

EXHIBIT A

Curriculum Vitae

Eric H. Ledet, Ph.D.

Center for Disability Services
63 Karner Road
Albany, NY 12205
eric.ledet@cfdsny.org
www.cfdsny.org/hii-tech

Current Position

Vice President, Research and Development
Director, Health Innovations Incubator
Center for Disability Services, Albany, NY
(eric.ledet@cfdsny.org; www.cfdsny.org/hii-tech)

Chief Operating Officer, Co-Founder
ReVivo Medical, Albany, NY.
(eledet@revivomedical.com; www.revivomedical.com)

Educational Preparation

Doctor of Philosophy (Biomedical Engineering), 2003.
Rensselaer Polytechnic Institute.
Thesis: "Real Time *In Vivo* Loading in the Lumbar Spine Using an Interbody Implant Load Cell."
Advisor: John B. Brunski.

Master of Science (Biomedical Engineering), 1995.
Rensselaer Polytechnic Institute.
Thesis: "Kinematic Parameters of the First Carpometacarpal Joint for Application to Anthropomorphic Robotic Hand Design."
Co-Advisors: Harry E. Stephanou and John B. Brunski.

Bachelor of Science (Mechanical Engineering), 1993.
University of Arizona.
Concentration: Controls.

Professional Experience

Center for Disability Services, Albany, NY.

2021 – Present Vice President, Research and Development
Director, Health Innovations Incubator & Technology Center

2017 – 2021 Senior Technical Advisor, Life Quality Solutions Incubator

Rensselaer Polytechnic Institute, Troy, NY.

2023 – Present Adjunct Professor, Department of Biomedical Engineering

2021 – 2022 Professor, on Leave of Absence, Department of Biomedical Engineering

2019 – 2021 Professor (With Tenure), Department of Biomedical Engineering

2012 – 2019 Associate Professor (With Tenure), Department of Biomedical Engineering

2005 – 2012	Assistant Professor, Department of Biomedical Engineering
2004 – 2005	Research Assistant Professor, Department of Biomedical Engineering
2004 – 2005	Clinical Professor, Department of Biomedical Engineering
2000 – 2001	Adjunct Faculty, Department of Core Engineering
<u>Stratton VA Medical Center, Albany, NY.</u>	
2021 – Present	Research Scientist (WOC) , Rehabilitation Research and Development Service
2017 – 2021	Research Scientist, Rehabilitation Research and Development Service
2011 – 2017	Research Scientist (WOC) , Rehabilitation Research and Development Service
<u>Albany Medical College/Albany Medical Center Hospital, Albany, NY.</u>	
2005 – Present	Adjunct Professor, Department of Orthopaedic Surgery
2004	Assistant Professor Director, Orthopaedic Research Laboratory Division of Orthopaedic Surgery and Center for Neurosciences
1996 – 2003	Instructor of Surgery Director, Orthopaedic Research Laboratory Division of Orthopaedic Surgery
1995 – 1996	Research Staff, Division of Orthopaedic Surgery
<u>ReVivo Medical, LLC</u>	
2022 – Present	Co-founder and Chief Operating Officer. Albany, NY.
2011 – 2022	Co-founder and Chief Science Officer. Albany, NY.
<u>inSense Medical, LLC</u>	
2015 – 2021	Co-founder and Chief Technology Officer. Troy, NY.
<u>I/O Surgical, LLC</u>	
2013 – 2017	Co-founder. Albany, NY.

Licensure

Professional Engineering In Training Certification, State of Arizona, 1993.
License Number 05508.

Honors and Awards

Honors & Awards Received by Eric Ledet

- 2023 Top Downloaded Article During First 12 Months in Publication, *JOR Spine*. For “Spine Biomechanical Testing Methodologies: The Controversy of Consensus vs. Scientific Evidence.”
- 2022 “2022 ISSLS Prize.” Annual international competition that recognizes the highest impact research related to the spine. Awarded by the International Society for Study of the Lumbar Spine and the *European Spine Journal*.
- 2021 Inducted into Tau Beta Pi, the National Engineering Honor Society.
- 2021 “Finalist - Best Poster.” Orthopaedic Research Society Spine Section for “Cyclic Loading Enhances Small Molecule Transport in the 8-week Degenerated Rabbit Intervertebral Disc.”
- 2020 Finalist, Business Innovation Competition. Annual meeting of the Orthopaedic Research Society for inSense Medical.
- 2019 Burt Swersey Inventor’s Studio Challenge Award supported by the Lemelson Foundation for “Caregiver Assisted Oral Hygiene for Individuals With Disabilities”.
- 2018 “Finalist - Best Poster.” Orthopaedic Research Society Spine Section for “Cervical Plate Stiffness Affects Load-Sharing and Fusion Outcomes *In Vivo*.”
- 2017 American Society of Engineering Education “Campus Star”.
- 2017 “Best Trauma Poster.” Awarded by the Orthopaedic Research Society for “Long Term *In Vitro* Testing of a Wireless Pressure Sensor for Detection of Acute Compartment Syndrome.
- 2016 “Rensselaer Alumni Association Teaching Award.” Awarded for outstanding teaching techniques, contributions to the campus experience, and commitment to students at Rensselaer Polytechnic Institute.
- 2016 Honorary Phalanx Member. Honor to recognize those who have distinguished themselves in the areas of leadership, service, and devotion to Rensselaer Polytechnic Institute.
- 2015 “2015 ISSLS Prize.” Annual international competition that recognizes the highest impact research related to the spine. Awarded by the International Society for Study of the Lumbar Spine and the journal *SPINE*.
- 2014 “T. David Sisk Award for Best Original Research Paper.” Awarded by the *Journal of Sports Health*. This award was given for the most outstanding original research paper published in *Sports Health* in 2013.

