

## JOHN ROLSTON

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### EDUCATION AND TRAINING

University of California, San Francisco  
**Residency in Neurological Surgery** 6/2011 – 6/2017

University of California, San Francisco  
**Post-doctoral Fellowship** 7/2015 – 6/2016  
Advisor: Edward F. Chang, MD

Emory University School of Medicine  
**M.D. and Ph.D. (Neuroscience)** 6/2003 – 5/2011  
Thesis: "Electrical stimulation of the intact and epileptic brain"  
Advisors: Robert E. Gross, M.D., Ph.D., and Steve M. Potter, Ph.D.  
*Cum Laude*

Columbia University  
**B.S. in Computer Science** 9/1999 – 5/2003  
*Magna Cum Laude*

### FACULTY APPOINTMENTS

University of Utah  
Department of Neurosurgery  
**Assistant Professor** 2017 – present

University of Utah  
Department of Biomedical Engineering  
**Adjunct Professor** 2017 – present

### CERTIFICATIONS

Board Certified, American Board of Neurological Surgery 2020 – present  
Utah State Medical License (active) 2017 – present  
California State Medical License (retired) 2012 – present

### SIGNIFICANT LEADERSHIP POSITIONS

University of Utah  
**Director of Functional Neurosurgery** 2017 – present

University of Utah  
**Chief Value Officer, Ambulatory Neurosurgery** 2019 – 2020

University of Utah  
**Medical Director, Neurosurgery Clinics** 2019 – 2020

## AWARDS

Stereotactic and Functional Neurosurgery Young Neurosurgeon Basic Science Award, Congress of Neurological Surgeons (CNS)	<b>2021</b>
Sigma Xi, the Scientific Research Honor Society	<b>Inducted 2020</b>
Academy Emerging Investigator Program, American Academy of Neurological Surgery	<b>2018-2020</b>
Harold Rosegay Teaching Award, University of California San Francisco	<b>2017</b>
Best Senior Translational Research Paper, University of California San Francisco	<b>2017</b>
Resident Abstract Award, California Association of Neurological Surgeons	<b>2017</b>
Congress of Neurological Surgeons (CNS) Socioeconomic Fellowship	<b>2013 – 2014</b>
Alpha Omega Alpha (National medical honor society)	<b>Inducted 2010</b>
Best Resident Presentation, American Society of Stereotactic and Functional Neurosurgery	<b>2010</b>
Selection for SfN Student Travel Award by the ACSFN	<b>2009</b>
Travel Award for the 2008 Dynamical Systems in Biology Conference	<b>2008</b>
NINDS Fellowship: Training in Translational Research in Neurology	<b>2007-2008</b>
Travel Award for the 2007 NINDS/AUPN/ANA Careers in Neuroscience Symposium	<b>2007</b>
Full Scholarship and Travel Award for the Neuroinformatics Course at the Marine Biological Laboratory	<b>2007</b>
Travel Award for the 2006 Spike Train Analysis Workshop, Newcastle, England	<b>2006</b>
NIGMS Medical Scientist Training Program Scholarship (Emory University and Georgia Tech)	<b>2003-2011</b>
Extraordinary Teaching Assistant Award	<b>2003</b>
Magna Cum Laude Bachelor's Degree, Columbia University	<b>2003</b>
Russell Mills Award for Excellence in Computer Science	<b>2003</b>
Tau Beta Pi (National Engineering Honor Society)	<b>Inducted 2002</b>
Golden Key National Honor Society	<b>Inducted 2002</b>

## TEACHING EXPERIENCE

<i>University of Utah, Salt Lake City, UT</i>	
<b>Lecturer, Neuroengineering</b>	<b>2017-present</b>
<i>Marine Biological Laboratory, Woods Hole, MA</i>	
<b>Faculty, Neuroinformatics</b>	<b>2009-2010</b>
<b>Teaching Assistant, Neuroinformatics</b>	<b>2008-2009</b>
<i>Emory University, School of Medicine, Atlanta, GA</i>	
<b>Teaching Assistant, Medical Neuroscience</b>	<b>2007</b>
<b>Teaching Assistant, Medical Embryology</b>	<b>2006</b>
<i>Georgia Institute of Technology, Atlanta, GA</i>	
<b>Teaching Assistant, Introduction to Neuroscience</b>	<b>2005</b>
<i>Columbia University, New York, NY</i>	
<b>Teaching Assistant, Scientific Computation I</b>	<b>2003</b>

## RELATED EXPERIENCE

*Axion Biosystems, Atlanta, GA*

**Lead Software Engineer****2008 – 2010**

Designed commercial software application for closed-loop recording and stimulation from next-generation microelectrode arrays

SAIC, Inc., Suffolk, VA

**Analyst****2000 – 2001**

Created analysis software for joint forces exercises for the Department of Defense

