**Thomas John Raley, Jr. MD**

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Arlington, Virginia 22205

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703-522-2727 (office)

**Employment:**

10/2014-Present **Priority Care Urgent Care and Occupational Medicine, Baltimore MD**

 Medical Director

01/2010-Present **Advanced Spine and Pain (ASAP), Virginia/Washington DC/Maryland**

Spine Attending Physician and Medical Director

06/2007-Present **Hanover Medical/Physician’s First Neuromonitoring/ Maryland Neuromonitoring/ Southern California Neuromonitoring**

 Medical Director

04/2008-12/2009 **The Minimally Invasive Spine Institute, Arlington Virginia/Washington DC**

Spine Attending Physician

08/2005 – 04/2008 **Hanover Othopaedic Associates, Hanover, PA**

Spine Attending Physician

08/2004 – 08/2005 **State University of New York (SUNY), Syracuse, NY**

Spine Fellowship

07/2000 – 07/2004 **Mc Laren Regional Medical Center, Flint, MI**

PGY2, PGY3 – Categorical Orthopaedics

07/1999 – 06/2000 **Maimonides Medical Center – Brooklyn, New York**

Preliminary Surgery

07/1998 - 07/1999 **Union Memorial Hospital, Baltimore, Maryland**

Preliminary Surgery

01/1997 - 06/1998 **Henry County Hospital, New Castle, Indiana**

Emergency Room Extern

06/1996 - 06/1998 **Saint Frances Hospital, Beech Grove, Indiana**

Emergency Room Extern

Family Practice Extern

06/1996 - 06/1998 **Methodist Hospital, Indianapolis, Indiana**

Family Practice Extern

**Education:**

8/2004 – 8/2005 **State University of New York (SUNY) – Syracuse, New York**

Spinal Surgery and Interventional Pain Fellowship

Chairmen: Frederickson, B., MD, Yuan, H., MD

7/2000 – 7/2004 **McLaren Regional Medical Center – Flint, Michigan**

Orthopaedic Resident

7/1999 – 6/2000 **Maimonides Medical Center – Brooklyn, New York**

Orthopaedic Intern

7/1998 – 6/1999 **Union Memorial Hospital – Baltimore, Maryland**

General Surgery Internship

8/1994-5/1998 **Indiana University School of Medicine - Indianapolis, Indiana**

Medical Degree, May 1998

Honors: Family Medicine, Current Issues in Medicine, Neurology, Neurosurgery, Otolaryngology, Orthopaedic Surgery, Radiology, Clinical Orthodpaedics, Pediatric Orthopaedics, Orthopaedic Elective, Internal Medicine, Computer Applications for Writing & Research

8/1987-1/1991 **Johns Hopkins University - Baltimore, Maryland**

Bachelor of Arts, January 1991

Biology major, Psychology minor

**Hospital Affiliations: Baltimore Washington Medical Center**

 **INOVA-Healthcare System**

**Alexandria Hospital**

**Fairfax Hospital**

**Certifications:**

Board Certified in Orthopaedics (AAOS)

Medical Licensure: Michigan, New York, Pennsylvania, Virginia, District of Columbia, Maryland

Advanced Trauma Life Support (ATLS)

Kyphon’s Kyphoplasty

Charite’ Total Disc Training

Prodisc-L/Prodisc-C Total Disc Training

St. Frances Medical- X-Stop Interspinous Device

NASS Interventional Pain Course

Smith and Nephew Interventional Pain Course

Trans-1 AXIALIF Training- 1 and 2 levels

Medtronic- Functional Anesthetic Discography (FAD) Training

Alphatec’s Kyphoplasty System

St.Jude (ANS) Dorsal Column Stimulator Course

Medtronic Dorsal Column Stimulator Course

Medtronic Intrathecal Pain Pump Course

SI Bone- Sacro-iliac Joint Fusion

**Research Experience:**

2005 – 2006 **State University of New York (Syracuse)**

Chairmen: Bruce Fredrickson, MD and Hansen Yuan, MD

2000 – 2005 **Kettering University – Flint, Michigan**

Engineering Department

Chairman: Patrick Atkinson, PhD

2000 – 2005 **Michigan State University – East Lansing, Michigan**

School of Veterinarian Medicine – Department of Comparative Orthopaedic Research

Chairman: Steve Arnoczky, DVM

1993-1994 **University of Maryland Medical School, Baltimore, Maryland**

Lab Technician

Research in pharmacology and experimental therapeutics

1991- 1994 **National Institute on Drug Abuse (NIDA), National Institute of Health (NIH), Clinical Psychopharmacology Division**