- 2014 “3rd Place Best Poster.” Awarded by the Society of Women Engineers National Meeting. *Technique for Designing Cervical Plates of Varying Stiffness.*
- 2013 “Best Paper – Basic Sciences.” Annual Meeting of the North American Spine Society. *Factors Affecting Small Molecule Trans-Endplate Transport into the Intervertebral Disc In-Vivo.* New Orleans, LA. October, 2013.
- 2013 “Annual Program Innovation Award.” Awarded by the Cerebral Palsy Association of New York State. Awarded to the collaboration between the Center for Disability Services and the RPI Biomedical Engineering Capstone Design Course. The award recognizes exemplary programs for individuals with disabilities which enhance the independence and self-esteem of its participants and serves as a model across New York State.
- 2013 NYSTAR Advanced Manufacturing Conference “Best Poster” award for spine simulator research.
- 2013 Rensselaer Lemelson Prize Finalist: Advisor of Rebecca Wachs for implantable sensor research.
- 2013 “Board of Trustees Outstanding Teaching Award.” Rensselaer Polytechnic Institute.
- 2012 “Media Spotlight Award”. Awarded by the Orthopaedic Research Society for abstracts at the annual meeting with the highest potential impact.
- 2012 “Top Ten Medical Breakthroughs of 2012.” Awarded by *Consumers Digest* for implantable wireless sensor technology.
- 2012 “Annual Technology Innovation Award.” Awarded to the collaboration between the Center for Disability Services and the RPI Biomedical Engineering Capstone Design Course (Eric Ledet). Awarded by the Capital Region Center for Economic Growth to a company or individual who has made a significant impact on the region’s innovation economy, including mentorship, funding, volunteered time, and championing change.
- 2011 “Class of 1951 Outstanding Teaching Award.” Rensselaer Polytechnic Institute. Awarded annually to one faculty member for outstanding accomplishments in teaching.
- 2010 “President’s Citation Award” (Best Abstract), Annual Meeting of the American Academy of Physical Medicine and Rehabilitation. “Alterations in Intervertebral Disc Matrix Homeostasis by *In Vivo* Dynamic Compression.” Seattle, WA. November, 2010.
- 2007 “Excellence In Education” Award. Rensselaer Polytechnic Institute School of Engineering.
- 2007 *Who's Who Among American Teachers & Educators®.*
- 1998 Albany Medical Center “Employee of the Month”. August 1998.

Honors & Awards Received by Supervised Staff/Students

Doctoral Students

2022	<i>Best Presentation, RPI Graduate Research Symposium Rebecca Levy</i>
2021-22	<i>Founders Award for Excellence, Rensselaer Polytechnic Institute Rebecca Levy</i>
2021-22	<i>Founders Award for Excellence, Rensselaer Polytechnic Institute Benjamin Liddle</i>
2021	<i>Best Poster Award, RPI Graduate Research Symposium Rebecca Levy</i>
2020-21	<i>Life Quality Solutions Incubator Graduate Fellowship. Rebecca Levy</i>
2019-20	<i>Life Quality Solutions Incubator Graduate Fellowship. Madelyn Stout</i>
2019-21	<i>Life Quality Solutions Incubator Graduate Fellowship. Ben Liddle</i>
2017-21	<i>Life Quality Solutions Incubator Graduate Fellowship. Elizabeth Capogna</i>
2017-18	<i>Life Quality Solutions Incubator Graduate Fellowship. Dusty Schroeder</i>
2016-17	<i>Life Quality Solutions Incubator Graduate Fellowship. Joshua Peterson</i>
2016	<i>Change the World Challenge Winner, Rensselaer Polytechnic Institute Matthew Dion</i>
2011-15	<i>NSF Graduate Research Fellowship. Sarah (Linley) Gullbrand</i>
2015	<i>Gisser Prize Sarah (Linley) Gullbrand Annual award for a biomedical engineering graduate student whose dissertation is considered exemplary in the area of experimental work.</i>
2011	<i>American Association of University Women's Dissertation Fellowship. Rebecca Wachs</i>
2009	<i>Honorable Mention NSF Graduate Research Fellowship. Mary Beth (Mulrane) Grabowsky</i>

Undergraduate Research Students

2019	<i>Best Presentation RPI URP Symposium Katya Kradinova</i>
2017	<i>Honorable Mention Best Poster RPI URP Symposium Kate Batzinger</i>
2017	<i>Honorable Mention Best Poster RPI URP Symposium Khaled Abdoun</i>
2016	<i>Best Poster RPI URP Symposium Ali Wells</i>
2016	<i>Honorable Mention Best Poster RPI URP Symposium Khalil Drayton</i>
2016	<i>Honorable Mention Best Poster RPI URP Symposium Erika Shauer</i>
2016	<i>Honorable Mention Best Poster RPI URP Symposium Carolyn Chlebek</i>
2015	<i>Finalist, KAUST International Research Competition for Undergraduates. Awarded for abstract "Simple Robust Wireless Transducers for In Vivo Force Sensing." Thuwal Saudi Arabia. Omar Abdoun</i>

Technology Transfer and Innovation

Entrepreneurship Activities

- Co-founder & Chief Operating Officer, ReVivo Medical, Inc. 2011 - Present.

ReVivo Medical is dedicated to improving treatments for back and neck pain through the innovative design of spinal implants. I have led the company's efforts in needs identification, research, technology development, design, regulatory, quality, strategic partner relations, development of our IP portfolio, and our first-in-human-use clinical trial.

During sabbatical from RPI (2016-17), I worked full-time for ReVivo Medical in the role of Chief Science Officer and was PI on a Phase I SBIR.

"Continuously Load-Sharing Elastically Deformable Spinal Fusion Implant."

SBIR Phase I R43 AR068819-01

07/01/15 – 06/30/17.

Role: Principal Investigator

I was responsible for efforts to establish efficacy of the company's flagship products and for preparing two 510(k) submissions to the FDA. The company is currently engaged in a first-in-human-use pivotal clinical trial to support FDA clearance of the company's two flagship products.