## PUBLICATIONS

*Journal Articles*

1. Fernández E, Alfaro A, Soto-Sánchez C, Gonzalez-Lopez P, Lozano A, Peña S, Grima MD, Rodil A, Gómez B, Chen X, Roelfsema PR, **Rolston JD**, Davis TS, Normann RA. "Visual percepts evoked with an Intracortical 96-channel Microelectrode Array inserted in human occipital cortex." (in press) *Journal of Clinical Investigation*.
2. Jehi L, Morita-Sherman M, Love TE, Bartolomei F, Bingaman W, Braun K, Busch R, Duncan J, Hader WJ, Luan G, **Rolston JD**, Schuele S, Tassi L, Vadera S, Sheikh S, Najm I, Arain A, Bingaman J, Diehl B, de Tisi J, Rados M, Van Eijsden P, Wahby S, Wang X, Wiebe S. "Comparative Effectiveness of Stereo-EEG vs Subdural Grids in Epilepsy Surgery." (in press) *Annals of Neurology*.
3. Anderson DN, Dorval AD, **Rolston JD**, Pulst SM, Anderson CJ. "Computational investigation of the impact of deep brain stimulation contact size and shape on neural selectivity." (in press) *Journal of Neural Engineering*.
4. Edlow BL, Sanz LRD, Polizzoto L, Pouratian N, **Rolston JD**, Snider SB, Thibaut A, Stevens RD, Gosseries O, Curing Coma Campaign and its Contributing Members. "Therapies to restore consciousness in patients with severe brain injuries: A gap analysis and future directions." (2021) *Neurocritical Care* 35(Suppl 1):68-85.
5. Scoville J, Joyce E, Hunsaker J, Reese J, Wilde H, Arain A, Bollo R, **Rolston JD**. "Stereotactic electroencephalography is associated with reduced pain and opioid use when compared with subdural grids: a case series." (2021) *Operative Neurosurgery* 21(1):6-13.
6. Brock AA, Kundu B, **Rolston JD**. "Asleep deep brain stimulator placement in the intraoperative magnetic resonance imaging system hybrid operating suite: 2-dimensional operative video." (2021) *Operative Neurosurgery* 20(3):E217-E218.
7. Smith EH, Merricks EM, Liou JY, Casadei C, Melloni L, Thesen T, Friedman DJ, Doyle WK, Emerson RG, Goodman RR, McKhann GM, Sheth SA, **Rolston JD**, Schevon CA. "Dual mechanisms of ictal high frequency oscillations in human rhythmic onset seizures." (2020) *Scientific Reports* 10(1):19166.
8. Narasimhan S, Kundassery KB, Gupta K, Johnson GW, Wills KE, Goodale SE, Haas K, **Rolston JD**, Naftel RP, Morgan VL, Dawant BM, Gonzalez HFJ, Englot DJ. "Seizure-onset regions demonstrate high inward directed connectivity during resting-state: An SEEG study in focal epilepsy." (2020) *Epilepsia* 61(11):2534-2544.
9. Harward SC, **Rolston JD**, Englot DJ. "Seizures in meningioma." (2020) *Handbook of Clinical Neurology* 170:187-200.
10. Caston RM, Smith EH, Davis TS, **Rolston JD**. "The Cerebral Localization of Pain: Anatomical and Functional Considerations for Targeted Electrical Therapies." (2020) *Journal of Clinical Medicine* 9(6):1945.

11. Kundu B, Davis TS, Philip B, Smith EH, Arain A, Peters A, Newman B, Butson CR, **Rolston JD**. "A systematic exploration of parameters affecting evoked intracranial potentials in patients with epilepsy." (2020) *Brain Stimulation* 13(5):1232-1244.
12. Kim RB, Wilkerson C, Karsy M, Joyce E, **Rolston JD**, Couldwell WT, Mahan MA. "Prolonged Length of Stay and Risk of Unplanned 30-Day Readmission After Elective Spine Surgery: Propensity Score-Matched Analysis of 33,840 Patients." (2020) *Spine* 45(18):1260-1268.
13. Holste K, Sahyouni R, Teton Z, Chan AY, Englot DJ, **Rolston JD**. "Spasm Freedom Following Microvascular Decompression for Hemifacial Spasm: Systematic Review and Meta-Analysis." (2020) *World Neurosurgery* 139:e383-e390.
14. Merola A, Romagnolo A, Krishna V, Pallavaram S, Carcieri S, Goetz S, Mandybur G, Duker AP, Dalm B, **Rolston JD**, Fasano A, Verhagen L. "Current Directions in Deep Brain Stimulation for Parkinson's Disease-Directing Current to Maximize Clinical Benefit." (2020) *Neurology and Therapy* 9(1):25-41.
15. Kundu B, Lucke-Wold B, Foster C, Englot DJ, Urhie O, Nwafor D, **Rolston JD**. "Fornicotomy for the Treatment of Epilepsy: An Examination of Historical Literature in the Setting of Modern Operative Techniques." (2020) *Neurosurgery* 87(2):157-165.
16. Goodale SE, Gonzalez HFJ, Johnson GW, Gupta K, Rodriguez WJ, Shults R, Rogers BP, **Rolston JD**, Dawant BM, Mogan VL, Englot DJ. "Resting-State SEEG May Help Localize Epileptogenic Brain Regions." (2020) *Neurosurgery* 86(6):792-801.
17. Crevier-Sorbo G, Brock A, **Rolston JD**. "Trigeminal neuralgia plus hemifacial spasm caused by a dilated artery: a case of painful tic convulsif syndrome." (2019) *Lancet* 394(10211):e36.
18. Kundu B, **Rolston JD**, Grandhi R. "Mapping language dominance through the lens of the Wada test." (2019) *Neurosurgical Focus* 47(3):E5.
19. Aquino CC, Duffley G, Hedges DM, Vorwerk J, House PA, Ferraz HB, **Rolston JD**, Butson CR, Schrock LE. "Interleaved deep brain stimulation for dyskinesia management in Parkinson's disease." (2019) *Movement Disorders* 34(11):1722-1727.
20. Hale AT, Monsour MA, **Rolston JD**, Naftel RP, Englot DJ. "Deep brain stimulation in pediatric dystonia: a systematic review." (2020) *Neurosurgical Review* 43(3):873-880.
21. Holste K, Chan AY, **Rolston JD**, Englot DJ. "Pain Outcomes Following Microvascular Decompression for Drug-Resistant Trigeminal Neuralgia: A Systematic Review and Meta-Analysis." (2020) *Neurosurgery* 86(2):182-190.
22. Gross RE, Sung EK, Mulligan P, Laxpati NG, Mayo DA, **Rolston JD**. "Accuracy of frameless image-guided implantation of depth electrodes for intracranial epilepsy monitoring." (2019) *Journal of Neurosurgery* 132(3):681-691.
23. Vorwerk J, Brock A, Anderson DN, **Rolston JD**, Butson CR. "A retrospective evaluation of automated optimization of deep brain stimulation parameters." (2019) *Journal of Neural Engineering* 16(6):064002.
24. Brock AA, Kundu B, Peters A, **Rolston JD**. "Bony encapsulation of a NeuroPace subdural electrode." (2019) *Brain Stimulation* 12(3):819-820.
25. Chung LS, Brennan KC, **Rolston JD**. "Early Focal Brain Injury Predicts Spreading Depolarizations after Subarachnoid Hemorrhage." (2019) *Neurosurgery* 85(2):E188-189.
26. Wilde HW, Reese JC, Azab MA, Karsy M, Guan J, **Rolston JD**. "Evaluating the Landscape of Clinical Research in Neurosurgery." (2019) *Neurosurgery* 85(3):E485-E493.
27. Brock AA, Mahan MA, **Rolston JD**. "Epidural Spinal Cord Stimulation Takes the Next Step." (2019) *Neurosurgery* 84(3):E140-141.
28. **Rolston JD**, Chang EF. "Critical language areas show increased functional connectivity in human cortex." (2018) *Cerebral Cortex* 28(12):4161-4168.