Lab technician

1989- 1991 **Johns Hopkins University (Homewood Campus), Baltimore, Maryland**

Lab technician

Research in molecular cell biology and genetics

1987-1991 **Johns Hopkins Medical Institute (JHMI), Baltimore, Maryland**

Lab technician

Research ranged from basic chemistry to mass spectrometric analysis

**Book Chapters:**

**Raley TJ, Yuan H, Bao QB.** Primary author for Book Chapter 22- “Nucleus Augmentation” in The Lumbar Intervertebral Disc (Published by Thieme Medical)

**Publications:**

**Tobler WD, Melgar MA, Raley TJ, Anand N, Miller LE, Nasca RJ.** Clinical and radiographic outcomes with L4–S1 axial lumbar interbody fusion (AxiaLIF) and posterior instrumentation: a multicenter study. Medical Devices: Evidence and Research. September 2013 **Volume** 2013:6 **Pages** 155 - 161.

**Bauman MH, Raley TJ, Partilla JS, Rothman RB.** Biosynthesis of dopamine and serotonin in the rat brain after repeated cocaine injections: a microdissection mapping study. Synapse. 1993: 14(1):40-50

**Martin WB, Silly L. Murphy CM, Raley TJ, Cotter RJ.** Fragmentation of carbohydrates in laser desorption, plasma desorption and fast atom bombardment mass spectrometry. International Journal of Mass Spectrometry and Ion Processes. 1989;92:243-265

**Abstracts:**

**Miguel A. Melgar MD PhD, Willian D. Tobler MD, Thomas J. Raley MD, Neel Anand MD and Richard J. Nasca MD.** "Evaluation of Lumbar Lordosis in Patients Treated wtih the AXIALIF 2 Level Implant and Posterior Instrumentation." AANS/CNS March 2013 meeting- Poster presentation.

T**obler WD, Melgar MA, Raley TJ, Anand N, Miller LE, Nasca RJ.**  "Long term clinical and radiographic outcomes with L4-S1 Axial luumbar interbody fusion (AxiaLIF) and posterior instrumentation." March 2013.AANS/CNS March 2013 meeting- Poster presentation. Phoenix, Arizona.

**Miguel A. Melgar MD PhD, Willian D. Tobler MD, Thomas J. Raley MD, Neel Anand MD and Richard J. Nasca MD.**  "Evaluation of Lumbar Lordosis in Patients Treated wtih the AXIALIF 2 Level Implant and Posterior Instrumentation." ISASS April 2013 meeting- Posterior presentation. Vancouver, BC Canada.

T**obler WD, Melgar MA, Raley TJ, Anand N, Miller LE, Nasca RJ**. Long-term clinical and radiographic outcomes with L4-S1 axial lumbar interbody fusion (AxiaLIF) and posterior instrumentation. Submitted to Journal of Neurosurgery 2012.

**Willian D. Tobler MD, Miguel A. Melgar MD PhD, Thomas J. Raley MD, Neel Anand MD and Richard J. Nasca MD**. Axial Presacral L4 to S1 Interbody Fusion using AxiaLIF and Posterior Instrumentation. Clinical Outcomes. Presented at SMISS 2012, Miami, Florida.

**Miguel A. Melgar MD PhD, Willian D. Tobler MD, Thomas J. Raley MD, Neel Anand MD and Richard J. Nasca MD**. Evaluation of Lumbar Lordosis in Patients Treated with the AxiaLIF 2 Level Implant and Posterior Instrumentation. Presented at SMISS 2012, Miami, Florida.

**Raley TJ, Gertzen P, Tobler WD, Nasca RJ**. Isthmic Spondylolisthesis stabilized by AxiaLIF and percutaneous posterior instrumentation: A new minimally invasive technique. Presented as a poster at ISASS12, Barcelona, Spain 2011.

**Gertzen P, Tobler WD, Raley TJ, Nasca RJ**. Retrospective analysis of L5-S1 Axial lumbar interbody fusion (AxiaLIF), a comparison with and without the use of BMP (rh BMP-2). Presented as a poster at ISASS12, Barcelona, Spain 2011.