- Co-founder and Chief Technology Officer, inSense Medical, LLC. 2015 - 2021.

inSense Medical used award-winning wireless sensor technology to facilitate personalized medicine through real time patient-specific data. I led the company's efforts in research, technology development, product development, external funding, and industry relations.

In 2019, inSense Medical was awarded an NSF I-Corp I-Site grant. I served as academic lead on the grant and led efforts to identify strategic partners for commercialization of our flagship product.

"Wireless Sensor-Enabled Smart Diaper: Customer Discovery"

I-Corp I-Site Grant.

02/01/19 - 04/12/19

Role: Academic Lead (PI: David Fiorella, inSense Medical)

In 2020, inSense Medical was awarded a Phase I SBIR which I authored and was a Co-Investigator.

"Wireless Moisture Sensing Brief for Non-Invasive Monitoring of Adult Incontinence"

National Administration For Community Living

NIDILRR SBIR Phase I Grant 90BISA0039-01-00.

09/01/20-08/31/21

\$99,830

Role: Co-Investigator (PI: David Fiorella, inSense Medical)

- Co-founder I/O Surgical, LLC. 2013 - 2017.

I/O Surgical developed novel wireless sensor technology and licensed it for further development and commercialization.

- Member of ProActive Innovations, LLC. 2010 - 2015.

ProActive Innovations is a medical device company focused on developing diagnostic and therapeutic tools to prevent injury and facilitate rehabilitation of the low back and neck.

Establishment of Product Development Incubator

From 2016-2021, I volunteered my services to the Center for Disability Services, a not-for-profit health services organization in Upstate New York which provides services to individuals with disabilities. I served as Senior Technical Advisor to establish the Health Innovations Incubator & Technology Center (www.cfdsny.org/hii-tech). The Incubator's mission is to improve the quality of life of individuals with disabilities through research and development of novel products and best practices. I worked with the Center's senior leadership and Board of Trustees to develop the mission statement, structure, advisory board, and pipeline product priorities for the Incubator. I worked with the organizing committee to develop an operational plan and infrastructure requirements. The Incubator is a 5,000 ft² prototyping facility with professional staff, a fellowship program, an internship program, and an apprenticeship program. Since inception, the Incubator has won three competitive proposals, has been awarded two US patents, and one innovation award.

During the 2020 COVID-19 pandemic, the Incubator responded to an urgent request from Albany Medical Center Hospital and designed, fabricated, and delivered 800 face shields within a three week time frame. Based on the positive response from the medical professionals, the Incubator competed for and was awarded (October 2020) a contract from New York State to provide face shields to all state health facilities as a preferred vendor.

In 2021, I accepted a full-time position to lead the Incubator through a strategic growth.

Establishment of The Flying Pig Society

The Flying Pig Society (www.flyingpigsociety.org) was established in 2022 as a community organization created to inspire a mindset of innovation and to develop a community of skilled innovators in the Capital Region of New York. The FPS coordinates and hosts events to inspire young professionals and students to become innovators and entrepreneurs. The FPS also hosts workshops to teach professionals, faculty, staff, and students the skills needed to provide consulting services for startups. The FPS holds events approximately monthly at venues across the Capital Region which are open to the public. I am one of the founders of the FPS.

Medical Advisory Boards

1. Stryker Trauma. Advisory Board Member. 2024-Present.
2. CVS Medical. Medical Advisory Board Member. 2010-2011.
3. New Millennium Spine. Medical Advisory Board Member. 2009-2011.
4. CardioMEMS. Musculoskeletal Medical Advisory Board Chair. 2008-2012.
5. Musculoskeletal Transplant Foundation. Medical Advisory Board Meeting. Vancouver, Canada. September, 2007.
6. Stryker Trauma. Innovation Council Medical Advisory Committee. 2003-2005.
7. Musculoskeletal Transplant Foundation. Medical Advisory Board Meeting. Edinburgh, Scotland. September, 2003.

Advisory Boards

Startup Companies

1. Novuosis Scientific, LLC
Advisor.
2023-Present.
2. Evidus, LLC
Advisor.
2023-Present.
3. Kratos Orthopedics, LLC
Advisory Board Member.
2022-Present

Academic & Not-For-Profit Organizations

1. Department of Electrical & Biomedical Engineering.
Fairfield University
Industry Advisory Board Member.
2022-Present.
2. Hope for Good (<https://hopeforgood.org/>)
Advisory Board Member
2022-Present.
3. NSF Future Manufacturing Site: Bio-Manufacturing of Hybrid Tissue-Electronic Devices
SUNY Polytechnic Institute.
Industry Advisory Board Member.
2021-Present.
4. Life Quality Solutions Incubator
Center for Disability Services.
Advisory Board Member.
2016-2021.
5. Bioengineering Program
Union College.
Advisory Committee Member.
2011-Present

Consulting Work

Current/Former Consultant For: Applied Spine Technologies, CardioMEMS, Center for Disability Services, CVS Medical, DePuy Biologics, DePuy Spine, Hercules Orthopaedics, Innovative Spinal Technologies, Intrinsic Therapeutics, Inspiralia, Medicea International, New Millennium Spine, Paladin Medical, Platex Medical Products, Praxis Technology, Ranier Spine, Ridgetop Research Consultants, Round Table Group, Rubin-Anders, Spinal Kinetics, Stryker Trauma, Tau Orthopaedics, Veritas Spine, Vertech Innovations.

Expert Witness Work

- Schiller Exline, PLLC. 2012-2013. Case 4:10-CV-5300-RAS.
- Axinn, Veltrop & Harkrider, LLP. 2015-2016. Case 1:13-CV-00854-LPS
- Irell & Manella, LLC. 2019-2023. Case 3:18-CV-01342-HES
- Jupiter Experts. 2020. Case C.A. No. 18-1972-RGA; C.A. No. 18-1973-RGA; C.A. No. 18-1974-RGA; C.A. No. 18-1976-RGA; C.A. No. 19-1515-RGA
- Cooley, LLP. 2022-2023. Case 1:20-CV-01787-RGA
- Kelley Drye & Warren, LLP. 2023-2024. Case 2:22-CV-00723-PHX

International Study Programs

- Organizer and leader. "Identifying the Needs of Under-Resourced Medical Clinics in South Africa." Short term exchange with Stellenbosch University. January, 2012.