29. Chan AY, **Rolston JD**, Lee B, Vadera S, Englot DJ. "Rates and predictors of seizure outcome after corpus callosotomy for drug-resistant epilepsy: a meta-analysis." (2018) *Journal of Neurosurgery* 1:1-10.
30. Avila SV, Noy BV, Karsy M, Alexander M, **Rolston JD**. "Bilateral blunt cerebrovascular injury resulting in direct carotid-cavernous fistulae: a case report and review of the literature." (2018) *Surgical Neurology International* 9:229.
31. Kundu B, **Rolston JD**. "Nationwide Shift From Percutaneous Rhizotomy to Microvascular Decompression for Treatment of Trigeminal and Other Cranial Nerve Neuralgias." (2018) *Headache* 58(10):1675-1679.
32. Davis TS, **Rolston JD**, Bollo RJ, House PA. "Delayed high-frequency suppression after automated single-pulse electrical stimulation identifies the seizure onset zone in patients with refractory epilepsy." (2018) *Clinical Neurophysiology* 129(11):2466-2474.
33. Kundu B, Brock AA, Englot DJ, Butson CR, **Rolston JD**. "Deep brain stimulation for the treatment of disorders of consciousness and cognition in traumatic brain injury patients: a review." (2018) *Neurosurgical Focus* 45(2):E14.
34. Karsy M, Azab MA, Guan J, Couldwell WT, **Rolston JD**. "The Impact of Specialization in Journal Networks and Scholarship." (2018) *World Neurosurgery* 120:e349-e356.
35. Muller L, **Rolston JD**, Fox N, Knowlton R, Rao V, Chang EF. "Direct electrical stimulation of the human cortex evokes high gamma activity that predicts conscious somatosensory perception." (2018) *Journal of Neural Engineering* 15(2):026015.
36. Smith EH, **Rolston JD**. "Oscillations Travel Around the Human Brain." (2018) *Neurosurgery* 83(5):E205-E206.
37. Karsy M, Brock AA, **Rolston JD**. "Hiding in plain sight: underreporting of clinical trial results in neurology." (2018) *Neurosurgery* 83(3):E69.
38. Chan AY, **Rolston JD**, Rao VR, Chang EF. "Effect of neurostimulation on cognition and mood in refractory epilepsy." (2018) *Epilepsia Open* 3(1):18-29.
39. Kundu B, **Rolston JD**. "Neuronal Lethargy: Neurons Slow Down with Extended Wafefulness." (2018) 82(5):E117-118.
40. Abou-Al-Shaar H, Brock AA, Kundu B, Englot DJ, **Rolston JD**. "Increased nationwide use of stereoencephalography for intracranial epilepsy electroencephalography recordings." (2018) *Journal of Clinical Neuroscience* 53:132-134.
41. Febinger HY, Dorval AD, **Rolston JD**. "A Sordid Affair: Spike Sorting and Data Reproducibility." (2018) *Neurosurgery* 82(3):N19-20.
42. Englot DJ, **Rolston JD**. "Memory decline from hippocampal electrodes? Let's not forget statistics and study design." (2018) *Epilepsia* 59(2):502-503.
43. Krucoff MO, Chan AY, Harward SC, Rahimpour S, **Rolston JD**, Muh C, Englot DJ. "Rates and predictors of success and failure in repeat epilepsy surgery: a meta-analysis and systematic review." (2017) *Epilepsia* 58(12):2133-2142.
44. **Rolston JD**, Deng H, Wang DD, Englot DJ, Chang EF. "Multiple Subpial Transections for Medically Refractory Epilepsy: A Disaggregated Review of Patient-Level Data." (2018) *Neurosurgery* 82(5):613-620.
45. Harward SC, Chen WC, **Rolston JD**, Haglund MM, Englot DJ. "Seizure Outcomes in Occipital Lobe and Posterior Quadrant Epilepsy Surgery: A Systematic Review and Meta-Analysis." (2018) *Neurosurgery* 82(3):350-358.
46. Winkler EA, Rutledge WC, Kalani MYS, **Rolston JD**. "Pericytes regulate cerebral blood flow and neuronal health at a capillary level." (2017) *Neurosurgery* 81(5):N37-38.
47. **Rolston JD**. "The reticular activating system in the wake of temporal lobe epilepsy: dazed and confused." (2017) *Journal of Neurology, Neurosurgery, and Psychiatry* 88(11):900.

