

# CURRICULUM VITAE

**Name:** Joseph S. Neimat

## **Education:**

1988 H.S. The Sidwell Friends School, Washington DC

1992 A.B. Dartmouth College, Hanover NH  
Double Major: Music and Biochemistry  
Dartmouth Senior Fellow

1996 M.S. Duke University, Department of Neurobiology, Durham NC  
Masters Thesis: Toward a Molecular Basis for Preferential Motor Reinnervation

1998 M.D. Duke University School of Medicine, Durham NC

## **Postdoctoral Training:**

|                   |                |                         |                                |
|-------------------|----------------|-------------------------|--------------------------------|
| Jul 1998–Jun 1999 | Internship     | General Surgery         | Massachusetts General Hospital |
| Jul 1999–Dec 2003 | Residency      | Neurosurgery            | Massachusetts General Hospital |
| Dec 2003–Jun 2004 | Chief Resident | Neurosurgery            | Massachusetts General Hospital |
| Jan 2005–Jun 2006 | Fellowship     | Functional Neurosurgery | University of Toronto          |

## **Medical Licensure:**

Nov 2001–Jan 2007 Massachusetts State Medical License

Jun 2005–Jan 2012 Michigan State Medical License

Jan 2006–2016 Tennessee State Medical License

Feb 2016–Present Kentucky Medical License

## **Board Certification:**

Nov 2009–present Diplomate, American Board of Neurological Surgery

## **Academic Appointments:**

|                   |                            |   |
|-------------------|----------------------------|---|
| Jun 2004–Dec 2004 | Director of Trauma Service | Massachusetts General Hospital,<br>Department of Neurosurgery |
| Jul 2006–Jun 2013 | Assistant Professor        | Vanderbilt University,  |
| Jul 2013–Feb 2016 | Associate Professor        | Department of Neurosurgery                                    |

|                    |  |   |
|--------------------|--|---|
| Jul 2011-Feb 2016  | Director of Human Neurophysiological Research  | Vanderbilt University, Department of Neurosurgery       |
| Jul 2012-Feb 2016  | Founding Member                                | Vanderbilt Initiative in Surgery and Engineering (VISE) |
| Jul 2012-Feb 2016  | Director of Neurotrauma                        | Vanderbilt University, Department of Neurosurgery       |
| Jul 2013-Feb 2016  | Director of Epilepsy Surgery                   | Vanderbilt University, Department of Neurosurgery       |
| Jan 2014-Feb 2016  | Director of Functional Neurosurgery Fellowship | Vanderbilt University, Department of Neurosurgery       |
| Sept 2014-Feb 2016 | Chief of Neurosurgery                          | Tennessee Valley Health Care, Veterans Administration   |
| Mar 2016 – Present | Chairman of Neurosurgery                       | University of Louisville                                |

**Affiliated Institution Appointments:**

|                    |                     |  |
|--------------------|---------------------|--|
| Sept 2006-Feb 2016 | Affiliate Faculty   | Center for Integrative & Cognitive Neuroscience, Vanderbilt University |
| Sept 2006-Feb 2016 | Investigator        | Psychiatric Neuroimaging Program<br>Vanderbilt University              |
| May 2012-Feb 2016  | Associate Professor | Vanderbilt University, Department of Psychology                        |

**Administrative Positions:**

|                    |  |  |
|--------------------|--|--|
| Mar 2008-July 2012 | Quality/Safety Officer                           | Vanderbilt University, Department of Neurosurgery        |
| July 2008-Feb 2016 | Affiliate Faculty Advisor                        | Vanderbilt University Medical School<br>Robinson College |
| Jan 2010-Feb 2016  | Medical Director<br>Inpatient Neurosurgery       | Vanderbilt University, Department of Neurosurgery        |
| Jan 2010-Feb 2016  | Medical Director<br>Neurosurgery Operating Rooms | Vanderbilt University, Department of Neurosurgery        |
| Jan 2010-Feb 2016  | Member, Electronic Record                        | Vanderbilt University Medical Center                     |

### Advisory Committee

|                   |   |                                      |
|-------------------|---|--------------------------------------|
| Oct 2012-Feb 2016 | Member, Curriculum 2.0 Planning Committee | Vanderbilt University Medical School |
| Jun 2015-Feb 2016 | Member, Faculty Senate                    | Vanderbilt University                |