**Per Freitag, MD, PhD, William D. Tobler, MD, Thomas J. Raley, MD, Richard J. Nasca, MD.** Axial Pre-sacral L4-S1 Interbody Fusion: Two Year Clinical and Radiographic Outcomes. Submitted to Journal of Spinal Disorders 2011.

**Haider NR, Raley TJ.** DYNAMIC ANESTHETIC DISCOGRAPHY: Technique, Indications, and Clinical Followup from the first 100 patients. 2009. Presented at the American College of Spine Surgeons in 6/09 at NewPort Beach, California

**Raley, T.J., Poser, R.D., Kohm, A.C.** Comparative Height Restoration of Three Vertebral Augmentation Systems for Treatment of Vertebral Compression Fractures. Submitted to The Orthopaedic Research Society 2008.

**Atkinson, P., PhD, Sathuanarayana, D., Balasubramanian, S. Tavakoli, M., Anseth, S., MD, Raley, TJ, MD, Walter, N.MD.** The surface geometry of the human knee. The influence of subject anthropometry and flexion angle. Research being conducted at Kettering University and McLaren Regional Medical Center. Presented at The Society of Automated Engineers World Conference April 2007.

**Raley, TJ MD, Menapace, K., MD, McMulkin, M., PhD, Ferguson, R. MD, Caskey, P., MD.** “The Relationship of Bone Age to Chronological Age.” Research conducted at Shriners Hospital for Children, Spokane, Washington. Presented at the Michigan Orthopaedics Society annual meeting in Traverse City, MI 6/2001. Presented at the North Orthopaedics 78th Anniversary Meeting in Whitefish, MT 9/2001 where the Frank B. Smith Memorial Award was received. Submitted to Journal of Orthopaedics.

**Sato K, Raley TJ, Kalsbeck J, Luersen TG, Havlick R.** The “Crab Procedure” for the Later Repair of Scaphocephaly. 1997. Presented at the Pediatric Neurosurgery Meeting in 12/97 at New Orleans, Louisiana

**Chua RV, Raley TJ, Coots J, Shapiro SA..** Cervical Discitis and Epidural Abscess due to Citrobacterkoser: Case report. 1996. Submitted to the Journal of Neurosurgery.

**Aurelian L, Raley TJ.** ONMP inhibition of HSV growth and viral gene expression. 1993. Presented for STRTP Fellowship

**Partilla JS, XU H, Raley TJ, Lewis B,Char GU, Kim A, deCosta BR, Rice KC, Wittaker N, Rothman RB.** Preliminary evidence for a contaminant in HEPPSO buffer with high affinity for sigma 1 binding sites. 1992. Presented at the Annual Psychopharmacology meeting in 7/1992 at Keystone, Colorado.

**Bauman MH, Raley TJ, Partilla JS, Rothman RB.** Dopamine and serotonin biosynthesis in rat brain after chronic cocaine. 1992. Presented at the Annual Psychopharmacology meeting in 7/1992 at Keystone, Colorado

**Other Research:**

**Raley, TJ, MD, Dass, AG, MD.** Case Report: Idiopathic Bilateral Carpal Tunnel in a Child. Submitted to Journal of Hand for publication.

**Atkinson, P., PhD, Raley, TJ, MD, Anseth, S., MD, Kargus, R., Walter, N. MD.** The frequency of bone bruising secondary to subfracture knee trauma. Research being conducted at Michigan State University and McLaren Regional Medical Center.

**Atkinson, P., PhD, Raley, TJ, MD, Anseth, S., MD, Grant, K., Dean-El, J., Walter, N., MD, Lupo, P., Heckathorn, B., Dargan, T..** Tibial unloading and infrapatellar contact pressure are influenced by strap tension in a patellar tendon bearing (PTB) orthotic. Research being conducted at Kettering University and McLaren Regional Medical Center. Presented at the Flint Area Medical Education (FAME) Research Day 4/2002

**Atkinson, P., PhD, Anseth, S., MD, Raley, TJ, MD, Zima, A. Safley, C., MD.** Optimized fixation of T-supracondylar femoral fractures with a periarticular plate. Research being conducted at Kettering University and McLaren Regional Medical Center.

**Presentations:**

**Annual Psychopharmacology meeting in 7/1992 at Keystone, Colorado**: Preliminary evidence for a contaminant in HEPPSO buffer with high affinity for sigma 1 binding sites. 1992

**Annual Psychopharmacology meeting in 7/1992 at Keystone, Colorado**: Dopamine and serotonin biosynthesis in rat brain after chronic cocaine

**North Orthopaedics 78th Anniversary Meeting in Whitefish, MT 9/2001**: “The Relationship of Bone Age to Chronological Age.” Research conducted at Shriners Hospital for Children, Spokane, Washington. Frank B. Smith Memorial Award was received. Submitted to Journal of Orthopaedics.