48. Burke JF, Peters A, **Rolston JD**. "Intracranial electroencephalography for Alzheimer's." (2017) *Neurosurgery* 81(3):N23-N24.
49. Englot DJ, Hassnain KH, **Rolston JD**, Harward SC, Sinha SR, Haglund MM. "Quality-of-life metrics with vagus nerve stimulation for epilepsy from provider survey data." (2017) *Epilepsy & Behavior* 66:4-9.
50. **Rolston JD**, Englot DJ, Starr PA, Larson PS. "An unexpectedly high rate of revisions and removals in deep brain stimulation surgery: Analysis of multiple databases." (2016) *Parkinsonism and Related Disorders* 33:72-77.
51. **Rolston JD**, Han SJ, Chang EF. "Systemic inaccuracies in the National Surgical Quality Improvement Program database: Implications for accuracy and validity for neurosurgery outcomes research." (2017) *Journal of Clinical Neuroscience* 37:44-47.
52. **Rolston JD**, Englot DJ, Knowlton RC, Chang EF. "Rates and complications of adult epilepsy surgery in North America: Analysis of multiple databases." (2016) *Epilepsy Research* 124:55-62.
53. Desai SA, **Rolston JD**, McCracken CE, Potter SM, Gross RE. "Asynchronous distributed multielectrode microstimulation reduces seizures in the dorsal tetanus toxin model of temporal lobe epilepsy." (2016) *Brain Stimulation* 9(1):86-100.
54. **Rolston JD**. "Surgical Strategies for Epilepsy in Eloquent Areas." (2016) *J Epilepsy* 2:103.
55. Michalak SM, **Rolston JD**, Lawton MT. "Incidence and Predictors of Complications and Mortality in Cerebrovascular Surgery: National Trends From 2007 to 2012" (2016) *Neurosurgery* 79(2):182-93.
56. **Rolston JD**, Han SJ, Aghi MK. "Nationwide shift from microscopic to endoscopic transsphenoidal pituitary surgery." (2016) *Pituitary* 19(3):248-50.
57. Englot DJ, **Rolston JD**, Wright CW, Hassnain KH, Chang EF. "Rates and Predictors of Seizure Freedom With Vagus Nerve Stimulation for Intractable Epilepsy." (2016) *Neurosurgery* 79(3):345-53.
58. Ramos A, **Rolston JD**, Gauger GE, Larson PS. "Spinal subdural abscess following laminectomy for symptomatic stenosis: A report of two cases and review of the literature." (2016) *American Journal of Case Reports* 17:476-83.
59. **Rolston JD**, Englot DJ, Cornes S, Chang EF. "Major and minor complications in extraoperative electrocorticography: a review of a national database." (2016) *Epilepsy Research* 122:26-9.
60. Englot DJ, Nagarajan SS, Wang DD, **Rolston JD**, Mizuiri D, Honma SM, Mantle M, Tarapore PE, Knowlton RC, Chang EF, Kirsch HE. "The sensitivity and significance of lateralized interictal slow activity on magnetoencephalography in focal epilepsy." (2016) *Epilepsy Research* 121:21-28.
61. **Rolston JD**, Chang EF. "Stereotactic Laser Ablation for Hypothalamic Hamartoma." (2016) *Neurosurgery Clinics of North America* 27(1):59-67.
62. Wang DD, Knox R, **Rolston JD**, Englot DJ, Barkovich AJ, Tihan T, Auguste KI, Knowlton RC, Cornes SB, Chang EF. "Surgical management of medically-refractory epilepsy in patients with polymicrogyria." (2016) *Epilepsia* 57(1):151-61.
63. Michalak SM, **Rolston JD**, Lawton MT. "Prospective, Multidisciplinary Recording of Perioperative Errors in Cerebrovascular Surgery: Is error in the eye of the beholder?" (2016) *Journal of Neurosurgery* 124(6):1794-804.
64. Han SJ, **Rolston JD**, Zygourakis CC, Sun MZ, McDermott MW, Lau CY, Aghi MK. "Preventing Delays in First-Case Starts on the Neurosurgery Service: A Resident-Led Initiative at an Academic Institution." (2016) *Journal of Surgical Education* 73(2):291-5.
65. Birk HS, Han SJ, **Rolston JD**, Rowland NC, Lau C, Theodosopoulos PV, McDermott MW. "Resident-led Implementation of a Standardized Handoff System to Facilitate Transfer of Postoperative Neurosurgical Patients to the ICU" (2016) *Cureus* 18;8(1):e461
66. **Rolston JD**, Ramos A, Heath S, Englot DJ, Lim DA. "Thalamotomy-like effects from partial removal of a ventral intermediate nucleus deep brain stimulator lead in a patient with essential tremor: Case Report." (2015) *Neurosurgery* 77(5):E831-7.