### Other Professional Positions:

|                    |   |   |
|--------------------|---|---|
| Jul 2006-May 2013  | Website Editor                                  | World Society for Stereotactic and Functional Neurosurgery    |
| Jul 2008-Present   | Industry Relations Chair                        | World Society for Stereotactic and Functional Neurosurgery    |
| Jun 2012-Present   | Board of Directors                              | American Society for Stereotactic and Functional Neurosurgery |
| Jun 2012-Present   | Director, Committee on Psychiatric Neurosurgery | American Society for Stereotactic and Functional Neurosurgery |
| Jun 2013-Present   | Board of Directors                              | World Society for Stereotactic and Functional Neurosurgery    |
| April 2013-Present | Industry Relations Chair                        | American Society for Stereotactic and Functional Neurosurgery |
| Jun 2013-Sept 2015 | Scientific Co-Chair                             | WSSFN 2015 Meeting Committee                                  |
| Jun 2014-Present   | Membership Committee Chair                      | American Society for Stereotactic and Functional Neurosurgery |

### Professional Activities:

|                  |  |
|------------------|--|
| May 2013-present | Ad Hoc Reviewer for NIH Study Section, Clinical Neuroscience and Neurodegeneration (CNN) |
|------------------|--|

### Editorships/Reviewerships:

|                  |  |
|------------------|--|
| 2009 – 2012      | Editorial Board - The European Neurological Journal  |
| April 2010       | Guest Editor - Neurobiology of Disease, Special Issue: Frontiers in Deep Brain Stimulation, March 27, 2010.                            |
| 2013-Present     | Functional Section Co-editor, Neurosurgery MOC Review Guide  |
| Ad-Hoc Reviewer: | Archives of Gen Psych, Parkinson's Disease and Rel Dis, Brain Stimulation, PlosOne, Lancet Neurology, Neurosurgery, Neuropsychologica. |

### Professional Societies:

|              |   |
|--------------|---|
| 2001-present | American Association of Neurological Surgeons                 |
| 2001-present | Congress of Neurological Surgeons                             |
| 2003-present | American Society for Stereotactic and Functional Neurosurgery |
| 2003-present | World Society for Stereotactic and Functional Neurosurgery    |
| 2007-present | Movement Disorders Society                                    |
| 2012-present | American Epilepsy Society                                     |
| 2012-present | North American Neuromodulation Society                        |

### **Awards and Honors:**

|           |  |
|-----------|--|
| 1990      | Dartmouth Award for Excellence in Teaching                     |
| 1991      | Dartmouth Senior Fellowship                                    |
| 1994-1997 | Medical Scientist Training Program, NIH Scholarship            |
| 2002      | AANS Award for Resident Research in Head Trauma                |
| 2001-2002 | Ruth L. Kirschstein National Research Service Award            |
| 2005-2006 | Michael J. Fox Fellowship for Parkinson's Disease Research     |
| 2010      | Vanderbilt Candle Award for Outstanding Teaching and Mentoring |

### **Research Interests**

- Physiological correlates of emotional response in surgical stimulation targets.
- Emotional and cognitive behavioral alterations produced by stimulation of deep brain nuclei.
- Intrinsic optical signal imaging of human visual and somatosensory cortex.
- Effects of dexmedetomidine on microelectrode recording in the thalamus and basal ganglia.
- Use of a deformable computerized physiologic atlas to predict functional deep brain targets.
- Use of MRI guided pneumatic robotics for intracranial surgery

### **Clinical Study Participation:**

|              |   |                            |
|--------------|---|----------------------------|
| 2008-2012    | Co-investigator   | ANS, St. Jude Neurological |
|              | A clinical study for essential tremor therapy: Multi-center trial of a novel current-based deep brain stimulation system in the treatment of essential tremor.              |                            |
| 2010-present | Co-investigator   | ANS, St. Jude Neurological |
|              | A clinical study for the surgical management of treatment resistant depression: Multi-center trial of DBS stimulation of Brodmann's area 25 to treat refractory depression. |                            |

2012-present                      Co-investigator                      Boston Scientific  
A clinical study for Parkinson's Disease therapy: Multi-center trial of a novel deep brain stimulation system in the treatment of Parkinson's Disease.

