

Alexander S. Taghva

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EDUCATION

M.D., *Johns Hopkins University School of Medicine*, Baltimore, Maryland
September 2001-May 2005

B.S., *University of Southern California*, Los Angeles, California
Major: Biochemistry; September 1997-May 2001

RESIDENCY AND FELLOWSHIP

Clinical Instructor in Neurological Surgery, University of Southern California
July 2011-June 2012

Adjunct Faculty, Ohio State University, Department of Neurosurgery
July 2011-June 2012

Fellow in Functional Neurosurgery with Dr. Ali Rezai, Ohio State University
July 2010-June 2011

Resident in Neurological Surgery, University of Southern California
July 2006-June 2010

Intern, General Surgery, University of Southern California
June 2005-June 2006

CURRENT AFFILIATIONS

Director of Neurotrauma, Mission Hospital Regional Trauma Center, Mission Viejo, CA
November 2014-present

Neurosurgery housestaff, Mission Hospital, Mission Viejo, CA
July 2012-present

Neurosurgery housestaff, Saddleback Hospital, Laguna Hills, CA
July 2012-present

Assistant Clinical Professor, Ohio State University, Columbus, OH
July 2012-2015

CERTIFICATIONS AND MEMBERSHIPS

Licensed physician, Medical Board of California, State Medical Board of Ohio

Passed American Board of Neurological Surgery written board exam and USMLE Steps 1, 2, and 3

Board-certified, American Board of Neurological Surgery

Fellow of the American Association of Neurological Surgeons

Member of Congress of Neurological Surgeons

Diplomat of the American Board of Neurological Surgeons

EDUCATIONAL HONORS AND AWARDS

- Orange County Medical Association Physician of Excellence Award 2017-2019
- SuperDoctors Rising Star 2018-2019
- Michael L.J. Apuzzo Research Award for Creativity and Innovation, 2011
- Medtronic Fellow in Stereotactic and Functional Neurosurgery, 2010-2011
- Johns Hopkins Medical School Dean's Summer Research Fellowship to study neurophysiology in lab of Dr. Frederick Lenz, 2002
- Johns Hopkins Manfred Mayer Scholarship Recipient, 2003-2004
- USC Phi Beta Kappa
- USC Summa Cum Laude Graduate (3.97 GPA)
- USC Presidential Scholarship, 1997-2001
- USC Dean's List, 1997-2001
- Robert C. Byrd Merit Scholarship, 1997-2001
- American Heart Association Research Fellowship at Stanford Medical School, 1999
- USC Alumni Association Scholarship, 1997

PATENTS

- "AUTOMATED TRAJECTORY PLANNING FOR STEREOTACTIC PROCEDURES." Application number PCT/US2011/067947.

RESEARCH ACTIVITIES

- Principal investigator, MeRT for Posttraumatic Stress Disorder, Del Mar, CA
- Site Primary investigator, St. Jude SUNBURST study
- Investigator for Clinician-Initiated Study, Computerized Spinal Cord Stimulation Atlas, Sponsored by St. Jude Medical