67. **Rolston JD**, Englot DJ, Wang DD, Garcia PA, Chang EF. "Corpus callosotomy versus vagus nerve stimulation for atonic seizures and drop attacks: A systematic review." (2015) *Epilepsy & Behavior* 51:13-17.
68. **Rolston JD**, Englot DJ, Benet A, Li J, Cha S, Berger MS. "Frontal Operculum Gliomas: Language Outcome following Resection." (2015) *Journal of Neurosurgery* 122(4):725-34.
69. **Rolston JD**, Han SJ, Parsa AT. "Quality Improvement in Neurosurgery." (2015) *Neurosurgery Clinics in North America* 26(2):xiii-xiv.
70. **Rolston JD**, Bernstein M. "Errors in Neurosurgery." (2015) *Neurosurgery Clinics in North America* 26(2):149-55.
71. Han SJ, **Rolston JD**, Lay CY, Berger MS. "Improving patient safety in neurologic surgery." (2015) *Neurosurgery Clinics in North America* 26(2):143-7.
72. Asher AL, Parker SL, **Rolston JD**, Selden NR, McGirt MJ. "Using clinical registries to improve the quality of neurosurgical care." (2015) *Neurosurgery Clinics of North America* 26(2):253-63.
73. **Rolston JD**, Ouyang D, Englot DJ, Wang DD, Chang EF. "National trends and complication rates for invasive extraoperative electrocorticography in the USA." (2015) *Journal of Clinical Neuroscience* S0967-5868(14)00717-6.
74. Zygourakis CC, **Rolston JD**, Lee HS, Partow C, Kunwar S, Aghi MK. "Pituicytomas and Spindle Cell Oncocytomas: Modern Case Series from the University of California, San Francisco." (2015) *Pituitary* 18(1):150-8.
75. Scheer JK, Smith JS, Clark AJ, Lafage V, Kim HJ, **Rolston JD**, Eastlack R, Hart RA, Protosaltis TS, Kelly MP, Kebaish K, Gupta M, Klineberg E, Hostin R, Shaffrey CI, Schwab F, Ames CP, International Spine Study Group (ISSG). "Comprehensive study of back and leg pain improvements after adult spinal deformity surgery: analysis of 421 patients with 2-year follow-up and of the impact of the surgery on treatment satisfaction." (2015) *Journal of Neurosurgery: Spine* 22(5):540-53.
76. Scheer JK, Mundis GM, Klineberg E, Hart RA, Deviren V, Burton DC, Protosaltis TS, Gupta M, **Rolston JD**, Bess S, Shaffrey CI, Schwab F, Lafage V, Smith JS, Ames CP, International Spine Study Group (ISSG). "Recovery following adult spinal deformity surgery: the effect of complications and reoperation in 149 patients with 2-year follow-up." (2015) *European Spine Journal*.
77. **Rolston JD**, Zygourakis CC, Han SJ, Lau CY, Berger MS. "Medical Errors in Neurosurgery." (2014) *Surgical Neurology International* 5(Suppl 10):S435-40.
78. **Rolston JD**, Han SJ, Bloch O, Parsa AT. "What clinical factors predict incidence of Deep Venous Thrombosis and Pulmonary Embolism in Neurosurgical Patients?" (2014) *Journal of Neurosurgery* 121(4):908-18.
79. Zygourakis CC, **Rolston JD**, Treadway J, Chang S, Kliot M. "What do hotels and hospitals have in common? How we can learn from the hotel industry to take better care of patients." (2014) *Surgical Neurology International* 5(Suppl 2):S49-53.
80. Han SJ, **Rolston JD**, Molinaro AM, Clarke JL, Prados MD, Chang SM, Berger MS, Desliva A, Butowski NA. "Phase II Trial of 7days on/7 days off temozolomide for recurrent high-grade glioma." (2014) *Neuro-oncology* 16(9):1255-62.
81. **Rolston JD**, Han SJ, Lau CY, Berger MS, Parsa AT. "Frequency and predictors of complications in neurological surgery: national trends from 2006-2011." (2014) *Journal of Neurosurgery* 120(3):736-45.
82. **Rolston JD**, Han SJ, Cotter JA, El-Sayed IH, Aghi MK. "Gangliogliomas of the optic pathway." (2014) *Journal of Clinical Neuroscience* 21(12):2244-9.
83. Englot DJ, Han SJ, **Rolston JD**, Ivan ME, Kuperman RA, Chang EF, Gupta N, Sullivan JE, Auguste KI. "Epilepsy surgery failure in children: a quantitative and qualitative analysis." (2014) *Journal of Neurosurgery: Pediatrics* 14(4):386-95.