**Grant Support:**

Jul 2006-present                      Co-investigator                      Medtronic Neurological Inc.  
Implantable Systems Performance Registry (ISPR).  
Site PI: Peter Konrad, MD, PhD

Jul 2008-Jun 2010                      Co-Primary Investigator                      Vanderbilt Discovery Grant  
Assessment of frontal cortical function in Parkinson's Disease after deep brain stimulation;  
A behavioral and functional neuroimaging study.  
Co-PI: Sohee Park, PhD

Jul 2010-Jun 2015                      Co-Investigator                      NIH R-01-EB006136-0  
Computer assisted functional Neurosurgery.  
PI: Benoit Dawant, PhD

Jul 2011-Jun 2014                      Co-Investigator                      NIH R-21-NS071259  
Novel Apparatus for placing electrodes for deep brain stimulation.  
PI: Michael Fitzpatrick, PhD

Jul 2011-Jun 2014                      Co-Primary Investigator                      NIH R-21-NS707136  
The Impact of Deep Brain Stimulation on Frontal-Subcortical Emotional Processing  
Co-PI: Brad Folley PhD

**Teaching/Mentoring:**

***Course Instruction***

|              |  |                            |
|--------------|--|----------------------------|
| 1990-1991    | Teaching Assistant in Organic Chemistry  | Dartmouth College          |
| 1993         | Duke University Sex Education Program    | Durham City Public Schools |
| 1996         | Instructor of the Neurologic Examination | Duke University            |
| 1995-1998    | Teaching Assistant in Neuroanatomy       | Duke University            |
| 2001         | Neurobiology Study Group Instructor      | Harvard Medical School     |
| 2002         | Neuroanatomy Lab Instructor              | Harvard Medical School     |
| 2006-2010    | Neuroscience Intercession Lecturer       | Vanderbilt University      |
| 2006-2009    | Faculty, Frameless Stereotaxic Surgery   | Medtronic Activa Course    |
| 2006-2009    | Faculty, Intrathecal Baclofen Therapy    | Medtronic ITB Course       |
| 2008-present | Lecturer, Interventional Pain Fellowship | Vanderbilt University      |
| 2010-present | Faculty, Brain and Behavior              | Vanderbilt University      |
| 2010-present | Plenary Lecturer, Goodman Oral Boards    | AANS                       |

## Review Course

2013-Present Faculty, Continuity Clinical Experience Vanderbilt University

### *Post-Doctoral Fellows*

- 2006–2007 Hong Yu, MD. Neurosurgical Functional Research Fellow: Physiological brain atlas development for deep brain stimulation. Vanderbilt University.  
Current Position: Assistant Professor of Neurosurgery, Vanderbilt University
- 2006-2008 David Sun, MD, PhD. Neurosurgical Functional Research Fellow: Clinical outcomes of epilepsy surgery. Vanderbilt University.  
Current Position: Director of Epilepsy Surgery, Norton Neuroscience Institute
- 2008-2009 Brad Folley, PhD. The effects of deep brain stimulation on frontal emotional and cognitive function. Vanderbilt University.  
Current Position: Director of Neuropsychology, Norton Neuroscience Institute
- 2008-2010 Todd Shanks, MD. Neurosurgical Functional Research Fellow: Clinical outcomes of DBS surgery. Vanderbilt University.  
Current Position: Director of DBS Surgery, Norton Neuroscience Institute
- 2014-2015 Wendell Lake, MD, MS. Neurosurgical Functional Research Fellow: Cognitive effects of VIM thalamic stimulation. Vanderbilt University.

### *Medical Students*

#### *Research*

- 2009-2011 Sarah Borne. Emphasis Research Project: Near Infra-red Imaging (NIRS) of emotional states in DBS Patients. Vanderbilt University Medical School.  
Current Position: Resident in Neurosurgery, Cleveland Clinic
- 2009-2011 Neil Manus. Emphasis Research Project: Affective coding in the basal ganglia: Correlations between neuronal modulation and autonomic measures. Vanderbilt University Medical School.  
Current Position: Resident in Emergency Medicine, Albert Einstein Medical Cntr
- 2009-2010 Laura Tortura. Emphasis Research Project: A randomized trial of RAPRL vs VIM Thalamic stimulation in the control of unilateral tremor. Vanderbilt University Medical School.  
Current Position: Resident in Emergency Medicine, North Shore, Long Island Medical Center.
- 2009-present Andrea Brock. Medical Scholars Research: Functional optical imaging of sensory modules in human cortex. Vanderbilt University Medical School.  
Current Position: Resident in Neurosurgery, University of Utah
- 2011-2012 Walter Jermankowicz. Independent Research: Electrophysiological features

predicting optimal stimulation efficacy in DBS for PD. Vanderbilt University Medical School.