PEER-REVIEWED ARTICLES

- Success Using Neuromodulation With BURST (SUNBURST) Study: Results From a Prospective, Randomized Controlled Trial Using a Novel Burst Waveform. (2018) Deer T, Slavin KV, Amirdelfan K, North RB, Burton AW, Yearwood TL, Tavel E, Staats P, Falowski S, Pope J, Justiz R, Fabi AY, **Taghva A**, Paicius R, Houden T, Wilson D. *Neuromodulation*. 2018 Jan;21(1):56-66.
- **Taghva A**, Karst E, Underwood P. (2017) Clinical Paresthesia Atlas Illustrates Likelihood of Coverage Based on SCS Electrode Placement. *Neuromodulation*. 2017 Aug;20(6):582-588.
- **Taghva A**, Silvetz R, Ring A, Kim KY, Murphy KT, Liu CY, Yin J. (2015) Magnetic Resonance Therapy Improves Clinical Phenotype and EEG Alpha Power in Posttraumatic Stress Disorder. *Trauma Monthly* Nov;20(4):e27360.
- **Taghva A**, Romer J, Barolat G (2015). Intraoperative electromyography as an adjunct to sacral neuromodulation for pelvic pain. *Neuromodulation*, Jan;18(1):62-6.
- **Taghva A**, Karst E, Underwood P. Clinical Paresthesia Atlas Illustrates Likelihood of Coverage Based on SCS Electrode Placement. In preparation.
- **Taghva A**, Jin T, Ring AR, Liu CY, Jin Y. Biometric-Guided MeRT for Posttraumatic Stress Disorder: a randomized, double-blind, controlled trial. In preparation.
- **Taghva A** (2014). Anterograde and Retrograde Epidural Paddle Placement Through a Single Laminotomy for the Treatment of Back and Lower Extremity Pain Using Spinal Cord Stimulation: Case Reports and Technical Note. *Neuromodulation*. Epub ahead of print, Feb 2014
- Lenz FA, **Taghva A**, Fernandez A, Weiss N (2013). Thalamic Bursting Activity, Chronic Pain. In: *Encyclopedia of Pain*.
- **Taghva A**, Oluigbo C, Corrigan J, Rezai AR (2013). Posttraumatic stress disorder: Neurocircuitry and implications for potential deep brain stimulation. *Stereotactic and Functional Neurosurgery*, 2013, Mar 26;91(4):207-219.
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- **Taghva A**, Corrigan J, Rezai AR (2012). Obesity and brain addiction circuitry: implications for deep brain stimulation. *Neurosurgery*, 2012, Aug. 71(2) 224-38.
- **Taghva AS**, Malone DA, Rezai AR (2012). Deep Brain Stimulation for Treatment-Resistant Depression. *World Neurosurgery*, Oct 27, S1878-8750(12)01242-9.
- Robison A, **Taghva A**, Liu CY, Apuzzo MLJ (2012). "Surgery of the Mind, Mood, and Conscious State: An Idea in Evolution." *World Neurosurgery*, May; 77(5-6):662-86.
- **Taghva A**, Zada G, Khalessi AA, Hsieh PC (2012). "Minimally Invasive Posterior Atlantoaxial Fusion: A Cadaveric and Clinical Feasibility Study." *World Neurosurgery*, Jan 30 2012.
- Tsai A, Chen DM, Lin M, Hsieh JCF, Okitsu CY, **Taghva A**, Shibata D, Hsieh CL (2012). Heterogeneity and Randomness of DNA Methylation Patterns in Human Embryonic Stem Cells. *DNA and Cell Biology*, 2012 Jun;31(6):893-907.
- **Taghva A**, Corrigan J, Rezai AR (2012). Neuromodulation for anorexia nervosa and other eating disorders: current neurocircuitry models and the state of the art in deep brain stimulation. Manuscript in preparation.
- Stapleton CJ, Moldavskiy P, **Taghva A**, Hsieh PC (2012). "Monostotic Fibrous Dysplasia of the Thoracic Spine: Case Report and Review of the Literature." *In press, Journal of Neurosurgery: Spine*.
- Malone HR, **Taghva A**, Zarrabi G, Hsieh PC (2011). "Pigmented Villonodular Synovitis of the Atlantoaxial Articulation: Gross Total Resection in Two Stages." Manuscript in preparation.
- **Taghva A**, Song D, Hampson RE, Deadwyler SA, Berger TW (2011). "Determination of relevant neuron-neuron connections for neural prosthetics: Time-delayed mutual information for detection of functional connectivity in the rat hippocampus." *World Neurosurgery*, epub ahead of print Nov 4.

- **Taghva A** (2011). Hidden semi-Markov Models in the Automated Decoding of Microelectrode Recording Data for Deep Brain Stimulator Placement. May-Jun;75(5-6):758-763.e4, *World Neurosurgery*.
- Terterov S, **Taghva A**, Khalessi A, Liu CY (2011). "Intramedullary Abscess of the Spinal Cord in the Setting of Patent Foramen Ovale: Case Report and Review of the Literature." Sep-Oct;76(3-4):361.e11-4, *World Neurosurgery*.
- Terterov S, **Taghva A**, Khalessi A, Hsieh PC (2011). "Symptomatic Vertebral Artery Compression by the Rod of a C1-C2 Posterior Fusion Construct: Case Report and Review of the Literature." *Spine*, Jan 25. [Epub ahead of print].
- **Taghva A** (2010). An Automated Navigation System for Deep Brain Stimulator Placement using Hidden Markov Models. *Neurosurgery* 66(3 Suppl Operative):108-17.
- **Taghva A**, Li KW, Liu JC, Gokaslan ZL, Hsieh PC (2010). Minimally invasive circumferential decompression and stabilization for symptomatic metastatic spine tumor: technical case report. *Neurosurgery* 66(3):E620-2.
- Terterov S, **Taghva A**, MacDougal M, Giannotta SL (2010). "Posttraumatic Human Cerebral Myiasis." *World Neurosurgery*. 73(5):557-559
- Ohara S, **Taghva A**, Kim JH, Lenz FR (2007). "Spontaneous low threshold spike bursting in awake humans is different in different lateral thalamic nuclei." *Experimental Brain Research*. 180:281-8.
- Sciubba DM, Garonzik IM, Suk I, Gallia GL, Tufaro A, Wolinsky JP, **Taghva A**, Gokaslan ZL (2006). Frameless stereotaxy in a transmandibular, circumglossal, retropharyngeal cervical decompression in a Klippel-Feil patient: technical note. *European Journal of Spine*. 15(8):1286-91
- Yu K, **Taghva A**, Ma Y, Lieber MR (2004). "Kinetic analysis of the nicking and hairpin steps in V(D)J recombination." *DNA Repair*. 3:67-75.
- **Taghva A**, Ma Y, Lieber MR (2002). "Analysis of the Kinetic and Equilibrium Binding of Ku Protein to DNA." *Journal of Theoretical Biology*. 214: 85-97.
- Yu K, **Taghva A**, Lieber MR (2002). "The cleavage efficiency of the human immunoglobulin heavy chain VH elements by the RAG complex: implications for the immune repertoire." *Journal of Biological Chemistry* 277: 5040-5046.
- Lin IG, Han L, **Taghva A**, O'Brien LE, Hsieh CL (2002) "Murine de novo methyltransferase Dnmt3a demonstrates strand asymmetry and site preference in the methylation of DNA in vitro." *Molecular and Cellular Biology*. 22: 704-23.