**Michigan Orthopaedics Society annual meeting in Traverse City, MI 6/2001**: “The Relationship of Bone Age to Chronological Age.” Research conducted at Shriners Hospital for Children, Spokane, Washington. Frank B. Smith Memorial Award was received. Submitted to Journal of Orthopaedics.

**Flint Area Medical Education (FAME) Research Day 4/2002-** Tibial unloading and infrapatellar contact pressure are influenced by strap tension in a patellar tendon bearing (PTB) orthotic.

**Savannah Dhu-** DVTcare. Thromboprophylaxis in Orthopaedic patients. August 2005

**Sisyphean Spinal Society (Bermuda)**- Dynamic stabilization. June 2006

**Faculty Member-Nemacolin**- Pioneer Surgical. Minimally Invasive Spine Surgery. September 2006

**Faculty Member-MERI Lab (Memphis, Tennessee)-** Trans-1 cadaver course instructor, November 2006

**Faculty Member-MERI Lab (Memphis, Tennessee)**- Pioneer Surgical Course instructor for Minimally Invasive Lumbar Spine Surgery, January 2007

**Faculty Member-MERI Lab**- Trans-1 Course instructor for AxiaLIF, January 2007

**Faculty Member-MERI Lab**- Pioneer Surgical Course instructor for Minimally Invasive Lumbar Spine Surgery, April 2007

**Faculty Member-VISTA Lab (Baltimore, Maryland)**- Trans-1 Course instructor for AxiaLIF, April 2007

**Faculty Member-MERI Lab**- Pioneer Surgical Course instructor for Minimally Invasive Lumbar Spine Surgery, July 2007

**Pioneer Surgical National Sales Meeting (Chicago, Illinois)**- Guest Speaker for Minimally Invasive Lumbar Spine Surgery, September 2007

**Chinese Orthopaedic Association 2007-** Presentation on Nuclear Disc Replacements, November 2007

**Beijing, China**-Guest professor/surgeon at Zhangzou hospital. November 2007

**Faculty Member-MERI Lab-**Pioneer Surgical Course Instructor for Minimally Invasive Lumbar Spine Surgery and Validation of Crossfuse interbody cage, November 2007

**Faculty Member-Las Vegas Cadaver Lab**-Pioneer Surgical Course Instructor for Quantum MIS Training, December 2007

**Faculty Member-St. Joseph’s Hospital, Patterson New Jersey-**Kyphon Course Instructor for Functional Anesthetic Discography (FAD)-Cadaver Instructor and Lecturer, March 2008

**Faculty Member-MERI Lab-** Courseinstructor for Pioneer Surgical**,** April 2008

**Proctor-Community South Hospital, Indianapolis, Indiana-**Oversaw Dr.Cole’s first Trans-1 case

**Faculty Member-5th Annual Innovative Techniques in Spine Surgery, Los Cabos, Mexico-** Presentor for **DFine-** “Comparison Height Restoration-Cadaveric Analysis of Innovative Energy Modulated Vertebral Augmentation System”, June 2008

**Faculty Member-5th Annual Innovative Techniques in Spine Surgery, Los Cabos, Mexico-** Presentor for **Kyphon-** “Functional Anesthetic Discography”, June 2008

**Faculty Member-Minnesota Cadaver Lab**- Course instructor for Pioneer Surgical, July 2008

**Sisyphean Spinal Society (Bermuda)**- Presentation on FAD Catheter system, July 2008

**International Spine Intervention Society (ISIS), Las Vegas, Nevada-** Presentor for **Kyphon**- Discyphor Direct Catheter System (“Diagnosis in Motion”), July 2008

**Faculty Member- Baltimore, Maryland**-Course instructor for Pioneer Surgical, September 2008.

**Faculty Member-Innaugural Annual Symposiumfor the Association of Presacral Spine Surgeons, Las Vegas, Nevada-** Presentor for Trans-1-“Complications vs. Standard of Care”, October 2008

**Faculty Member-Innovation & Emerging Trends in the Spinal Industry at NASS, Toronto, Ontario** –Presenter on Functional Anesthetic Discopraphy (FAD) and Interspinous Percutaneous Decompressor (IPD)