Current Position: Resident in Neurosurgery, University of Miami

2011 Anne Wilson. Emphasis Research Project: Response of basal ganglia neurons to auditory emotional induction. Vanderbilt University Medical School.

Current Position: Completing MD degree

2011-present Neil Issar, Emphasis Research Project: Deep Brain Stimulation of the Posterior Subthalamic Region for post-traumatic tremor. Vanderbilt University Medical School.

Current Position: Completing MD/JD degree

### ***Clinical Apprenticeship***

|              |              |                   |               |
|--------------|--------------|-------------------|---------------|
| Andrea Brock | Evan Shelby  | Anne Wilson       | Kevin Kumar   |
| Sarah Borne  | Robert Baum  | Nicholas Luibrand | Elena Magrans |
| Neil Manus   | Stacey Doran | Colin Martyn      | Neil Issar    |
| Zach Yondea  | Joe Crivelli |                   |               |

### ***Graduate Students***

2008-2010 Srivisan Pallavaram. Creation of a novel technique for atlas creation of human physiologic data. Thesis committee member. Dept of Bioengineering. Vanderbilt University.

2009-2011 Jutta Mayer. Modulation in working memory function with DBS. Dept of Psychology. Vanderbilt University.

2009-2010 Joseph Kim. Modulation in working memory function with DBS. Dept of Psychology. Vanderbilt University.

2008-present Kevin Kumar. Role and Prevention of Manganese Toxicity in the Pathogenesis of Parkinson's Disease. Thesis committee member. Dept of Neuroscience. Vanderbilt University.

### ***Undergraduate Students***

#### ***Research Apprenticeship***

2007-2008 Timothy Flerlage. Affective consequences of DBS stimulation, Vanderbilt University.

2007-2008 Jessica Galella. Differential effects of DBS stimulation laterality on emotional

performance. Vanderbilt University.

- 2009-2010 Jessica Islam. Near Infra-red Imaging (NIRS) of emotional states in DBS Patients. Neuroscience 292 Honors Research Project, PI. Vanderbilt University.
- 2009-2011 Alice Wang. Decreased GABAergic Interneurons in the Entorhinal cortex of Patients with Schizophrenia and Bipolar Disorder. Neuroscience 292 Honors Thesis Committee Member. Vanderbilt University.
- 2009-2010 Laura Allen. Human neurophysiological response to emotional music and altered perception of affective musical content with DBS. Vanderbilt University.
- 2009-2011 Aaron Albriton. Alterations in emotional perception during deep brain stimulation and correlated changes in prefrontal near infrared spectroscopy. Dept of Psychology. Vanderbilt University.

### *Clinical Shadowing*

|                  |                |                   |                 |
|------------------|----------------|-------------------|-----------------|
| Channing Cochran | Julia Roseman  | Daniel Eshaghian  | Lei Qu          |
| Kurt Niesner     | Chelsea Samson | Nathan Luibrand   | Leah Hyman      |
| Sishir Mannava   | Ryan Moore     | Nicholas Luibrand | Sara Yap        |
| Mir Isaamullah   | Lance Lyons    | Colin Martyn      | Chloe Cavanaugh |
| Olivia Roman     | Adan Horta     | Lucas Wonderly    |                 |

### **Invited Lectureships:**

#### *Regional*

Mar 2008 DBS: New Treatments for Old Disorders Nashville Adventure Science Center  
Brain Awareness Lecture Series

#### *National*

Dec 2008 DBS for Depression and Properties of Limbic Cortex University of Louisville

