 2011 – present Studies in Seizure Evolution and Dynamics. Performing computational modeling of evolving epileptiform activity in cortex. Comparative human brain recordings are being made using a wide variety of microelectrode recording systems in our Phase II invasively monitored epilepsy patient population.
- 01/2011 – present Studies on the development of phase-dependent stimulation. This work represents a novel neuromodulation technique with applications in Parkinson's disease and memory.

IRB Activity:

1. JHM IRB NA_00037463 Reclaim DBS Therapy for Obsessive Compulsive Disorder. PI: **W.S. Anderson**. Approved 3/15/2012. Expires 2/22/2018.
2. JHM IRB NA_00073086 Thalamic Deep Brain Stimulation for the Treatment of Refractory Tourette Syndrome. PI: **W.S. Anderson**. Approved 11/29/2012. Expires 5/7/2018. FDA IDE approval granted 9/6/2012. IDE # G120131.
3. JHM IRB NA_00042065 Deep Brain Stimulation in Treatment Resistant Schizophrenia. P.I.: **W.S. Anderson**. Approved 6/12/2012. Expires 1/30/2018. FDA IDE approval granted 4/29/2011. IDE # G110033.
4. JHM IRB NA_00068826 Humanitarian Device Exemption for Deep Brain Stimulation for the Treatment of Dystonia. P.I.: **W.S. Anderson**. Approved 2/2/2012. Expires 6/7/2018.
5. JHM IRB NA_00046436 Computational Modeling of Epileptic Activity Using a Hybrid Compartment Technique. P.I.: **W.S. Anderson**. Approved 3/17/2011. Expires 10/10/2018.
6. JHM IRB NA_00068392 Retrospective Determination of Spasticity Predictors in Spinal Cord Injury Patients. P.I.: **W.S. Anderson**. Approved 12/16/2011. Expires 7/13/2018.
7. JHM IRB NA_00083392 Spike Train and Local Field Potential Analysis of Microelectrode Recordings Derived from Deep Brain Stimulation Surgeries. P.I.: **W.S. Anderson**. Approved 4/17/2013. Expires 2/1/2018.
8. JHM IRB00040308 Real Time Detection and Phase Locked Stimulation During Electrographic Rhythmic Activity in Invasively Monitored Epilepsy Patients. P.I.: **W.S. Anderson**. Approved 11/21/2014. Expires 7/5/2018.
9. JHM IRB00129916 A Survey-Based Study of Dry-Eye Associated Ocular Pain Occurring with other Chronic Pain Syndromes. P.I.: **W.S. Anderson**. Approved 5/12/2017. Expires 5/10/2018.

EDUCATIONAL ACTIVITIES

Educational Publications:

Invited Review Articles

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2. **Anderson WS**. Inhibiting neural regeneration: PTPsigma gets in the way. *Neurosurgery* 2010;**66**(2):N10-11.
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49. Lyketos CG, Smith G, Fosdick L, Leoutsakos J-M, Munro C, Oh E, Drake K, Rosenberg PB, **Anderson WS**, Salloway S, Pendergrass C, Burke A, Wolk DA, Tang-Wai DF, Ponce FA, Asaad WF, Sabbagh M, Okun MS, Baltuch G, Foote KD, Targum SD, Lozano AM. Deep brain stimulation targeting the fornix for mild Alzheimer's disease: Initial results of the ADvance randomized controlled trial. *Clinical Trials on Alzheimer's Disease (CTAD)*, Platform Presentation, Barcelona, Spain, Nov 5-7, 2015.
50. Wang Y, Fifer MS, Flinker A, Korzeniewska A, Cervenka MC, Boatman-Reich D, **Anderson WS**, Crone NE. Comparison of electrocorticography and electrocortical stimulation in mapping classical language areas: A region of interest approach. 2015 Neuroscience Meeting Planner. Chicago, IL: Society for Neuroscience, 2015. Online.
51. Chien J-H, Lenz FA, Schmid A-C, Kim J-H, Cheng DT, **Anderson WS**, Liu C-C. Contextual fear conditioning in humans using painful laser. 2015 Neuroscience Meeting Planner. Chicago, IL: Society for Neuroscience, 2015. Online.
52. Salimpour Y, **Anderson WS**. Transcranial direct current stimulation on deeply stimulated brain: A computational approach. *Neuromodulation 2015, New York City. Brain Stim 2017*; doi: 10.1016/j.brs.2016.11.048.
53. Beeman D, Kudela P, Boatman-Reich D, **Anderson W**. Understanding adaptation in human auditory cortex with modeling. *BMC Neuroscience 2017*, **18**(Suppl 1):P5.
54. Beeman D, Kudela P, Boatman-Reich D, **Anderson W**. Effects of short term synaptic plasticity on stimulus specific adaptation in auditory cortex: A modeling study. 2017 Neuroscience Meeting Planner. Washington, DC: Society for Neuroscience, 2017. Online.
55. Salimpour Y, Mills KA, **Anderson WS**. Investigating possible mechanisms of action of transcranial electric stimulation in Parkinson's disease. 2017 Neuroscience Meeting Planner. Washington, DC: Society for Neuroscience, 2017. Online.
56. Salimpour Y, Mills KA, **Anderson WS**. Dynamic monitoring of phase-amplitude coupling for phase-dependent stimulation. 2017 Neuroscience Meeting Planner. Washington, DC: Society for Neuroscience, 2017. Online.
57. Sheth NM, Jacobson MW, Zbijewski W, Kleinszig G, Vogt S, **Anderson WS**, Weiss C, Osgood G, Siewerdsen JH. Imaging performance of CMOS and a-Si:H flat-panel detectors for C-arm fluoroscopy and cone-beam CT. *SPIE Medical Imaging 2018*.
58. Alexandre M, Luan S, Mari Z, **Anderson WS**, Salimpour Y, Constandinou TG, Grand LB. Embedded phase-amplitude coupling based closed-loop platform for Parkinson's disease. *Biomedical Circuits and Systems Conf 2018*.
59. Santiago G, Huang J, Bergey G, Liu S, Armand M, Brem H, **Anderson W**, Gordon C. 18-month outcome report for first-in-human neuromodulation device integrated within customized cranial implant. Paris, France: ISCSFS 2019.
60. Strikwerda A, Sleasman T, Awadallah R, **Anderson WS**. Analysis and design of near-field plates in the presence of dielectric media. *IEEE Inter Symp Antennas and Propagation 2019*.
61. Nickl R, Thomas T, Thompson M, Anaya M, Candrea D, Fifer MS, McMullen D, Pohlmeier E, Tenore F, Wester B, **Anderson WS**, Crone N, Cantarero G, Celnik P. Modulation of M1 and S1 neurons to action observation, imagery, and execution for brain-machine interface training: Evidence from intracortical recordings. 2019 Neuroscience Meeting Planner. Chicago, IL: Society for Neuroscience, 2019. Online.
62. Thomas TM, Fifer MS, Candrea DN, McMullen DP, Nickl R, Thompson MC, Pohlmeier EA, Anaya M, Cantarero GL, **Anderson WS**, Tenore FV, Celnik P, Wester BA, Crone NE. Neural responses in primary somatosensory cortex to vibrotactile stimulation suggest more overlap in afferent representations of individual digits than sensory perceptions elicited by ICMS. 2019 Neuroscience Meeting Planner. Chicago, IL: Society for Neuroscience, 2019. Online.
63. Fifer MS, Thomas TM, Nickl R, Candrea DN, McMullen DP, Pohlmeier EA, Osborn LE, Thompson MC, Anaya M, Bensmaia SJ, Schellekens W, Ramsey NF, **Anderson WS**, Wester BA, Crone NE, Celnik P, Cantarero GL, Tenore FV. Intracortical microstimulation of bilateral human finger areas of S1 enabled by MRI, fMRI, and intra-operative ECoG mapping. 2019 Neuroscience Meeting Planner. Chicago, IL: Society for Neuroscience, 2019. Online.
64. Xiao Y, Yu H-Y, Chou C-C, Shih Y-C, Madsen JR, Reucroft I, Crone NE, **Anderson WS**, Kreiman G. Task invariant and task dependent neural processes of conflict resolution during cognitive control. 2019 Neuroscience Meeting Planner. Chicago, IL: Society for Neuroscience, 2019. Online.
65. Salimpour Y, Mills KA, **Anderson WS**. Phase-dependent electrical stimulation modulates cross-frequency coupling in Parkinson's disease. 2019 Neuroscience Meeting Planner. Chicago, IL: Society for Neuroscience, 2019. Online.
66. Kaminski J, Chandravadia N, Schjetnan AG, Salimpour Y, Reucroft I, Reed C, Chung JM, **Anderson W**, Valiante T, Mamelak AN, Rutishauser U. Persistent single-neuron activity during working memory predicts strength of long-term memory in humans. 2019 Neuroscience Meeting Planner. Chicago, IL: Society for Neuroscience, 2019. Online.
67. Mitchell K-A, **Anderson WS**, Shay T, Huang J, Luciano M, Suarez JI, Manson P, Brem H, Gordon C. First in-human experience: Integration of a wireless intracranial pressure monitoring device within a customized cranial implant. Chicago, IL: American Assoc Plas Surg, 99th Ann Mtg.
68. Mitchell K, **Anderson W**, Shay T, Huang J, Luciano M, Suarez JI, Manson P, Brem H, Gordon CR. First In-Human Experience With Integration of Wireless Intracranial Pressure Monitoring Device Within a Customized Cranial Implant. American Association of Neurological Surgeons, Boston, April 2020. (Abstract submitted Oct 2019).