**Beijing, China**-Guest professor/surgeon at Hospital 306. November 2008

**Chinese Orthopaedic Association (COA) 2008-** Presentation on Vertebral Augmentation (DFINE), November 2008

**Faculty Member- Webcast-**Medtronic**-**Lecture on Functional Anesthetic Discography (FAD), December 2008

**Faculty Member-Philadelphia, Pennsylvania-**Medtronic-Lecturer on “Advancements in Modern Spinal Technology”, December 2008

**Faculty Member-Indianapolis, Indiana-**Medtronic-Lecturer on “Advancements in Modern Spinal Technology”, December 2008

**Faculty Member-Charlotte, North Carolina-**Medtronic course instructor for Functional Anesthetic Discography (FAD)-Cadaver Instructor and Lecturer, December 2008

**Faculty Member- Webcast-**Medtronic**-**Lecture on Functional Anesthetic Discography (FAD), December 2008

**Proctor-Riverside Hospital, NewPort News, Virginia-**Oversaw Dr. Aldrige’s first Trans-1 case, December 2008

**Faculty Member-Newark, New Jersey-**Course Instructor for Pioneer Surgical (CrossFuse, MIS Quantum), January 2009

**Faculty Member- Ann Arbor, Michigan-** Medtronic-Lecture on Functional Anesthetic Discography (FAD) at University of Michigan, February 2009

**Flint, Michigan-** Grand Rounds at McLaren Regional Medical Center. Presentation on Minimally Invasive Spine Surgery, February 2009

**Faculty Member- Webcast-**Medtronic**-**Lecture on Functional Anesthetic Discography (FAD), March 2009

**Arlington, Virginia-** Presentation on Minimally Invasive Spine Surgery and Interventional Pain Management to Nurse Practioners Association of Virginia, March 2009

**Arlington, Virginia-** Presentation on Minimally Invasive Spine Surgery and Interventional Pain Management to the Arlington County Medical Society, March 2009

**Arlington, Virginia-** Presentation on Interventional Pain Management to the Podiatric Society of Virginia, March 2009

**Faculty Member-Newark, New Jersey-**Course Instructor for Pioneer Surgical (CrossFuse, MIS Quantum), April 2009

**Faculty Member-Baltimore, Maryland-**VISTA LabCourse Instructor for Trans-1, April 2009

**Faculty Member-Bethesda, Maryland-** 21st Annual International Bethesda Spine Workshop at USUHS, April 2009

**Faculty Member-Chicago, Illinois**- Functional Anesthetic Discography (FAD) User’s Meeting, May 2009

**Faculty Member-Newport Beach, California**- The American College of Spine Surgery (ACSS)- Presentation on Lumbar Stenosis (Current Concepts of Treatment) as well as Abstract Presentation on DYNAMIC ANESTHETIC DISCOGRAPHY: TECHNIQUE, INDICATIONS, AND CLINICAL FOLLOW UP FROM THE FIRST 100 PATIENTS, June 2009

**Beijing, China**. Guest professor. Performed 12 surgeries using a novel percutaneous fusion device (Ouroborous), July 2009

**Faculty Member-Baltimore, Maryland-** VISTA Lab- Cadaver/didactic course for Alphatec’s Osseofix FDA study, July 2009

**Faculty Member-Silver Spring, Maryland-** Holy Cross Hospital- Cadaver/Didactic course training for Medtronic Neuromodulation, August 2009.

**Faculty Member-Carlsbad, California-** Alphatec Cadaver/Didactic course training physicians on the ILLICO MIS percutaneous pedicle screw system, August 2009

**Faculty Member-San Paolo, Brazil-** Arthrokinetics Cadaver/Didactic course training physicians on Endoscopic Discectomy, August 2009

**Faculty Member- NewPort News, Virginia-** Trans-1- Proctored Dr. Amadeo in the OR on a 2 level AXiaLIF procedure, September 2009

**Grand Rounds- Alexandria, Virginia-** Alexandria Hospital- “Minimally Invasive Spine Surgery”, September 2009

**Faculty Member- San Juan, Puerto Rico-** Trans-1- Proctored Dr. Villamil in the OR on a 2 level AXiaLIF procedure, October 2009

**SilverSpring, Maryland-** Presentation on “Minimally Invasive Spine Surgery” to the Washington Claims Association, October 2009