Feb 2009 DBS for Depression/Properties of Limbic Cortex UCLA

Aug 2010 Surgical Exploration of Emotional Processing in the Basal Ganglia University of Pittsburgh



|          |  |                                       |
|----------|--|---------------------------------------|
| Oct 2010 | Surgical Exploration of Emotional Processing in the Basal Ganglia    | Brown University                      |
| Mar 2011 | Surgical Exploration of Emotional Processing in the Basal Ganglia    | UCSD                                  |
| Jan 2011 | Imaging Use In Neurosurgery: Challenges for Future Imaging Standards | NIH Workshop on Imaging Standards     |
| Jan 2012 | Advances in DBS Surgery  | Univ. of Tennessee Medical Center     |
| Dec 2013 | Deep Brain Stimulation: A Tool for Discovery                         | NANS Meeting, Las Vegas,              |
| Feb 2014 | Cognitive and Emotional Processing in the Human Basal Ganglia        | University of Florida                 |
| Apr 2014 | Debate: Selective hippocampal resection vs Temporal lobectomy        | AANS, Annual Meeting, San Francisco   |
| Feb 201  | Computer aided targeting: State of the Art and Limitations           | Image Guided Neurosurgery, Memphis TN |

### ***International***

|          |  |  |
|----------|--|--|
| Feb 2008 | Surgical Treatment of Depression                 | National Hospital of Neurology and Neurosurgery, Mexico City |
| Oct 2012 | Surgical Advances in the Functional Neurosurgery | Bandung Padjadjaran University, Bandung, Indonesia           |

### **Media Coverage:**

|                   |   |                       |
|-------------------|---|-----------------------|
| Oct 3-Nov12, 2008 | DBS Surgery for Banjo Musician's Tremor   |                       |
|                   | ABC, Good Morning America (Oct 3), ABC News National(Oct 3), BBC Radio(Oct 7), Fox News(Oct 16), CBS News Network(Oct 16), Scientific American(Oct 16), TVN-24, Poland TV(Oct 17), NBC- Today Show(Oct 18), RTL, German TV(Oct 20), Discovery Channel(Oct 21), CNN-Headline News(Oct 26), Fuji TV-Japan(Nov 12) |                       |
| January 10, 2009  | Neurofibromatosis I Reconstructive Surgery  | CNN-Headline News     |
| November 21, 2013 | Responsive Stimulation for Epilepsy   | National Public Radio |
| October 17, 2014  | Robot Performs Brain Surgery Through the Cheek  | CNET                  |

### **Patents:**

|      |   |
|------|---|
| 2010 | Methods of Confirming a Medical Diagnosis of Parkinson's Disease. Application # 61/299,196. |
| 2010 | Device for Treating Parkinson's Disease. Application # 61/299,322.                          |

- 2010 Multi-Lead Locking Device for Deep Brain Stimulation Implant. Patent Pending.
- 2013 System, Method, And Apparatus For Performing Transforaminal Robotic Therapy. Patent Pending.

## **Publications:**

### ***Peer Reviewed***

- 1 Yousif NJ, Denny AD, Forte R, Matloub HS, Sanger JR, **Neimat J**. 1994. 'The effect of frostbite on the reconstructed ear', *Ann Plast Surg*, 32: 132-4.
- 2 Williams ZM, **Neimat J**, Cosgrove GR, Eskandar EN. 2004. 'Stereotactic and Functional Neurosurgery Resident Award: Responses of subthalamic neurons during visually guided movements in patients with Parkinson disease', *Clin Neurosurg*, 51: 307-13.
- 3 Amirnovin R, **Neimat JS**, Roberts JA, Eskandar EN. 2005. 'Multimodality treatment of trigeminal neuralgia', *Stereotact Funct Neurosurg*, 83: 197-201.
- 4 **Neimat JS**, Hoh BL, McKenna MJ, Rabinov JD, Ogilvy CS. 2005. 'Aneurysmal expansion presenting as facial weakness: case report and review of the literature', *Neurosurgery*, 56: 190.
- 5 Williams ZM, **Neimat JS**, Cosgrove GR, Eskandar EN. 2005. 'Timing and direction selectivity of subthalamic and pallidal neurons in patients with Parkinson disease', *Exp Brain Res*, 162: 407-16.
- 6 Hamani C, **Neimat J**, Lozano AM. 2006. 'Deep brain stimulation for the treatment of Parkinson's disease', *J Neural Transm Suppl*: 393-9.
- 7 **Neimat JS**, Hamani C, Lozano AM. 2006. 'Neural stimulation for Parkinson's disease: current therapies and future directions', *Expert Rev Neurother*, 6: 101-9.
- 8 **Neimat JS**, Patil PG, Lozano AM. 2006. 'Novel surgical therapies for Tourette syndrome', *J Child Neurol*, 21: 715-8.
- 9 Hamani C, **Neimat JS**, Lozano AM. 2007. 'Deep brain stimulation and chemical neuromodulation: current use and perspectives for the future', *Acta Neurochir Suppl*, 97: 127-33.
- 10 Hodaie M, **Neimat JS**, Lozano AM. 2007. 'The dopaminergic nigrostriatal system and Parkinson's disease: molecular events in development, disease, and cell death, and new therapeutic strategies', *Neurosurgery*, 60: 17-28; discussion 28-30.
- 11 Lipsman N, **Neimat JS**, Lozano AM. 2007. 'Deep brain stimulation for treatment-refractory obsessive-compulsive disorder: the search for a valid target', *Neurosurgery*, 61: 1-11; discussion 11-3.
- 12 **Neimat JS**, Hamani C, Giacobbe P, Merskey H, Kennedy SH, Mayberg HS, Lozano AM. 2008. 'Neural stimulation successfully treats depression in patients with prior ablative cingulotomy', *Am J Psychiatry*, 165: 687-93.
- 13 Pallavaram S, D'Haese PF, Kao C, Yu H, Remple M, **Neimat J**, Konrad P, Dawant B. 2008. 'A new method for creating electrophysiological maps for DBS surgery and their application to surgical guidance', *Med Image Comput Comput Assist Interv*, 11: 670-7.