Summary: I accompanied six engineering undergraduate students to the Western Cape region of South Africa for a two week program. The program was aimed at experiencing first-hand the challenges of the healthcare system there. Many needs were identified and have been transitioned into design challenges for Capstone Design student teams in Biomedical Engineering at RPI. The overall goal was to develop technology that is useful and sustainable to address some of the challenges of the healthcare system in developing nations.

- RPI faculty representative to Global Engineering Teams. 2013-16. Global Engineering Teams (GET) is a collaboration of universities from around the world which facilitates international interdisciplinary design for engineering students.

Summary: In Spring 2013, I established RPI's participation in GET. I was faculty advisor for two project teams, each comprised of RPI students with international students. I led RPI's participation in the program from 2013-2015 and worked with two teams in 2014 and one in 2015. Each year, I traveled with five to six RPI engineering students to South Africa in March for the "kickoff" meeting of GET. I served as faculty advisor to the teams during the 7 month cycle of GET. In October of each year, I traveled with the students to the "end-of-cycle" meeting of GET in Berlin where the students presented their work to faculty, sponsors, and other stakeholders.

- Global Engineering Teams 2014 End-of-Cycle Meeting – Organizer and Host.

Summary: In 2014, I organized and hosted the end-of-cycle meeting of Global Engineering Teams in Upstate New York. Thirty-five students and faculty from around the world attended. Global Engineering Teams students from South Africa, Germany, Brazil, India, South Korea, and the U.S. participated in the 2014 end-of-cycle meeting hosted by RPI. The week-long meeting included didactic content and team building activities in Bolton Landing, NY, Troy, NY, and New York City as well as final project presentations and meetings with sponsors. October, 2014.

- RPI-DTU-NTU Innovations Workshop 2015

Summary: STEM students from Technical University of Denmark (DTU), Nanyang Technological University (NTU), Singapore, and RPI collaborated on a three week long research experience. The 2015 meeting was hosted by RPI. I mentored a team of four students through research and development of a novel intracranial pressure monitor simulator.

Patents

- **Issued Patents**

21. "Dynamic Modular Cage-Plate Device." European patent 2,967,900 issued October 4, 2023.

20. "Wheelchair With Dynamic Support System." United States patent 11,744,750 issued September 5, 2023.

19. "Bone Fixation Apparatus With Fastener Securement Mechanism and Method of Use." European Patent Number 3,383,295. Issued April 12, 2023.

18. "Flexible Interbody Spacer and Methods for Use." United States patent 11,497,614 issued November 15, 2022.
17. "Wheelchair With Dynamic Support System." United States patent 11,458,051 issued October 4, 2022.
16. "Force Measuring Apparatus." United States patent 11,426,250 issued August 30, 2022.
15. "Wheelchair". United States patent 10,932,966 issued March 2, 2021.
14. "Intervertebral Cage and Method of Treating Vertebrae With an Intervertebral Cage". United States patent 10,925,749 issued February 23, 2021.
13. "Dynamic Spinal Fixation System, Method of Use, And Spinal Fixation System Attachment Portions." United States patent 10,653,452 issued May 19, 2020.
12. "Dynamic Fixation System, Method of Use, And Fixation System Attachment Portions." United States Patent 10,639,076 issued May 5, 2020.
11. "Bone Fixation Apparatus With Fastener Securement Mechanism and Methods of Use." United States patent 10,617,451 issued April 14, 2020.
10. "Dynamic Spinal Fixation System, Method of Use, and Spinal Fixation System Attachment Portions." European Patent Number 2,741,699. Issued July 24, 2019.
9. "Spinal Spacer." United States patent D842,478 issued March 5, 2019.
8. "Spinal Spacer". United States patent D841,814 issued February 26, 2019.
7. "Dynamic Spinal Fixation System, Method of Use, and Spinal Fixation System Attachment Portions." Canadian patent 2,844,278. Issued November 13, 2018.
6. "Intervertebral Cage and Method of Treating Vertebrae With an Intervertebral Cage." United States patent 10,105,235. Issued October 23, 2018.
5. "Dynamic Spinal Fixation System, Method of Use, and Spinal Fixation System Attachment Portions." United States patent 9,861,392. Issued January 9, 2018.
4. "Dynamic Spinal Fixation System, Method of Use, and Spinal Fixation System Attachment Portions". United States patent 9,795,414. Issued October 24, 2017.
3. "Dynamic Spinal Fixation System, Method of Use, and Spinal Fixation System Attachment Portions." United States patent 9,788,864. Issued October 17, 2017.
2. "Sensor System, Implantable Sensor and Method for Remote Sensing of a Stimulus In Vivo." United States patent 9,662,066. Issued May 30, 2017.
1. "Dynamic Spinal Fixation System, Method of Use, and Spinal Fixation System Attachment Portions." United States patent 9,510,871. Issued December 6, 2016.

■ Patent Applications

21. "Driver Bit." US design patent application 29/918,436 filed November 27, 2023.
20. "Dynamic Support System for a Wheelchair." US patent application 18/241,421 filed September 13, 2023.
19. "System for Applying Therapy to a Human Body". US patent application US 2023/0346618 filed April 28, 2023.
18. "Implantable Screw and Methods for Use". PCT patent application PCT/US2023/066263 (WO 2023/212615) filed April 26, 2023.
17. "Flexible Interbody Spacer and Method for Use". United States patent application US 2023/0190487 filed November 15, 2022.
16. "Seating Interface for Long Term Ischemia Prevention." United States Patent Application US17/945,265 filed September 15, 2022.
15. "Flexible Interbody Spacer and Methods for Use". United States Patent Application US17/301,157 filed March 26, 2021.
14. "Wheelchair with Dynamic Support System." United States patent application US21/0205156 filed January 8, 2021.