Teaching

Classroom Instruction

- 2009 The Surgical Treatment of Movement Disorders, Integrative Mind-Brain Medicine Lecture Series for Medical Students. 1 hour lecture. The Brigham and Women's Hospital, Boston.
- 2010 The Surgical Treatment of Epilepsy, Integrative Mind-Brain Lecture Series for Medical Students. 2-1 hour lectures. The Brigham and Women's Hospital, Boston.
- Fall 2016 CME 580.432 JHU Introduction to Computational Medicine. 5-1 hour lectures on NeuroModeling with P. Kudela.

Clinical Instruction

- 2008-10 Temporal Lobe Anatomy, Cadaveric Course for Neurosurgery Residents. Two hour lecture and demonstration / year. Harvard Medical School.
- 2009-10 Stereotactic Frame Placement. Clinical Course for Neurosurgery Residents. One hour lecture and demonstration / year. The Brigham and Women's Hospital, Boston.
- 2010 DBS Electrophysiology. Clinical Course for Neurosurgery Residents. One hour lecture and demonstration. The Brigham and Women's Hospital, Boston.

Mentoring

- 2009-12 Feraz Azhar, Ph.D., Post-doctoral scholar, funded under a Hood Foundation Award (Anderson PI). Dr. Azhar developed interictal spike detection algorithms, and assisted with computational modeling studies of epilepsy.
- 2010-12 Radhika Madhavan, Ph.D., Post-doctoral scholar, funded under a NIH/NINDS K08 award (Anderson PI). Dr. Madhavan developed a real-time data acquisition and processing system for the study of intrinsic theta activity in the temporal lobe and surrounding structures.
- 2012-13 Avi Sunshine, B.S., Research Assistant, funded by the Neurosurgery Pain Research Institute at Johns Hopkins (Anderson PI). Avi performed a retrospective analysis of the use of baclofen in patients suffering spinal cord injury. He is also performed a correlative study in deep brain stimulation patients, comparing the active electrode contact with postoperative psychotic symptoms.
- 2012-14 Ishita Basu, Ph.D., Post-doctoral scholar, funded under a NIH/NINDS K08 award (Anderson PI). Dr. Basu performed microelectrode recordings from human cortex during seizures, and compared the recordings with computational epilepsy models.
- 2014-16 Pierre Sacre, Ph.D. Post-doctoral scholar funded by the Neurosurgery Pain Research Institute at Johns Hopkins (Anderson PI). Performing a computational modeling study of spinal cord stimulation effects on dorsal column fiber activity.
- 2015-16 Yousef Salimpour PhD. Research Associate funded by the Dept. of Neurosurgery. Performs human recordings in epilepsy and movement disorder patients. Studying theta phase dependent stimulation and its effects on memory, and the subcortical effects of cortical stimulation.