- 14 Remple MS, Sarpong Y, **Neimat JS**. 2008. 'Frontiers in the surgical treatment of Parkinson's disease', *Expert Rev Neurother*, 8: 897-906.
- 15 Yu H, **Neimat JS**. 2008. 'The treatment of movement disorders by deep brain stimulation', *Neurotherapeutics*, 5: 26-36.
- 16 Pallavaram S, Dawant BM, Koyama T, Yu H, **Neimat J**, Konrad PE, D'Haese PF. 2009. 'Validation of a fully automatic method for the routine selection of the anterior and posterior commissures in magnetic resonance images', *Stereotact Funct Neurosurg*, 87: 148-54.
- 17 Pallavaram S, Dawant BM, Li R, **Neimat JS**, Remple MS, Kao C, Konrad PE, D'Haese PF. 2009. 'A method to correct for brain shift when building electrophysiological atlases for deep brain stimulation (DBS) surgery', *Med Image Comput Comput Assist Interv*, 12: 557-64.
- 18 Remple MS, Hayes CH, Kao CQ, Charles PD, **Neimat JS**, Konrad P. 2009. 'Subthalamic Nucleus Neuronal Firing Rate Increases with Parkinson's Disease Progression: 966', *Neurosurgery*, 65: 422.
- 19 D'Haese PF, Pallavaram S, Konrad PE, **Neimat J**, Fitzpatrick JM, Dawant BM. 2010. 'Clinical accuracy of a customized stereotactic platform for deep brain stimulation after accounting for brain shift', *Stereotact Funct Neurosurg*, 88: 81-7.
- 20 Lozano AM, **Neimat JS**. 2010. 'Neurostimulation: from verification to exploration', *Neurobiol Dis*, 38: 327-8.
- 21 Pallavaram S, Dawant BM, Remple MS, **Neimat JS**, Kao C, Konrad PE, D'Haese PF. 2010. 'Effect of brain shift on the creation of functional atlases for deep brain stimulation surgery', *Int J Comput Assist Radiol Surg*, 5: 221-8.
- 22 Forbes J, Cooper C, Jermakowicz W, **Neimat J**, Konrad P. 2011. 'Microvascular decompression: salient surgical principles and technical nuances', *J Vis Exp*: e2590.
- 23 Konrad PE, **Neimat JS**, Yu H, Kao CC, Remple MS, D'Haese PF, Dawant BM. 2011. 'Customized, miniature rapid-prototype stereotactic frames for use in deep brain stimulator surgery: initial clinical methodology and experience from 263 patients from 2002 to 2008', *Stereotact Funct Neurosurg*, 89: 34-41.
- 24 Remple MS, Bradenham CH, Kao CC, Charles PD, **Neimat JS**, Konrad PE. 2011. 'Subthalamic nucleus neuronal firing rate increases with Parkinson's disease progression', *Mov Disord*, 26: 1657-62.
- 25 Bourne SK, Conrad A, Konrad PE, **Neimat JS**, Davis TL. 2012. 'Ventricular width and complicated recovery following deep brain stimulation surgery', *Stereotact Funct Neurosurg*, 90: 167-72.
- 26 Charles D, Tolleson C, Davis TL, Gill CE, Molinari AL, Bliton MJ, Tramontana MG, Salomon RM, Kao C, Wang L, Hedera P, Phibbs FT, **Neimat JS**, Konrad PE. 2012. 'Pilot study assessing the feasibility of applying bilateral subthalamic nucleus deep brain stimulation in very early stage Parkinson's disease: study design and rationale', *J Parkinsons Dis*, 2: 215-23.
- 27 Charles PD, Dolhun RM, Gill CE, Davis TL, Bliton MJ, Tramontana MG, Salomon RM, Wang L, Hedera P, Phibbs FT, **Neimat JS**, Konrad PE. 2012. 'Deep brain stimulation in early Parkinson's disease: enrollment experience from a pilot trial', *Parkinsonism Relat Disord*, 18: 268-73.