84. Han SJ, **Rolston JD**, Jahangiri A, Aghi MK. "Rathke's cleft cysts: review of natural history and surgical outcomes." (2014) *Journal of Neuro-oncology* 117(2):197-203.
85. Wang DD, Lau D, **Rolston JD**, Englot DJ, Sneed PK, McDermott MW. "Pain experience using conventional versus angled anterior posts during stereotactic head frame placement for radiosurgery." (2014) *Journal of Clinical Neuroscience*.
86. Han SJ, Saigal R, **Rolston JD**, Cheng JS, Lau CY, Mistry RI, McDermott MW, Berger MS. "Targeted reduction in neurosurgical laboratory utilization: resident-led effort at a single academic institution." (2014) *Journal of Neurosurgery* 120(1):173-7.
87. Smart O, **Rolston JD**, Epstein CM, Gross RE. "Hippocampal seizure-onset laterality can change over long timescales: A same-patient observation over 500 days." (2013) *Epilepsy & Behavior Case Reports* 1:56-61.
88. **Rolston JD**, Han SJ, McDermott MW. "Keyhole revision after failed subdural craniostomy for chronic subdural hematoma: technical note." (2013) *Curēus*.
89. Wang DD, Ouyang D, Englot DJ, **Rolston JD**, Molinaro AM, Ward M, Chang EF. "Trends in surgical treatment for trigeminal neuralgia in the United States of America from 1988 to 2008." (2013) *Journal of Clinical Neuroscience* 20(11):1538-45.
90. Englot DJ, **Rolston JD**, Wang DD, Sun PP, Chang EF, Auguste KI. "Seizure outcomes after temporal lobectomy in pediatric patients." (2013) *Journal of Neurosurgery: Pediatrics* 12(2):134-41.
91. Englot DJ, Ouyang D, Wang DD, **Rolston JD**, Garcia PA, Chang EF. "Relationship between hospital surgical volume, lobectomy rates, and adverse perioperative events at US epilepsy centers." (2013) *Journal of Neurosurgery* 118(1):169-74.
92. Englot DJ, **Rolston JD**, Wang DD, Hassnain KH, Gordon CM, Chang EF. "Efficacy of vagus nerve stimulation in posttraumatic versus nontraumatic epilepsy." (2012) *Journal of Neurosurgery* 117(5):970-7.
93. **Rolston JD**, Blevins LS Jr. "Gamma knife radiosurgery for acromegaly." (2012) *International Journal of Endocrinology* 2012:821579
94. **Rolston JD**, Englot DJ, Wang DD, Shih T, Chang EF. "Comparison of seizure control outcomes and the safety of vagus nerve, thalamic deep brain, and responsive neurostimulation: evidence from randomized controlled trials." (2012) *Neurosurgical Focus* 32(3):E14.
95. Englot DJ, Wang DD, **Rolston JD**, Shih TT, Chang EF. "Rates and predictors of long-term seizure freedom after frontal lobe epilepsy surgery: a systematic review and meta-analysis." (2012) *Journal of Neurosurgery* 116(5):1042-8.
96. Quigg M, **Rolston J**, Barbaro NM. "Radiosurgery for epilepsy: clinical experience and potential antiepileptic mechanisms." (2012) *Epilepsia* 53(1):7-15.
97. Pastrana EA, Saavedra FM, Murray G, Estronza S, **Rolston JD**, Rodriguez-Vega G. "Acute adrenal insufficiency in cervical spinal cord injury." (2012) *World Neurosurgery* 77(3-4):561-3.
98. **Rolston JD**, Desai SA, Laxpati NG, Gross RE. "Electrical stimulation for epilepsy: experimental approaches." (2011) *Neurosurgery Clinics of North America* 22(4):425-42.
99. **Rolston JD**, Quigg M, Barbaro NM. "Gamma knife radiosurgery for mesial temporal lobe epilepsy." (2011) *Epilepsy Research and Treatment* 2011:840616.
100. **Rolston JD**, Laxpati NG, Gutekunst CA, Potter SM, Gross RE. "Spontaneous and evoked high-frequency oscillations in the tetanus toxin model of epilepsy." (2010) *Epilepsia* 51(11):2289-96.
101. **Rolston JD**, Gross RE, Potter SM. "Closed-loop, open-source electrophysiology." (2010) *Frontiers in Neuroscience* 2010;4.
102. Hales CM, **Rolston JD**, Potter SM. "How to culture, record and stimulate neuronal networks on micro-electrode arrays (MEAs)." (2010) *Journal of Visualized Experiments* 30;(39)