BOOK CHAPTERS AND REVIEW ARTICLES

- Yeremeyeva E, **Taghva A**, Rezai AR. "Seeking new solutions: stimulation of diseased circuits in depression and other neurobehavioral disorders." *Clin Neurosurg*. 2012;59:44-9.
- Pham, M, **Taghva A**, Rezai AR. (2013) "Brain Machine Interface and Rehabilitation." In: Textbook of Nanoneuroscience and Nanoneurosurgery. Ed Kateb B, Heiss J. CRC Press.
- **Taghva A**, Hoh DJ, Laruyssen CL(2012). "Advances in the management of spinal cord and spinal column injuries." *Handbook of Clinical Neurology*, 2012;109:105-30.
- **Taghva A**, Oluigbo C, Szapiel M, Rezai A (2010). "Deep brain stimulation for neurobehavioral conditions." In preparation, International Journal of Neuroscience.
- **Taghva A**, Oluigbo C, Rezai AR (2010). "Deep brain stimulation: Current Applications and New Frontiers." *Principles of Neurosurgery, 2nd Edition, Ed. Ellenbogen*.
- Oluigbo CO, Szapiel M, **Taghva A**, Rezai AR. Motor Cortex Stimulation. In *Comprehensive Treatment of Chronic Pain by Medical, Interventional, and Behavioral Approaches: The AMERICAN ACADEMY OF PAIN MEDICINE Textbook on Patient Management*. Edited by Timothy R. Deer, MD.
- **Taghva A**, Liu CY, Apuzzo MLJ (2010). "Transcallosal Surgery of Lesions Affecting the Third Ventricle: Basic Principles." In press, Schmidek & Sweet Operative Neurosurgical Techniques, 6th ed., Elsevier.
- **Taghva A** (2010). Of minds and machines: applications of artificial intelligence to neurosurgery. *World Neurosurgery*.
- **Taghva A**, Kim PE, Liu CY, Apuzzo MLJ (2010). "Molecular Imaging: Apertures into the Landscape of Genomic Medicine." *World Neurosurgery*. 73(4):307-316.

- **Taghva A**, Liu CY, Kim PE, Apuzzo MLJ(2010). "From Atom to Brain: Applications of Molecular Imaging to the Clinical Neurosciences." *World Neurosurgery*. 73(5):477-485
- **Taghva A.**, Patel S.H., Fernandez A., Weiss N., Lenz. F.A (2007). Thalamic Bursting Activity, Chronic Pain. In 'Thalamus and Pain' (V. Apkarian, Sect. Ed.) from 'Encyclopedia of Pain.' Eds. R Schmidt and WD Willis. Springer Verlag:Berlin. 2410-2412.
- **Taghva A.**, Patel S.H., Fernandez A., Weiss N., Lenz F.A (2007). Central pain, human studies of Physiology. In 'Central Pain' from 'Encyclopedia of Pain.' Eds. R Schmidt and WD Willis. Springer Verlag:Berlin. 324-326.