- 28 D'Haese PF, Pallavaram S, Li R, Remple MS, Kao C, **Neimat JS**, Konrad PE, Dawant BM. 2012. 'CranialVault and its CRAVE tools: a clinical computer assistance system for deep brain stimulation (DBS) therapy', *Med Image Anal*, 16: 744-53.
- 29 Stoker MA, Forbes JA, Hanif R, Cooper C, Nian H, Konrad PE, **Neimat JS**. 2012. 'Decreased Rate of CSF Leakage Associated with Complete Reconstruction of Suboccipital Cranial Defects', *J Neurol Surg B Skull Base*, 73: 281-6.
- 30 Bourne SK, Conrad A, **Neimat JS**, Davis TL. 2013. 'Linear measurements of the cerebral ventricles are correlated with adult ventricular volume', *J Clin Neurosci*, 20: 763-4.
- 31 D'Haese PF, Pallavaram S, Kao C, **Neimat JS**, Konrad PE, Dawant BM. 2013. 'Effect of data normalization on the creation of neuro-probabilistic atlases', *Stereotact Funct Neurosurg*, 91: 148-52.
- 32 Hedera P, Phibbs FT, Dolhun R, Charles PD, Konrad PE, **Neimat JS**, Davis TL. 2013. 'Surgical targets for dystonic tremor: considerations between the globus pallidus and ventral intermediate thalamic nucleus', *Parkinsonism Relat Disord*, 19: 684-6.
- 33 Issar NM, Hedera P, Phibbs FT, Konrad PE, **Neimat JS**. 2013. 'Treating post-traumatic tremor with deep brain stimulation: report of five cases', *Parkinsonism Relat Disord*, 19: 1100-5.
- 34 Laxton AW, **Neimat JS**, Davis KD, Womelsdorf T, Hutchison WD, Dostrovsky JO, Hamani C, Mayberg HS, Lozano AM. 2013. 'Neuronal coding of implicit emotion categories in the subcallosal cortex in patients with depression', *Biol Psychiatry*, 74: 714-9.
- 35 Balachandran R, Fritz MA, Dietrich MS, Danilchenko A, Mitchell JE, Oldfield VL, Lipscomb WW, Fitzpatrick JM, **Neimat JS**, Konrad PE, Labadie RF. 2014. 'Clinical testing of an alternate method of inserting bone-implanted fiducial markers', *Int J Comput Assist Radiol Surg*, 9: 913-20.
- 36 Camalier CR, Konrad PE, Gill CE, Kao C, Remple MR, Nasr HM, Davis TL, Hedera P, Phibbs FT, Molinari AL, **Neimat JS**, Charles D. 2014. 'Methods for Surgical Targeting of the STN in Early-Stage Parkinson's Disease', *Front Neurol*, 5: 25.
- 37 Charles D, Konrad PE, **Neimat JS**, Molinari AL, Tramontana MG, Finder SG, Gill CE, Bliton MJ, Kao C, Phibbs FT, Hedera P, Salomon RM, Cannard KR, Wang L, Song Y, Davis TL. 2014. 'Subthalamic nucleus deep brain stimulation in early stage Parkinson's disease', *Parkinsonism Relat Disord*, 20: 731-7.
- 38 Liu Y, Konrad PE, **Neimat JS**, Tatter SB, Yu H, Datteri RD, Landman BA, Noble JH, Pallavaram S, Dawant BM, D'Haese PF. 2014. 'Multisurgeon, multisite validation of a trajectory planning algorithm for deep brain stimulation procedures', *IEEE Trans Biomed Eng*, 61: 2479-87.
- 39 McIntosh LG, Mannava S, Camalier CR, Folley BS, Albritton A, Konrad PE, Charles D, Park S, **Neimat JS**. 2014. 'Emotion recognition in early Parkinson's disease patients undergoing deep brain stimulation or dopaminergic therapy: a comparison to healthy participants', *Front Aging Neurosci*, 6: 349.
- 40 Tolleson C, Stroh J, Ehrenfeld J, **Neimat J**, Konrad P, Phibbs F. 2014. 'The factors involved in deep brain stimulation infection: a large case series', *Stereotact Funct Neurosurg*, 92: 227-33.