Clinical Fellowship

Along with Dr. Shenandoah Robinson in the Department of Neurosurgery, Dr. Anderson is the Director of an ABNS CAST accredited Functional Neurosurgery Fellowship. The following Fellows have completed this training program.

- 2017-19 Teresa Wojtasiewicz, MD. Currently completing her PGY7 year in the residency program.
- 2019-20 Brian Hwang, MD. Active Fellow.

CLINICAL ACTIVITIES

Certification

Medical, other state / government licensure

2005-2008

2010-pres Maryland Board of Physicians D62853

2008-11 Massachusetts Board of Registration in Medicine 235659 License expired 1/22/2011.

Boards, other specialty certification

2012 American Board of Neurological Surgery (Board Certified, FAANS).

Clinical (Service) Responsibilities

- 08/2008-12/ 2010 Associate Surgeon, The Brigham and Women's Hospital
Supervised the Functional Neurosurgery Program including movement disorder surgery, epilepsy surgery, and the surgical treatment of pain and spasticity.
- 06/2015-present Director – Functional Neurosurgery Division, The Johns Hopkins Hospital
Division of Functional Neurosurgery, performing movement disorder surgery, epilepsy surgery, and the surgical treatment of pain and spasticity.

SYSTEM INNOVATION AND QUALITY IMPROVEMENT ACTIVITIES

System Innovation and Quality Improvement efforts outside of JHM:

- 08/ 2008-12/ 2010 The Brigham and Women's Hospital Department of Neurosurgery. Co-Chair (with Dr. Edward Laws, M.D.), New Equipment Evaluation and Approval Committee. Made recommendations on faculty requests for operating room equipment procurement and changes to the hospital administration. Recommendations based on equipment pricing, redundancy, safety issues. Streamlined procurement process, and centralized contact point for outside industry representatives to reduce their influence. 5% Effort.

ORGANIZATIONAL ACTIVITIES

Institutional Administrative Appointments

- 2008-09 Neurosciences Clinical Planning Workgroup, Brigham and Women's Hospital, Member.
2008-10 Work Life Committee, Brigham and Women's Hospital, Member.

Editorial Activities

- Editorial Board appointments
2009-2017 Associate Editor, Neurosurgery, Science Times.

Journal ad-hoc peer review activities

- 2006- IEEE Transactions on Biomedical Engineering
2006- Brain Research
2006- Journal of Neurophysiology
2008- Physical Review Letters
2008- Neurosurgery
2008- Clinical Neurology and Neurosurgery
2009- Epilepsy Research
2009- Center for Integration of Medicine and Innovative Technology, Grant Review
2010- Journal of Neurology, Neurosurgery, and Psychiatry
2010- Indo-US Science & Technology Forum, Grant Review
2011- Epilepsia
2012- PLOS ONE.

Advisory Committees, Review Groups/Study Sections

- 2008-2012 Member, Congress of Neurological Surgeons Fellowship Committee
2011-2012 Member, American Epilepsy Society Treatments Committee-Surgery Workgroup
2013-2015 Reviewer, NIH/CSR ETTN(10) Small Business Review Panel

Professional Societies

- 2002- present Member, Congress of Neurological Surgeons
2002-present Member, American Association of Neurological Surgeons
2007-present Member, American Epilepsy Society
2009-present Member, American Society for Stereotactic and Functional Neurosurgery
2012-present Diplomate, American Board of Neurological Surgery

Conference Organizer, Session Chair

- 2014-present Organizer, Functional Neurosurgical Society Meetings.

Consultantships

- Advisory Boards – Longevity, LLC; NeuroLogic, Globus Medical

RECOGNITION

Awards, Honors

- 1986-90 Lechner Fellow, undergraduate merit scholarship, Texas A&M University
1988-90 Gathright Scholar, undergraduate academic award, Texas A&M University
1990-93 National Science Foundation Fellowship, graduate school scholarship (Princeton University), The National Science Foundation.
2001 *Phi Beta Kappa*, honors society, The Johns Hopkins University School of Medicine
2001 *Alpha Omega Alpha*, honors society, The Johns Hopkins University School of Medicine
2005 William Gowers Fellowship, training research award (The Johns Hopkins University School of Medicine, American Epilepsy Society)
2005-07 NIH Loan Repayment Program, medical school loan repayment stipend (The Johns Hopkins Hospital Epilepsy Research Laboratory), National Institutes of Health.
2007 Harvey Cushing Hunterian Research Award, residency research recognition, The Johns Hopkins Hospital Department of Neurosurgery.