ABSTRACTS, PRESENTATIONS, INVITED TALKS

- **Taghva A** (2018) Spinal Cord Stimulation: Evidence and Applications. Invited talk, Congress of Neurological Surgeons Annual Meeting.
- **Taghva A** (2017) Spinal Cord Stimulation: Evidence and Applications. Invited talk, Congress of Neurological Surgeons Annual Meeting.
- **Taghva A**, Karst E, Underwood P (2014). "Clinical Paresthesia Atlas Illustrates Likelihood of Coverage Based on SCS Electrode Placement." Oral presentation, AANS annual meeting, Washington, DC, 2014.
- **Taghva A**, Silvetz R, Ring A, Kim A, Liu CY, Ji Y (2014). "Magnetic Resonance Therapy Improves Disease Phenotype and EEG Alpha Power in Posttraumatic Stress Disorder." Poster, AANS annual meeting, Washington DC, 2014.
- Kim KA, **Taghva A**, Jin Y, Liu CY. Improved autism behaviors after noninvasive cerebral transcranial magnetic stimulation using customized frequency modulation: follow-up mean 24 months. AANS Annual Meeting, San Francisco, April 2014.
- Kim KA, **Taghva A**. Versatility and accuracy of intraoperative surface registration for spinal navigation and instrumentation in 50 consecutive revision operations. AANS Annual Meeting, San Francisco, April 2014.
- **Taghva A**, Karst E, Underwood P (2014). "Clinical Paresthesia Atlas Illustrates Likelihood of Coverage Based on SCS Electrode Placement." Oral presentation, NANS annual meeting, Las Vegas, 2014.
- Pallavaram S, **Taghva A**, Goble T, D'Haese P, Konrad P, Rezai A (2012). "Correlating Statistical Maps of Contraction due to Stimulation and the Optimal Implant Position for Subthalamic Deep Brain Stimulation with the Anatomy." Oral presentation, AANS annual meeting 2012.
- S. Pallavaram, P.-F. D'Haese, T. Goble, P. Agrawal, **A. Taghva**, K. Philip, E. Yermeyeva, C. Kao, J. S. Neimat, A. Rezai, P. E. Konrad, and B. M. Dawant, "Value of multi-center collaboration towards building more complete electrophysiological atlases using non-rigid image registration," in American Society for Stereotactic and Functional Neurosurgery (ASSFN) biennial meeting San Francisco, CA, USA, 2012.
- T. Goble, S. Pallavaram, P.-F. D'Haese, **A. Taghva**, C. Oluigbo, K. Philip, H. Chen, P. Agrawal, E. Yermeyeva, N. Vilelli, B. M. Dawant, and A. Rezai, "Macrostimulation during STN DBS surgery: Guidance for final implant position with respect to the motor internal capsule," in American Society for Stereotactic and Functional Neurosurgery (ASSFN); Biennial Meeting. San Francisco, CA, USA, 2012 June.
- P.-F. D'Haese, S. Pallavaram, T. Goble, C. Oluigbo, P. Agrawal, **A. Taghva**, K. Philip, C. Kao, J. S. Neimat, A. Rezai, P. E. Konrad, and B. M. Dawant, Value of multi-center collaboration towards building electrophysiological atlases," in Proc. of the Workshop on Deep Brain Stimulation Methodological Challenges (DBSMC), Med Image Comput Assist Interv (MICCAI), Nice, France, 2012.
- **Taghva A**, Attenello F, Khalessi A, Hsieh PC (2010). Minimally invasive C1-2 posterior spinal fusion. Eposter, 2012 AANS Annual Meeting.
- **Taghva A**, Song D, Berger TW (2010). "Time-delayed mutual information for detection of information transfer between CA3 and CA1 neurons in the rat hippocampus: Implications for neural prosthetic design." Eposter, Congress of Neurological Surgeons Annual Meeting, 2010.