- 41 Tomycz L, Forbes J, Ladner T, Kahn E, Maris A, **Neimat J**, Konrad P. 2014. 'Open thoracic cordotomy as a treatment option for severe, debilitating pain', *J Neurol Surg A Cent Eur Neurosurg*, 75: 126-32.
- 42 Charles D, Konrad PE, Davis TL, **Neimat JS**, Hacker ML, Finder SG. 2015. 'Deep brain stimulation in early stage Parkinson's disease', *Parkinsonism Relat Disord*, 21: 347-8.
- 43 Claassen DO, van den Wildenberg WP, Harrison MB, van Wouwe NC, Kanoff K, **Neimat JS**, Wylie SA. 2015. 'Proficient motor impulse control in Parkinson disease patients with impulsive and compulsive behaviors', *Pharmacol Biochem Behav*, 129: 19-25.
- 44 Gilbert HB, **Neimat J**, Webster RJ, 3rd. 2015. 'Concentric Tube Robots as Steerable Needles: Achieving Follow-the-Leader Deployment', *IEEE Trans Robot*, 31: 246-58.
- 45 Gunduz A, Morita H, Rossi PJ, Allen WL, Alterman RL, Bronte-Stewart H, Butson CR, Charles D, Deckers S, de Hemptinne C, DeLong M, Dougherty D, Ellrich J, Foote KD, Giordano J, Goodman W, Greenberg BD, Greene D, Gross R, Judy JW, Karst E, Kent A, Kopell B, Lang A, Lozano A, Lungu C, Lyons KE, Machado A, Martens H, McIntyre C, Min HK, **Neimat J**, Ostrem J, Pannu S, Ponce F, Pouratian N, Reymers D, Schrock L, Sheth S, Shih L, Stanslaski S, Steinke GK, Stypulkowski P, Troster AI, Verhagen L, Walker H, Okun MS. 2015. 'Proceedings of the Second Annual Deep Brain Stimulation Think Tank: What's in the Pipeline', *Int J Neurosci*, 125: 475-85.
- 46 Hacker ML, Tonascia J, Turchan M, Currie A, Heusinkveld L, Konrad PE, Davis TL, **Neimat JS**, Phibbs FT, Hedera P, Wang L, Shi Y, Shade DM, Sternberg AL, Drye LT, Charles D. 2015. 'Deep brain stimulation may reduce the relative risk of clinically important worsening in early stage Parkinson's disease', *Parkinsonism Relat Disord*, 21: 1177-83.
- 47 Morone PJ, Sweeney AD, Carlson ML, **Neimat JS**, Weaver KD, Abou-Khalil BW, Arain AM, Singh P, Wanna GB. 2015. 'Temporal Lobe Encephaloceles: A Potentially Curable Cause of Seizures', *Otol Neurotol*, 36: 1439-42.
- 48 Pallavaram S, D'Haese PF, Lake W, Konrad PE, Dawant BM, **Neimat JS**. 2015. 'Fully automated targeting using nonrigid image registration matches accuracy and exceeds precision of best manual approaches to subthalamic deep brain stimulation targeting in Parkinson disease', *Neurosurgery*, 76: 756-65.
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### ***Submitted Publications***

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