13. "System for Determining a Force Being Generated by a Patient". United States patent application US20/d filed April 27, 2020.
12. "Flexible Interbody Spacer and Methods for Use". PCT patent application PCT/US19/53276 filed September 26, 2019.
11. "Toothbrush with Multiple Brushing Surfaces". PCT patent application PCT/US19/31096 filed May 7, 2019.
10. "Force Measuring Apparatus." PCT patent application US 17/897,349 and PCT/US2019/029094 and WO2019210047 filed April 25, 2019.
9. "Intervertebral Cage and Method of Treating Vertebrae With an Intervertebral Cage." United States patent application US 16/110,139 filed August, 2018.
8. "Dynamic Spinal Fixation System, Method of Use, and Spinal Fixation System Attachment Portions." US application 15/919,204 filed March, 2018.
7. "Wheelchair Interface." PCT patent application PCT/US17/052,937 filed September 22, 2017.
6. "Bone Fixation Apparatus With Fastener Securement Mechanism and Methods of Use." PCT patent application PCT/US16/064,505 filed December, 2016.
5. "Systems and Methods for Making Custom Orthotics." US patent application US20160331071A1 filed May 14, 2015.
4. "Multi-Lumen Needle and Catheter Guidance System." United States patent application US 13/851,241 filed March, 2013.
3. "Sensor System, Implantable Sensor and Method for Remote Sensing of a Stimulus In Vivo." PCT patent application PCT/US13/24706 filed February, 2013.
2. "Dynamic Spinal Fixation System, Method of Use, and Spinal Fixation System Attachment Portions." PCT patent application PCT/US12/49959 filed August, 2012.
1. "Sensor Based Spinal Exercise Control System." United States patent application US 13/097,209 filed May, 2011.

■ **Provisional Patent Applications**

48. "Variable Terrain Walker". United States provsional patent application US 63/577,489 filed April 28, 2023.
47. "System for Applying a Therapy to the Human Body." United States provsional patent application US 63/335,956 filed March 21, 2023.
46. "System For Applying Therapy To The Human Body." United States provisional patent application US 63/335,956 filed April 29, 2022.
45. "Wearable Moisture Detection System." United States provisional patent US 63/334,835 filed April 26, 2022.
44. "Implantable Screw." United States provisional patent US 63/334,772 filed April 26, 2022.
43. "Spacer Implant." United States provisional patent US 63/334,780 filed April 26, 2022.
42. "Force Sensing Mechanism." United States provisional patent US 62/973,125 filed September 18, 2019.
41. "System for Determining Joint Function." United States provisional patent US 62/838,693 filed April 25, 2019.
40. "Door Opening System." United States provisional patent US 62/920,186 filed April 18, 2019.
39. "Oral Hygiene System." United States provisional patent US 62/762,441 filed May 4, 2018.
38. "Bathing System." United States provisional patent filed May 4, 2018.
37. "Bracing System." United States provisional patent filed May 4, 2018.
36. "Force Sensing Medical Device." United States provisional patent US 62/662,649 filed April 25, 2018.
35. "Bone Stabilization Device." United States provisional patent US 62/762,432 filed May 4, 2018.
34. "Spine Distraction Apparatus and Methods for Use." United States provisional patent US 62/59,8230 filed December 13, 2017.

33. "Dynamic Fracture Fixation System." United States provisional patent US 62/470,554 filed March 13, 2017.
32. "Elastic Spinal Fixation Plate." United States provisional patent US 62/469,799 filed March 10, 2017.
31. "Wireless Moisture Detection System." United States provisional patent US 62/600,126 filed February 14, 2017.
30. "Wireless Moisture Detection System and Method of Use." United States provisional patent US 62/600,125 filed February 14, 2017.
29. "Wireless Moisture Sensing System." United States provisional patent US 62/600,120 filed February 14, 2017.
28. "Spine Distraction Apparatus and Methods for Use." United States provisional patent US 62/433,931 filed December, 2016.
27. "Spine Distraction Apparatus with Plate-Like Extension and Methods for Use." United States provisional patent US 62/433,939 filed December, 2016.
26. "Wheelchair Interface." United States provisional patent US 62/398,595 filed September, 2016.
25. "Knee Prosthesis With Sensing Features." United States provisional patent US 62/296,210 filed February, 2016.
24. "Bone Fixation Plate and Apparatus for Preventing Fastener Backout." United States provision patent US 62/261,842 filed December, 2015.
23. "Seating Interface for Long Term Ischemia Prevention." United States provision patent US 62/283,410 filed August, 2015.
22. "Knee Prosthesis With Sensing Features." United States provisional patent US 62/110,478 filed January, 2015.
21. "Neck Injury Prevention Device." United States provisional patent US 61/996,573 filed May, 2014.
20. "Wearable Strengthening System." United States provisional patent US 61/990,648 filed May, 2014.
19. "Wireless Moisture Sensing System." United States provisional patent US 61/996,461 filed May, 2014.
18. "Dynamic Modular Cage-Plate Device." United States provisional patent US 61/852,079 filed March, 2013.
17. "Implantable Sensor System With No Electrical Connections." United States provisional patent US 61/688,898 filed May, 2012.
16. "A Multi-Lumen Needle for Catheter Guidance." United States provisional patent US 61/634,686 filed February, 2012.
15. "Multifunctional Glidescope for Airway Intubation." United States provisional patent US 61/634,685 filed February, 2012.
14. "Filament Inhalation-Guided Airway Intubation." United States provisional patent US 61/634,684 filed February, 2012.
13. "Method and Apparatus for Attaching Two Vessels." United States provisional patent US 61/634,630 filed February, 2012.
12. "Multichannel Compact Portable Infusion Pump." United States provisional patent US 61/634,631 filed February, 2012.
11. "Synthetic Vascular Graft Device and Method." United States provisional patent US 61/634,632 filed February, 2012.
10. "Wireless Implantable Sensor." United States provisional patent US 61/633,225 filed February, 2012.
9. "Fixation First Method for Anterior Cervical Reconstruction." United States provisional patent US 61/628,662 filed November, 2011.
8. "Fixation First Dynamic Spinal Fixation Plate." United States provisional patent US 61/628,663 filed November, 2011.