- Terterov S, **Taghva A**, Khalessi A, Hsieh PC (2010). Symptomatic Vertebral Artery Compression by the Rod of a C1-C2 Posterior Fusion Construct: Case Report. Oral presentation, 2010 AANS Annual Meeting.
- **Taghva A** (2010). Automated Decoding of Microelectrode Recording Data for Deep Brain Stimulator Placement using Hidden Semi-Markov Models. Eposter, 2010 AANS, CNS Annual Meetings.
- **Taghva A**, Terterov S, Russin J, Sung G, Giannotta SL (2010). Factors Contributing to Increased Midline Shift Following Ventriculostomy Placement in Spontaneous Supratentorial Intracerebral Hemorrhage. Eposter, 2010 AANS Annual Meeting.
- **Taghva A**, Terterov S, Russin J, Gruen JP, Giannotta SL (2010). Primary Decompressive Craniectomy in the Management of Blunt Head Trauma: A Preliminary Retrospective Review. Eposter, 2010 AANS Annual Meeting.
- **Taghva A**, Song D, Berger TW (2009). "Time-delayed mutual information versus cross-correlation in the detection of information transfer between CA3 and CA1 neurons in the rat hippocampus." Abstract at Society for Neuroscience Meeting, 2009.
- **Taghva A** (2009). Automated Intraoperative Navigation for Deep Brain Stimulator Placement: A Hidden Markov Model Based Prototype System Using Microelectrode Recording Data. Oral poster, Congress of Neurological Surgeons Annual Meeting Forum on Stereotactic and Functional Neurosurgery 2009.
- **Taghva A**, Zada G, Khalessi A, Hsieh PC(2009). Minimally Invasive Posterior Atlantoaxial Fusion: A Pilot Cadaveric and Clinical Study. Digital poster at Congress of Neurological Surgeons Annual Meeting 2009.
- **Taghva A**, Terterov S, Russin J, Giannotta SL (2009). Primary Decompressive Craniectomy in the Management of Blunt Head Trauma: A Preliminary Retrospective Review. Digital poster at Congress of Neurological Surgeons Annual Meeting 2009.
- Hsieh PC, **Taghva A**, Gallia G, Sciubba D, Wolinsky JP, Gokaslan ZL(2009). En-bloc resection of chordomas in the cervical spine: Review of 5 consecutive patients with mean follow-up of over 4 years. Digital poster at Congress of Neurological Surgeons Annual Meeting 2009.
- Hsieh PC, **Taghva A**, Gokaslan ZL, Liu JC(2009). Posterolateral approach for corpectomy with circumferential decompression and instrumented fusion using expandable cages: A prospective case series of 15 consecutive patients. Digital poster at Congress of Neurological Surgeons Annual Meeting 2009.
- **Taghva A**, Winer J, Hoh DJ(2009). Serum markers predictive of positive MRI for spinal infection in patients evaluated in the emergency department. Poster at AANS/CNS Section on Disorders of the Spine and Peripheral Nerves 2009 meeting.
- Bristol RE, **Taghva A**, Krieger MD, McComb JG (2008). Primary Spinal Cord Astrocytomas in the Pediatric Population. 2008 International Symposium on Pediatric Neuro-Oncology.
- **Taghva A**, Kim KA, Russin J, Giannotta SL (2007). Use of Cerebral Oxygenation Monitoring as a guide to Triple-H therapy for SAH-induced vasospasm: Preliminary Report. Abstract, 2007 Congress of Neurological Surgeons.
- Kim KA, McDonald M, Pik JHT, **Taghva A**, Wang MY (2007). Dynamic Intraspinous Spacer Technology (DIAM) for Posterior Dynamic Stabilization: clinical and radiographic mean 29 month follow-up. Abstract, April 2007 American Association of Neurological Surgeons Meeting.
- Sciubba DM, **Taghva A**, Garonzik IM, Samdani AF, Suk I, Gokaslan SL (2007). Frameless Navigation in Transmandibular, Circumglossal, Retropharyngeal Cervical Decompression of Klippel-Feil Patients: Technical Note. Abstract April 2007 American Association of Neurological Surgeons Meeting.
- Kim KA; Wang MY; Ledezma CJ; **Taghva A**; Nicholas D; Wykoff. R. MR-Myelogram for Detection of Lumbar Facet Synovial Fluid Abnormalities and Predicting Positive Response to Facet Injection (2007). Select Abstract CNS 2006 Annual Meeting Chicago.

PROFESSIONAL ACTIVITIES

- Consultant for Nevro and Abbott Medical in Neuromodulation.
- Spine surgery consultant for Nuvasive
- Fellows courses on spine surgery and spinal cord stimulation for Boston Scientific, Nevro, and Nuvasive.
- Editorial board, Prior Section Editor, *World Neurosurgery*.
- Reviewer, *World Neurosurgery*, *Brain Stimulation*.
- *Ad hoc* reviewer, *Neurosurgery*, *Stereotactic and Functional Neurosurgery*, *Neuromodulation*, *Movement Disorders*, *Journal of Neural Engineering*, *Transactions on Neural Systems and Rehabilitation Engineering*, 2011 AANS meeting, 2011 INS meeting.
- Team physician, USC Trojan Football Team, 2009-2010 season.

OUTSIDE ACTIVITIES

- National champion junior tennis player. Featured in *Sports Illustrated's* "Faces in the Crowd", March 20, 1995.
- Gave piano performance jury recitals with "A" grades under tutelage of Dr. Radek Materka at the University of Southern California Thornton School of Music.