Invited Talks, Panels

- 1993 **Anderson WS**, Calaprice FP, Jones GL, Lowry MM, Young AR. A new test of time reversal invariance in ¹⁹Ne beta decay. Talk given at the Workshop on Symmetry Tests in Semi-Leptonic and Leptonic Weak Interactions, Louvain-la-Neuve, Belgium.
2007 **Anderson WS**. The computer as a tool in understanding the brain. Talk given at the *Congreso Neurociencias*, Hospital Metropolitano, Quito, Ecuador. Presentations also included: Neurosurgical treatment of spasmodic torticollis, Deep brain stimulation in Parkinson's disease, and Neurostimulation in epilepsy.
01/29/08 **Anderson WS**. Spontaneous seizure onset, termination, and stimulation induced effects in a neural network cortical simulation. Neurology Grand Rounds. National Institutes of Health, Bethesda, MD.
02/07/08 **Anderson WS**. Neural network studies of seizure dynamics and cortical stimulation. Neurosurgery Grand Rounds, Brigham and Women's Hospital, Boston MA.
12/06/08 **Anderson WS**. Neural Network cortical simulations – Studying stimulation and intrinsic bursting properties. Special Interest Group on Engineering and Epilepsy. American Epilepsy Society Annual Meeting, Seattle, WA.
02/19/09 **Anderson WS**. Neural Network Cortical Simulations-Studying Stimulation and Intrinsic Bursting Properties. Epilepsy Research Seminar, Division of Epilepsy & Clinical Neurophysiology, Children's Hospital, Boston, MA.
04/14/09 **Anderson WS**. Spinal Cord Stimulation Restores Locomotion in Animal Models of Parkinson's Disease, Journal Club Discussion. Harvard NeuroDiscovery Center. Boston, MA.
09/09/10 **Anderson WS**. The Surgical Treatment of Movement Disorders. Neurosurgery Grand Rounds, Brigham and Women's Hospital, Boston MA.
10/07/09 **Anderson WS**. The Surgical Treatment of Movement Disorders. Harvard Medical School, Integrative Mind-Brain Medicine Lecture Series. Brigham and Women's Hospital, Boston, MA.
01/27/10 **Anderson WS**. The Computational Modeling of Epilepsy and Cortical Stimulation. University of Chicago School of Medicine, Department of Neurosurgery, Grand Rounds. Chicago, IL.
04/07/10 **Anderson WS**. The Surgical Treatment of Epilepsy. Harvard Medical School, Integrative Mind-Brain Medicine Lecture Series. Brigham and Women's Hospital, Boston, MA.
04/15/10 **Anderson WS**. The Computational Modeling of Epilepsy and Cortical Stimulation. The Johns Hopkins University School of Medicine, Department of Neurosurgery, Grand Rounds. Baltimore, MD.
07/07/10 **Anderson WS**. The Surgical Treatment of Epilepsy. Harvard Medical School, Integrative Mind-Brain Medicine Lecture Series. Brigham and Women's Hospital, Boston, MA.
09/09/10 **Anderson WS**. The Surgical Treatment of Movement Disorders. Neurosurgery Grand Rounds, Department of Neurosurgery, Brigham and Women's Hospital, Boston, MA.
09/16/10 Hayes M, **Anderson WS**. Deep Brain Stimulation for Movement Disorders. Hospital Grand Rounds, South Shore Hospital, Weymouth, MA.
03/31/11 **Anderson WS**. Neuroscience Buffet: Subcortical Recordings During Motor Imagery & Theta Phase-Specific Stimulation. The Johns Hopkins University School of Medicine, Department of Neurosurgery, Grand Rounds. Baltimore, MD.
06/07/11 **Anderson WS**. The Computational Modeling of Epilepsy and Cortical Stimulation. The Johns Hopkins Hospital, Divisions of Neuroscience Critical Care and Neuroanesthesiology, Weekly Conference. The Johns Hopkins Hospital, Baltimore, MD.