7. "Elastic Dynamic Spinal Fixation Plate." United States provisional patent US 61/574,662 filed August, 2011.
6. "Monolithic Dynamic Spinal Fixation Plate." United States provisional patent US 61/574,636 filed August, 2011.
5. "A Method and Apparatus for Affixing A Slotted Pedicle Screw Rod to a Cam Actuated Fixture." United States provisional patent US 61/465,877 filed March, 2011.
4. "A Minimally Invasive System and Method for Passing Components Between Pedicle Screws." United States provisional patent US 61/465,852 filed March, 2011.
3. "Novel Method for Securing Pedicle Screws to Connecting Rods." United States provisional patent 61/456,773 filed November, 2010.
2. "Novel Method for Securing Pedicle Screws to Connecting Rods." United States provisional patent filed August, 2010.
1. "Sensor Based Spinal Exercise Control System." United States provisional patent filed May, 2010.

Invited Lectures

96. "Biosensors: Implantable Technology"
Bioinnovations Symposium: Catalyzing Collaborations.
Manchester, NH. June, 2024.
95. "Keys to Successful Translation of Academic Research"
A Guide to Impactful Research: Frontiers of Science Gordon Research Conference.
Galveston, TX. January 2024.
94. "Orthopaedic Biomechanics for Surgeons"
Orthopaedic Surgery Grand Rounds. The Albany Medical College.
Albany, NY. October 2023.
93. "A Brief Introduction to the 37,241,859 Opportunities for Innovation in Healthcare Today"
Inaugural Lecture, Presidential Lecture Series, Maria College.
Albany, NY. April 2023.
92. "Orthopaedic Smart Implants in Clinical Practice"
Orthopaedic Surgery Grand Rounds, The Albany Medical College.
Albany, NY. March, 2023.
91. "Assistive Technology: Considerations for Aging Individuals"
Healthy Aging Workshop, University at Albany Healthy Aging Initiative.
Albany, NY. March, 2023.
90. "Current Challenges and Recent Advancements in Orthopaedic Smart Implants"
United States Food & Drug Administration Center for Devices & Radiological Health
Virtual Orthopaedic Rounds
Virtual: February, 2023.
89. "From Academic Research to Entrepreneurship."
The Flying Pig Society Seminar & Workshop Series
Troy, NY. September, 2022.
88. "Preparing the Ideal SBIR Proposal for NIH"
Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) Workshop.
Rensselaer Polytechnic Institute Severino Center for Technological Entrepreneurship and Center for
Materials, Devices and Integrated Systems.
Virtual: April, 2022.
87. "Developing & Commercializing IP From Academics: A Tale of Two Startups"
Mt. Sinai-Rensselaer Polytechnic Institute Program on Commercializing Innovation.
Virtual. March, 2022.
86. "Writing a Winning SBIR Proposal to NIH"
Leading Entrepreneurs of the World Seminar Series
Virtual. December, 2021.

85. "Generating Value for Acquisition in the Medical Device Space"
Leading Entrepreneurs of the World Seminar Series
Virtual. November, 2021.
<https://youtu.be/rwTY-Fp4In0>
84. "State-of-the-Art Surgical Technology: Smart Implants"
Sinai BioDesign THRIVE Fellowship Program Lecture Series
New York, NY. October, 2021.
<https://www.youtube.com/watch?v=L6NbnRqDGF4>
83. "Successful Tech Transfer From Academic Research to Commercialization"
Leading Entrepreneurs of the World Seminar Series
Virtual. September, 2021.
<https://hubs.ly/H0Z4VFR0>
82. "Spine Biomechanical Testing Methodologies: The Controversy of Consensus
vs Scientific Evidence."
Virtual Scientific Session, Orthopaedic Research Society.
August, 2020.
81. "Rigor and Reproducibility in Science: IACUC Protocols"
NIH T32 Training Grant Lecture Series, Rensselaer Polytechnic Institute.
Troy, NY. December, 2019.
80. "Tips and Tricks for a Winning Scientific Presentation"
Orthopaedic Surgery Residency Lecture Series, The Albany Medical College.
Albany, NY. December, 2019.
79. "Wireless Sensor Technology for Smart Orthopaedic Implants"
Nanobio Seminar Series.
State University of New York Institute of Technology.
Albany, NY. September 2019.
78. "State-of-the-Art in Medicine: Bones"
Scientific American Bright Horizons Cruise.
United Kingdom. August, 2019.
77. "State-of-the-Art in Medicine: Joints"
Scientific American Bright Horizons Cruise.
United Kingdom. August, 2019.
76. "State-of-the-Art in Medicine: Spine"
Scientific American Bright Horizons Cruise.
United Kingdom. August, 2019.
75. "State-of-the-Art in Medicine: Smart Implants"
Scientific American Bright Horizons Cruise.
United Kingdom. August, 2019.