**Faculty Member- Las Vegas, Nevada-** Trans-1- Cadaver/Didactic course at The Society of Minimally Invasive Spine Surgery (SMISS), October 2009

**Food and Drug Association (FDA)- Bethesda, Maryland-** Trans-1- Percutaneous Nuclear Replacement presentation to the FDA- Pre-IDE Meeting, October 2009

**Faculty Member-Stafford, Virginia-** Medtronic- Proctoring Surgeons Dorsal Column Stimulator techniques for insertion of the product, January 2010

**Amercian Academy of Orthopaedic Surgeons (AAOS)- New Orleans, Louisianna-** Alphatec Spine- Proctoring session for ILLICO Percutaneous pedicle screw system, March 2010

**Fredricksburg, Virginia-** Stryker Orthopaedic talk on total hips and total knee to Primary Care Physicians, March 2010

**Stafford, Virginia-** Community talk on management of Chronic Low Back Pain, March 2010

**Faculty Member- Baltimore, Maryland-** Trans-1- Cadaver/Didactic course at Johns Hopkins Medical Center teaching physicians the AXIALIF 1 and 2 level systems, April 2010

**Faculty Member- New Orleans, Louisianna-** Spine Arthroplasty Society 10th Annual Meeting- Presenter, May 2010

**Faculty Member- Amsterdam, Netherlands-** Joimax 1st International TESSYS User Meeting, May 2010

**Reistertown, Maryland-** Pioneer Surgical- Live pig surgeries evaluating the Extreme Lateral Approach (XLIF) and validating the dilators for EMG activity, July 2010

**Faculty Member- San Francisco, California-** Alpha-Tec- Lecture on Minimally Invasive Techniques for Posterior Spinal Fusion with Instrumentation, Cadaver/Didactic course teaching placement of percutaneous pedicle screws, August 2010

**Faculty Member- Chicago, Illinois-** SI Bone- Cadaver/Didactic course teaching Sacro-iliac fusions, September 2010

**Stafford, Virginia-** Community talk on management of Chronic Low Back Pain, October 2010

**Faculty Member- Miami, Florida-** Society of Minimally Invasive Spine Surgery (SMISS)- Presenter on AxiaLIF, November, 2010

**Faculty Member- Chicago, Illinois-** Association of PreSacral Surgeons (APSS)- Presenter on Axialif 2 year follow-up, September, 2010

**Faculty Member- Austria-** Ouroborous- Cadaver/Didactic course teaching surgeons minimally invasive approaches using the Ouroborous interbody fusion cage, September 2010

**Faculty Member- Fairfax, Virginia**- Thayer- Cadaver/Didactic course teaching the Manos minimally invasive approach for Carpel Tunnel Release, January 2011

**Faculty Member- Edinburgh, Scotland**- British Association of Spine Surgeons (BASS)- Presenter of spinal endoscopic approaches, February 2011

**Charlottesville, Virginia**- Lecture to University of Virginia (UVA) surgeons on Trans-1 lumbar fusions, February 2011

**Tyson's, Virginia**- Medtronic- Lecture to case manager nurses on the treatment of low back pain, February 2011

**Faculty Member- Salzberg, Austria-** Ouroborous- Cadaver/Didactic course teaching European surgeons MIS (minimally invasive surgery) interbody fusion with the Ouroborous annular containment device, February 2011

**Faculty Member- Bethesda, Maryland-** Thayer- Cadaver/Didactic course at Bethesda Naval hospital teaching incisionless carpel tunnel surgery, March 2011

**Faculty Member- Saginaw, Michigan**- Thayer- Teaching incisionless carpel tunnel surgery to a hand surgeon, April 2011

**Beijing, China**- Guest professor at Peking University People’s Hospital. Lectured on Minimally Invasive Spine Surgery (Endoscopic Discectomy/ Extreme Lateral Interbody Fusion), November 2011

**China-** Guest professor for Bonovo Orthopedics. Lectured on Minimally Invasive Spine Surgery (Extreme Lateral Interbody Fusion -XLIF) as well as performed/taught surgeons the XLIF approach in Kunming/Shanghai/Beijing, August 2012.

**Pheonix, Arizona**- AANS/CNS March 2013 meeting- Poster presentation- "Evaluation of :Lumbar Lordosis in Patients Treated wtih the AXIALIF 2 Level Implant and Posterior Instrumentation." March 2013.