- 07/14/11 **Anderson WS.** Resident Education Lecture: The Anterior Temporal Lobectomy. The Johns Hopkins University School of Medicine, Department of Neurosurgery, Grand Rounds. Baltimore, MD.
- 11/12/11 **Anderson WS.** Deep brain stimulation surgery. The Johns Hopkins Medicine Symposium on Parkinson's Disease & Your Health. Martinsburg, WV.
- 11/21/11 **Anderson WS.** The Computational Modeling of Seizures. The Johns Hopkins University School of Medicine, Department of Neurology, Clinical Neuroscience Seminar.
- 04/12/12 **Anderson WS.** A review of deep brain stimulation for Parkinson's Disease, Part I. The Johns Hopkins University School of Medicine, Department of Neurosurgery, Grand Rounds.
- 05/03/12 **Anderson WS.** A review of deep brain stimulation for Parkinson's Disease, Part II. The Johns Hopkins University School of Medicine, Department of Neurosurgery, Grand Rounds.
- 06/05/12 **Anderson WS.** DBS for essential tremor: Frameless and iMRI options. International Essential Tremor Foundation: Patient Educational Seminar. Sheraton Baltimore North, Towson, MD.
- 09/24/12 **Anderson WS.** Clinical and therapeutic implications of cortical neural network modeling. Institute for Computational Medicine & Institute for Clinical and Translational Research – Symposium on Computational Medicine. Johns Hopkins Hospital.
- 02/02/13 **Anderson WS.** Computational modeling of the brain: exploring epilepsy and its treatment. Neuroscience Academic Conference, Neurology Grand Rounds. Winthrop-University Hospital, Mineola, New York.
- 06/12/13 **Anderson WS.** Clinical and therapeutic implications of cortical neural network modeling. The Johns Hopkins University Brain Science Institute Computational Neuroscience Working Group.
- 08/15/13 **Anderson WS.** Update on new deep brain stimulation studies. The Johns Hopkins University School of Medicine, Department of Neurosurgery, Grand Rounds.
- 08/20/13 **Anderson WS.** Clinical and therapeutic implications of cortical neural network modeling. US Army Research Laboratory. Aberdeen Proving Grounds, MD.
- 10/01/13 **Anderson WS.** Clinical and therapeutic implications of cortical neural network modeling. The Institute for Computational Medicine Distinguished Seminar Series. Johns Hopkins University.
- 05/13/14 **Anderson WS.** Clinical and Therapeutic Implications of Cortical Computational Modeling. University of California at Davis, School of Medicine, Department of Neurosurgery, Grand Rounds.
- 07/25/14 **Anderson WS.** Spinal Cord Stimulation Pearls, and the Failure Modes of the Baclofen Pump. CME Activity: Update in Functional Neurosurgery – 1st Meeting of the Migratory Functional Neurosurgery Society. The Johns Hopkins Hospital.
- 11/01/14 **Anderson WS.** Update in Functional Neurosurgery. CME Activity: Neurosurgery Updates Symposium. Suburban Hospital, Bethesda, MD.
- 11/06/14 **Anderson WS.** The Anterior Temporal Lobectomy. The Johns Hopkins University School of Medicine, Department of Neurosurgery, Grand Rounds.
- 11/14/14 **Anderson WS.** Clinical and Therapeutic Implications of Cortical Computational Modeling. 2nd Human Single Neuron Conference, Johns Hopkins Hospital.
- 2/25/15 **Anderson WS.** Computational Modeling of Epileptic Activity. The Inaugural Indo-US Translational Neuroscience Symposium: Biomarker Discovery and Validation, Johns Hopkins Hospital.
- 3/12/15 **Anderson WS.** Computational Studies of Human Cortex. Combined Neurology Neurosurgery Grand Rounds, Georgetown University Hospital.
- 7/17/15 **Anderson WS.** DBS Clinical Trials: Johns Hopkins Experience. CME Activity: Neuroscience Updates in Functional Neurosurgery – 2nd Meeting of the Migratory Functional Neurosurgery Society. University of Pittsburgh Medical Center, Pittsburgh, PA.
- 2/29/16 **Anderson WS.** Modeling techniques for studies of brain oscillations. Cosyne Workshop: Biophysical principles of brain oscillations and their meaning for information processing. Snowbird UT.
- 7/16/16 **Anderson WS.** Computational modeling of neocortex. 3rd Annual Migratory Functional Neurosurgery Meeting, Columbia University Medical Center, New York, NY.
- 10/8/16 **Anderson WS.** iMRIS in Functional Neurosurgery: Stereotactic Laser Ablation and DBS Lead Placement Techniques. 11th International MRI Symposium, Baltimore, MD.
- 10/11/16 **Anderson WS.** Computational modeling of cortex. NCCU Seminar Series, Johns Hopkins University School of Medicine, Baltimore, MD.
- 11/5/16 **Anderson WS.** Cranioplasty techniques in the context of functional neurosurgery. 2nd International Cranioplasty Symposium, Johns Hopkins School of Medicine, Baltimore, MD.
- 11/10/16 **Anderson WS.** Applied computational modeling of neocortex. 3rd International Meeting on Human Single Neuron Recordings. California Institute of Technology, Pasadena, CA.
- 2/2/17 **Anderson WS.** Applied Computational Modeling in Neurosurgery. The Johns Hopkins University School of Medicine, Department of Neurosurgery, Grand Rounds.
- 8/25/17 **Anderson WS.** Development of Phase-Dependent Stimulation Techniques. 4th Annual Functional Neurosurgery Meeting, Brown Alpert Medical School, Providence, RI.