74. "Translating and Commercializing Medical Technology From Academics."
Mt. Sinai School of Medicine Protecting and Commercializing Your Innovation Lecture Series.
New York, NY. February, 2019.
73. "Use of Sensor Technology for the Study of *In Vivo* Spine Biomechanics."
Orthopaedic Research Society scientific symposium on *In Vitro/In Vivo* Spine Biomechanics.
Austin, TX. February, 2019.
72. "Winning Research Grants"
Orthopaedic Surgery Residency Lecture Series, The Albany Medical College.
Albany, NY. January 7, 2019.
71. "Enhancing Small Molecule Transport as a Strategy to Reverse Low Back Pain"
Lunch and Learn Lecture Series, Stratton VA Medical Center.
Albany, NY August 30, 2018.
70. "Applications for Smart Implants in Orthopaedic Surgery."
Orthopaedic Soft Tissue Research Program, New York Hospital for Special Surgery.
New York, NY. December 14, 2017.
69. "Smart Implants: From Research to Clinical Practice"
Stellenbosch University Bioengineering Research Group Seminar Series
Stellenbosch, South Africa. April 6, 2017.
68. "Process of Transforming Research Into Commercial Product"
Orthopaedic Medical Devices to Market Workshop
Cape Town, South Africa. April 4, 2017.
67. "CE and FDA Marking for Orthopaedic Devices"
Orthopaedic Medical Devices to Market Workshop
Cape Town, South Africa. April 4, 2017.
66. "Orthopaedic Research Update"
Orthopaedic Medical Devices to Market Workshop
Cape Town, South Africa. April 4, 2017.
65. "Translation of Medical Technology."
Union College Bioengineering Seminar Series.
Schenectady, NY. March 1, 2017.
64. "The 'Academic' Mindset vs. The 'Commercialization' Mindset."
Mt. Sinai School of Medicine and Rensselaer Polytechnic Institute Readyng Researchers for
Commercialization course.
New York, NY. September 27, 2016.
63. "Clinical Biomechanics of the Spine."
Sports Medicine Grand Rounds Lecture, The Albany Medical College.
Albany, NY. April 15, 2016.

62. "Translation of Medical Technology."
Union College Bioengineering Seminar Series.
Schenectady, NY. March 2, 2016.
61. "Implantable Sensor Technology: From Research to Clinical Practice"
College of Nanoscale Science and Engineering Seminar Series.
Albany, NY. April 8, 2015.
60. "Translation of Medical Technology."
Union College Bioengineering Seminar Series.
Schenectady, NY. March 4, 2015.
59. "Novel Implantable Sensor Technology: A Platform for Research and Clinical Diagnostics."
Stratton VA Medical Center "Lunch and Learn" Seminar Series.
Albany, NY. February 26, 2015.
58. "Implantable Sensor Technology for Orthopaedic Applications."
Albany Medical College Orthopaedic Surgery Grand Rounds.
Albany, NY. February 11, 2105.
57. "Sustainability as a Driving Force in Medical Innovation."
Sustainability and Innovation Forum.
Albany, NY. November 20, 2014.
56. "Robust Implantable Sensor Technology for Musculoskeletal Medicine"
Second Annual NY CAP Research Alliance Symposium.
Albany, NY. October 24, 2014.
55. "Present and Prospective Implantable Sensor Technology for Orthopaedic Applications."
Medical Device and Manufacturer Conference.
Chicago, IL. October 15, 2014.
54. "Clinical Biomechanics of the Spine."
Sports Medicine Grand Rounds Lecture, The Albany Medical College.
Albany, NY. July 11, 2014.
53. "Translation of Medical Technology."
Union College Bioengineering Seminar Series.
Schenectady, NY. May 16, 2014.
52. "Smart Implants: Application in Musculoskeletal Infections."
AAOS/ORS Joint Research Symposium. "Musculoskeletal Infection: Where are we in 2014?"
Rosemont, IL. May 10, 2014.
51. "When Pigs Fly"
Archer Center for Leadership "Slice of Leadership" Lecture Series. Rensselaer Polytechnic Institute.
Troy, NY. March 18, 2014.

50. "Research Partnerships as Engines of Innovation."
Business Opportunities to Success Summit. Mastering the Pivot. Hosted by Rensselaer Polytechnic Institute.
Troy, NY. December 6, 2013.
49. "International Design Experience with Global Engineering Teams."
Hahn J, Ledet EH.
BMES IDEA Panel Program Snapshots. 2013 BMES IDEA Meeting.
Seattle, WA. September 24, 2013.
48. "Understanding the Potential of New Implantable, Wireless Sensor Technology in Healing Tissues."
UBM BIOMEDevice 2013 Conference.
Boston, MA. April 11, 2013.
47. "New Implantable Sensors With No Electrical Connections."
IHS GlobalSpec's Medical Equipment Design Event Online Event.
<http://www.globalspec.com/events/videos/?videoid=2165497188001&evtsrc=search>
March 6, 2013.
46. "Requirements for Implantable Radio Frequency Medical Diagnostic Systems in Orthopaedic Surgery." RF and Analog ICs for Biomedical Applications.
IEEE International Microwave Symposium.
Montreal, QP. June 16, 2012.
45. "Smart Implants in Orthopaedic Surgery."
8th Annual Orthopaedic Manufacturing & Technology Exposition and Conference OMTEC.
Chicago, IL. June 13, 2012.
44. "Health Care in South Africa."
Department of Anesthesia Grand Rounds, Albany Medical College.
Albany, NY. May 24, 2012.
43. "Product Development: The Basics"
Focused Controversy in Spine Care Course.
Kiawah Island, SC. May 12, 2012.
42. "Biomechanical Testing of Spine Technology – An Update"
Focused Controversy in Spine Care Course.
Kiawah Island, SC. May 11, 2012.
41. "New Technology for Orthopaedic Smart Implants."
Spine Research and Development Seminar Series, DePuy Spine.
Raynham, MA. April 24, 2012.
40. "A Tale of Two Systems: Immersion in South African Health Care."
Rensselaer Polytechnic Institute Undergraduate Lecture Series in Global Health.
Troy, NY. April 3, 2012.
39. "The Role of Biomechanics in Intervertebral Disc Degeneration."
Biomedical Engineering Research Group Seminar Series, Stellenbosch University.
Stellenbosch, South Africa. January 19, 2012.