**Phoenix, Arizona**- AANS/CNS March 2013 meeting- Poster presentation- "Long term clinical and radiographic outcomes with L4-S1 Axial luumbar interbody fusion (AxiaLIF) and posterior instrumentation." March 2013.

**Vancouver, BC Canada-** ISASS April 2013 meeting- Posterior presentation- "Evaluation of :Lumbar Lordosis in Patients Treated wtih the AXIALIF 2 Level Implant and Posterior Instrumentation." April 2013.

**Vancouver, BC Canada-** ISASS April 2013 meeting- Poster presentation- "Long term clinical and radiographic outcomes with L4-S1 Axial luumbar interbody fusion (AxiaLIF) and posterior instrumentation."April 2013.

**Changbaishan, China**- Guest Professor for Bonovo Orthopaedics. Lateral Fusion Cage Symposium. Lectured on Minimally Invasive Lateral Fusion Techniques. Changbaishan/Jilin Province. August 2014.

**Xian, China**- Guest Professor. International Spine Symposium. Lectured on Posttraumatic Cervical Deformity. June 2015.

**Philadelphia, Pennsylvania**- Aesculap Clinical Evaluator. Ennovate Deformity Cadaver Workshop. Evaluating and Designing of Spinal instrumentation. September 2016.

**Medical Projects:**

**DVT Care Inc-** Designer of a portable compression cuff for the prevention of DVTs. 510k approved

**Scient’x Study**- Randomized study comparing fusion rates of standard interbody fusions and posterior lateral fusions with and without the Scient’x dynamic rod

**Ouroborous**- Validation of interbody implants. Implanting the implants into Sheep in Syracuse, NY. Awaiting FDA approval for human use. CE marked. Human surgeries currently being performed in China/Germany.

**Kyphon**- FDA study. Comparing Discography to Functional Anesthetic Discography (FAD).

**Innovative Spine Technologies (IST)**- Comparative study of TLIF versus XLIF. Patient outcome study

**Pioneer Surgical**- 1 of 3 surgeons on the design team for a Lateral Interbody Fusion Device

**Vertiflex**- Starting FDA study for an interspinous spacer. Randomized controlled study looking at efficacy compared to Medtronics X-Stop

**DFine-**Vertebroplasty-Comparing vertebral body height restoration to Kyphoplasty

**Alphatec-** FDA study. Evaluating Osseofix compression fracture device

**St. Jude Medical (ANS)-** Starting a Registry study looking at patient outcomes with Dorsal Column Stimulators

**Crosstrees-** FDA study for compression fracture treatment

**Hanover Medical**- Patent on steerable electrode for Dorsal Column Stimulators (DCS).

 Patent on portable Spontaneous Compression Pumps to prevent DVTs

**Consulting:**

**Medtronic (Kyphon)**: Course Instructor. Teaching physicians kyphoplasty techniques as well as FAD. One of 12 sites involved with the SODA Study

**Medtronic**: Course Instructor. Proctoring physicians on Dorsal Column Stimulator insertion techniques

**Trans-1**: Course Instructor. Teaching physicians the AxiaLIF technique. Member of the Scientific Advisory Board.

**Pioneer Surgical Technologies:** Course Instructor. Teaching physicians the Minimally Invasive Quantum pedicle screw system and XLIF approach

Product Design. Currently designing Crossfuse Peek cages and Bone Harvester

**Alphatec:** One of 5 surgeons on the design team for a minimally invasive retractor system and pedicle screw system

**DFine:** Evaluating new vertebroplasty system

**Scient’x:** One of 3 surgeons on the design team for minimally invasive pedicle screw system

**Vertiflex:** Enrolled in the inspirion interspinous spacer study

**Thayer:** Performed 1st incisionless Carpel tunnel surgery on the East Coast and the 2nd surgery in the United States. Teach physicians the MIS Carpel tunnel surgery.

**Ouroborous:** Physician on the Medical Advisory Board (MAB)

**Societies:**

**North American Spine Society (NASS)**

**International Society for the Advancement of Spine Surgery (ISASS)**

**Sisyphean Spinal Society**

**Spine Arthroplasty Society (SAS)**

**Peer Reviewer**

**American Academy of Orthopaedic Surgeons (AAOS)**

**Board Certified**

**Pennsylvania Orthopaedic Society (POS)**

**Society of Minimally Invasive Spine Surgery (SMISS)**

**Arlington County Medical Society (ACMS)**

**Journal Reviewer:**

 **International Journal of Spine Surgery**