- 11/4/17 **Anderson WS.** Neurostimulation for Epilepsy. 3rd Annual Selected Topics in Craniomaxillofacial Surgery: Shriners Hospital for Children, Boston, MA.
- 12/14/17 **Anderson WS.** Development of Phase-Dependent Stimulation Techniques. The Johns Hopkins University School of Medicine, Department of Neurosurgery, Grand Rounds.
- 4/13/18 **Anderson WS.** Deep Brain Stimulation for Parkinson's Disease. Neurosurgery Grand Rounds. Johns Hopkins Hospital, Baltimore, MD.
- 8/3/18 **Anderson WS.** Applied Computational Modeling in Functional Neurosurgery. 5th Annual Society for Innovative Neuroscience in Neurosurgery Meeting, Perelman School of Medicine, University of Pennsylvania, Philadelphia, PA.
- 11/3/18 **Anderson WS.** Neurostimulation for Epilepsy. 4th Annual Selected Topics in Craniomaxillofacial Surgery: Johns Hopkins University School of Medicine, Baltimore, MD.
- 2/14/19 **Anderson WS.** Applied Computational Modeling in Neurosurgery. The Johns Hopkins University School of Medicine, Department of Neurosurgery, Grand Rounds.
- 5/9/19 **Anderson WS.** Development of Phase-Dependent Stimulation Techniques. Univ. of California Davis Symposium: Functional significance of oscillatory brain activity and Closed-loop stimulation", Davis, CA.
- 9/13/19 **Anderson WS.** Development of Phase-Dependent Stimulation Techniques. 5th Annual Meeting of the Society for Innovative Neuroscience in Neurosurgery. Yale University School of Medicine, New Haven, CT.
- 9/16/19 **Anderson WS.** Cranioplasty techniques in the context of functional neurosurgery. 18th Congress of the International Soc of Craniofacial Surgery. Paris, France.
- 11/2/19 **Anderson WS.** Cranioplasty techniques in the context of functional neurosurgery. 5th Annual Selected Topics in Craniomaxillofacial Surgery: Harvard University School of Medicine, Boston, MA.
- 11/16/19 **Anderson WS.** Treatment strategies in epilepsy and surgical management of epilepsy. DHR Health Neuroscience in Clinical Practice: 2019 Update: Edinburg Conf Cent at Renaissance, Edinburg, TX.
- 11/16/19 **Anderson WS.** Parkinson's disease surgical approach: Surgical management of movement disorders. DHR Health Neuroscience in Clinical Practice: 2019 Update: Edinburg Conf Cent at Renaissance, Edinburg, TX.