103. Desai SA, **Rolston JD**, Guo L, Potter SM. "Improving impedance of implantable microwire multi-electrode arrays by ultrasonic electroplating of durable platinum black." (2010) *Frontiers in Neuroengineering* 2010;3:5.
104. **Rolston JD**, Gross RE, Potter SM. "NeuroRighter: closed-loop multielectrode stimulation and recording for freely moving animals and cell cultures." (2009) *Conference Proceedings of the IEEE Engineering in Medicine and Biology Society* 2009:6489-92.
105. **Rolston JD**, Gross RE, Potter SM. "Common median referencing for improved action potential detection with multielectrode arrays." (2009) *Conference Proceedings of the IEEE Engineering in Medicine and Biology Society* 2009:1604-7.
106. Jiménez L, Pastrana EA, Rodríguez-Vega G, **Rolston JD**. "Ventilator bundle compliance: Report from a neurosurgical intensive care unit." (2009) *Critical Care & Shock* 12:109-116.
107. Schacter SC, Gutttag J, Schiff SJ, Schomer DL, **Summit Contributors**. "Advances in the Application of Technology to Epilepsy: The CIMIT/NIO Epilepsy Innovation Summit." (2009) *Epilepsy & Behavior* 16(1):3-46.
108. **Rolston JD**, Gross RE, Potter SM. "A low-cost multielectrode system for data acquisition enabling real-time closed-loop processing with rapid recovery from stimulation artifacts." (2009) *Frontiers in Neuroengineering* 2009;2:12.
109. Gross RE, **Rolston JD**. "The clinical utility of methods to determine spatial extent and volume of tissue activated by deep brain stimulation." (2008) *Clinical Neurophysiology* 119(9):1947-50.
110. **Rolston JD**, Wagenaar DA, Potter SM. "Precisely timed spatiotemporal patterns of neural activity in dissociated cortical cultures." (2007) *Neuroscience* 148(1):294-303.

#### *Book Chapters*

1. Scoville JP, Bollo RJ, **Rolston JD**. "Extratemporal Epilepsy and Neuromodulation." (in press) *Schmidek & Sweet Operative Neurosurgical Techniques*, 7<sup>th</sup> edition. Philadelphia, PA: Elsevier.
2. Kundu B, Brock AA, Thompson JA, **Rolston JD**. "Microelectrode Recording in Neurosurgical Patients." (2020) *Stereotactic and Functional Neurosurgery: Principles and Applications*. New York, NY: Springer Publishing.
3. Wang DD, **Rolston JD**, Berger MS. "Cortical and subcortical stimulation and mapping." (2019) *Pediatric Epilepsy Surgery: Preoperative Assessment and Surgical Treatment*. New York, NY: Thieme.
4. **Rolston JD**, Berger MS. "Intraoperative Patient Safety." (2018) *Quality and Safety in Neurosurgery*. Philadelphia, PA: Elsevier.
5. **Rolston JD**, Lau CY, Berger MS. "Improving Patient Safety." (2016) *Youmans and Winn Neurological Surgery*, 7<sup>th</sup> edition. Philadelphia, PA: Elsevier.

#### *Book Reviews*

1. **Rolston JD**. "Neuroengineering by D.J. DiLorenzo and J.D. Bronzino." (2009) *Stereotactic and Functional Neurosurgery* 87:199-201.

## FUNDING

### Ongoing Funding

1. **NIH NINDS** R21 NS113031 (Rolston PI) 8/1/2019-7/31/2022  
*Propagation patterns of microelectrode-recorded human interictal discharges*  
 This project examines the directionality of interictal discharges using implanted multielectrode arrays in human cortex.  
 Role: PI

2. **NIH NINDS K23 NS114178** (Rolston PI) 11/1/2019-8/31/2024  
*Patient-specific modeling and network perturbation to enhance the predictability of direct cortical stimulation for epilepsy*  
This project employs intracranial electrical recordings, direct electrical stimulation, advanced tractography, and finite element modeling to predict the effects of brain stimulation in human epilepsy patients  
Role: PI
3. **NIH NINDS UH3 NS109557** (Morrell PI) 6/1/2021-5/30/2026  
*Thalamocortical Responsive Neurostimulation for the Treatment of Lennox-Gastaut Syndrome*  
The NeuroPace Responsive Neurostimulation system will be implanted in the centromedian thalamic nucleus and medial prefrontal cortex in an effort to detect and arrest seizures in patients with Lennox-Gastaut syndrome.  
Role: Co-I
4. **NIH NINDS U01 NS121472** (Sheth PI) 9/1/2021-8/31/2026  
*Mapping algorithmic state space in the human brain*  
Using microelectrode recordings in the human brain, we will determine how single cells in the frontal cortex encode the traversal of an algorithmic state space during complex tasks.  
Role: Co-I
5. **Huntsman Cancer Institute, University of Utah** (Menacho PI) 3/31/2021-3/31/2022  
*Evaluation of plasma levels of circulating cell-free DNA following magnetic resonance guided transcranial focused ultrasound for brain tissue ablation*  
Markers of neural and glial integrity will be assayed from blood draws pre- and post-ablation using focused ultrasound.  
Role: Co-investigator
6. **Research Incentive Seed Grant, University of Utah** (Rolston PI) 3/1/2021-2/28/2022  
*Noninvasive fornix ablation to treat epilepsy*  
Using a rodent model of epilepsy, we will use focused ultrasound to lesion the fornix and reduce seizure frequency, paving the way for a non-invasive treatment for drug-resistant seizures.  
Role: PI
7. **NIH NIBIB R01 EB028316** (Parker PI) 9/1/2019-8/31/2023  
*Toward the next generation in transcranial MR-guided focused ultrasound: Innovations in thermal and acoustic model-based planning and monitoring for improved safety, efficacy and efficiency*  
A multi-disciplinary team will develop next-generation transcranial MR-guided focused ultrasound (tcMRgFUS), with respect to thermal and acoustic model-based planning and monitoring.  
Role: Co-investigator

Completed Funding

1. **NIH NINDS F30 NS 060392** (Rolston PI) 8/1/2008-5/9/2011  
*Closed-loop distributed microstimulation for epilepsy*  
The goal of this project was to develop a closed-loop multielectrode stimulation system for use in freely moving animals, and then use stimulation to suppress seizures.  
Role: PI
2. **Congress of Neurological Surgeons Fellowship** (Rolston PI) 7/1/2013-6/30/2014  
*Complications in neurological surgery: evidence-based quality improvement*

The goal of this project was to use the ACS NSQIP and NIS databases to document the frequency and predictors of complications in neurosurgical procedures.

Role: PI

3. **NIH NIDCD F32 DC 013953 (Rolston PI)** 7/1/2015-6/30/2016  
*High-density electrocorticography to understand cortical speech arrest sites*  
The goal of this project was to use functional connectivity and electrical stimulation to predict the location of critical speech arrest sites as they occurred during invasive language mapping.  
Role: PI
4. **National Science Foundation 1531003 (Butson PI)** 9/15/2015-8/31/2018  
*Remote Management of Deep Brain Stimulation (DBS) Patients Using Utah Telehealth Network (UTN)*  
This project uses an iOS-based system employing patient-specific computational models of electrical stimulation to enable remote programming of DBS systems.  
Role: Co-investigator
5. **Neuroscience Initiative Grant, University of Utah (Butson PI)** 7/1/2017-6/30/2018  
*Differentiating Neural Circuits Modulated During Therapeutic Versus Ineffective Deep Brain Stimulation*  
This project uses magnetic resonance imaging (MRI) tractography and resting-state functional MRI to formulate patient-specific computational models for the efficacy of deep brain stimulation (DBS).  
Role: Co-investigator
6. **Neuroscience Initiative Grant, University of Utah (Floyd PI)** 7/1/2018-6/30/2019  
*Deep brain stimulation of the mesencephalic locomotor region to induce plasticity and recovery of locomotion after spinal cord injury in a translational porcine model*  
DBS electrodes will be placed in the mesencephalic motor region of the porcine brain and a closed-loop stimulation developed to speed recovery following spinal cord injury.  
Role: Co-investigator
7. **Neuroscience Initiative Grant, University of Utah (Alexander PI)** 7/1/2018-6/30/2019  
*Pre-clinical investigation for using MRI-guided focused ultrasound for non-invasive brain therapies*  
Histotripsy and modulating protocols will be developed and targeted to deep brain structures to treat two disease models: epilepsy and hydrocephalus.
8. **NIH NCATS KL2 TR002539 (Rolston PI)** 5/1/2018-11/30/2019  
*Predictive Modeling of Direct Cortical Stimulation Using High-density Electrocorticography and Patient-specific Simulations*  
This project uses finite element modeling and direct cortical recordings of human epilepsy patients to generate predictive models of how electrical stimulation influences the brain.  
Role: PI
9. **Utah Science Technology and Research Initiative (USTAR) (Rolston PI)** 6/1/2018-5/30/2020  
*High Density Subdural Electrodes for Epilepsy Treatment*  
This project is a collaboration with Blackrock Microsystems to develop next generation electrocorticography arrays for human recordings.  
Role: PI
10. **NIH/National Institute of Nursing Research R01 NR014852 (Butson PI)** 2/1/2015-1/31/2020  
*Mobile Decision Support System for Nurse Management of Neuromodulation Therapy*

The objective of this application is to prospectively test the use of DBS clinical decision support tool in post-operative clinical care. The central hypothesis is that the use of a DBS clinical decision support system for individual patient management will enable considerable time savings and reduced burden on patients and caregivers.

Role: Co-investigator

#### MEMBERSHIPS

American Association for the Advancement of Science (AAAS)  
 American Association of Neurological Surgeons (AANS)  
 American Epilepsy Society (AES)  
 American Medical Association (AMA)  
 Congress of Neurological Surgeons (CNS)  
 Institute of Electrical and Electronics Engineers (IEEE)  
 North American Neuromodulation Society (NANS)  
 Society for Neuroscience (SfN)

#### POSITIONS HELD

Medical Director of Neurosurgery Clinics	<b>2019 – 2020</b>
Chief Value Officer, Ambulatory Neurosurgery	<b>2019 – 2020</b>
Clinical Neurosciences Operating Room Local Governance Committee	<b>2018 – 2019</b>
Resident Education Committee (University of California, San Francisco)	<b>2015 – 2017</b>
Patient Safety Committee (University of California, San Francisco)	<b>2015 – 2016</b>
Unit-Based Leadership Team (University of California, San Francisco)	<b>2015 – 2016</b>
Morbidity and Mortality Committee (University of California, San Francisco)	<b>2012 – 2013</b>
MD/PhD Admissions Committee (Emory University)	<b>2004 – 2005, 2010 – 2011</b>
MD/PhD Executive Committee (Emory University)	<b>2004 – 2005, 2010 – 2011</b>
Liaison Committee on Medical Education (Emory University)	<b>2007</b>
Medical School Senate: President (Emory University)	<b>2006 – 2007</b>
Medical School Senate: Vice-President	<b>2005 – 2006</b>
Medical School Senate: Treasurer	<b>2004 – 2005</b>
Medical School Senate: Senator	<b>2003 – 2007</b>
University Budget Committee (Emory University)	<b>2004 – 2005</b>