38. "Translational Orthopaedic Research in the Capital Region"
Orthopaedic Surgery Grand Rounds Lecture, The Albany Medical College.
Albany, NY. November, 2011.
37. "Clinical Biomechanics of the Spine."
Sports Medicine Grand Rounds Lecture, The Albany Medical College.
Albany, NY. September, 2011.
36. "Smart Implant Technology for Assessing Outcomes in the Complex Spine and Spinal Fusion."
9th Annual Meeting of the Complex Spine Study Group.
Washington, DC. August, 2010.
35. "A New Biomechanical Method for Assessing Spine Kinematics."
Medical Advisory Board Meeting, K2 Medical.
Leesburg, Virginia. February, 2010.
34. "Development of a Novel Implantable Micro Force Sensor for an Orthopaedic Application."
SUNY College of Nanoscience and Engineering Seminar Series. University of Albany.
Albany, New York. February, 2010.
33. "*In Vivo* Loading in the Spine: What Do We Know and Why Do We Care?"
Spine Research and Development Seminar Series, DePuy Spine.
Raynham, Massachusetts. December, 2009.
32. "Statistics for Surgeons"
Third Annual Workshop on Principles and Practices of Clinical Research
Toronto, Ontario. September, 2009.
31. "Presenting Your Research Effectively"
Third Annual Workshop on Principles and Practices of Clinical Research
Toronto, Ontario. September, 2009.
30. "Reliability in Experimental Measurements"
Third Annual Workshop on Principles and Practices of Clinical Research
Toronto, Ontario. September, 2009.
29. "The Biomechanics of Cephalomedullary Nailing"
Stryker Trauma Regional Marketing Meeting.
Mahwah, New Jersey. May, 2008.
28. "Biomechanical Rationale for Locked Plating"
Stryker Trauma Regional Marketing Meeting.
Mahwah, New Jersey. May, 2008.
27. "Biomechanical Considerations in External Fixation"
Stryker Trauma Regional Marketing Meeting.
Mahwah, New Jersey. May, 2008.

26. "Statistics for ~~Dummies~~ Orthopaedic Surgeons"
Orthopaedic Grand Rounds Lecture, The Albany Medical College.
Albany, New York. May, 2008.
25. "New Biomechanical Perspectives in Locked Plating. What Is The Real Science?"
Orthopaedic Reconstruction and Trauma – New Treatment Innovations.
San Francisco, California. October, 2007.
24. "How Many Subjects Do We Need: Sample Size Calculations"
The Principles and Practice of Clinical Research: How to Design, Analyze, and Participate In
Orthopaedic Trauma Research
Mahwah, New Jersey. September, 2007.
23. "Presenting Your Research Effectively"
The Principles and Practice of Clinical Research: How to Design, Analyze, and Participate In
Orthopaedic Trauma Research
Mahwah, New Jersey. September, 2007.
22. "Sclerosis of Subchondral Bone Due to Chronic Loading of the Lumbar Spine: A Pathway to
Degenerative Disc Disease?"
Musculoskeletal Research Center Seminar Series, University of Rochester Medical Center
Rochester, New York. September, 2006.
21. "Understanding Research Ethics."
The Principles and Practice of Clinical Research: How to Design, Analyze, and Participate In
Orthopaedic Trauma Research
Las Vegas, Nevada. August, 2006.
20. "Evaluating a New Implant, Device, or Drug. The US Perspective."
The Principles and Practice of Clinical Research: How to Design, Analyze, and Participate In
Orthopaedic Trauma Research
Las Vegas, Nevada. August, 2006.
19. "Statistics Primer: How to Present and Analyze Data from a Randomized Trial."
The Principles and Practice of Clinical Research: How to Design, Analyze, and Participate In
Orthopaedic Trauma Research
Las Vegas, Nevada. August, 2006.
18. "Experimental Biomechanics: Study Design and Reporting – An Overview."
Orthopaedic Trauma Update
Scottsdale, Arizona. January, 2006.
17. "State of the Art in Biomedical Engineering."
Freshman Engineering Seminar Series, Union College
Schenectady, New York. October, 2005.
16. "Direct Material Deposition Fabricated Patient Specific Long Bone Trauma Implants: Technology
Review and Application Concept".
Innovation Council: Review of New Technologies in Orthopaedic Trauma
San Francisco, California. June, 2005.

15. "Incorporation of RFID Into Orthopaedic Trauma Implants".
Innovation Council: Review of New Technologies in Orthopaedic Trauma
San Francisco, California. June, 2005.
14. "Micro Radiofrequency Identification Technology for Orthopaedic Implants".
Innovation Council: Review of New Technologies in Orthopaedic Trauma
Short Hills, New Jersey. January, 2005.
13. "Diagnostic Applications for Microsensors in Orthopaedic Trauma Surgery".
Innovation Council: Review of New Technologies in Orthopaedic Trauma
Chicago, Illinois. October, 2004.
12. "Small Intestinal Submucosa as a Resorbable Scaffold for Orthopaedic Trauma Applications."
Innovation Council: Review of New Technologies in Orthopaedic Trauma
Miami Beach, Florida. April, 2004.
11. "Degenerative Diseases of the Spine: Overview of Pathologies and Contemporary Treatment Options."
Bioengineering Seminar Series, Union College, Schenectady
New York. February, 2004.
10. "Biomechanical Testing for Dynamic Spine Implants."
Non-Fusion Technologies – A State of the Art Debate
New York, New York. December 2003.
9. "Experimental Methods for Assessing the Biomechanical and Kinematic Properties of the Lumbar Spine."
Dynamic Spine Stabilization: Arthroplasty Techniques and Technology
Dallas, Texas. November, 2003.
8. "Introduction to Biomedical Engineering."
Freshman Engineering Seminar Series, Union College, Schenectady
New York. October, 2003.
7. "Current Concepts in Orthopaedic Smart Implants"
Innovation Council: Review of New Technologies in Orthopaedic Trauma
Spring Valley, Utah. August, 2003.
6. "Biomechanics of Lower Extremity External Fixation and Hybrid External Fixation"
Orthopaedic Trauma Update
Las Vegas, Nevada. May, 2003.
5. "Biomechanical Testing of Spinal Implants: Overview of Preclinical Implant Design Evaluation"
Dynamic Spine Stabilization: Arthroplasty Techniques and Technology
Dallas, Texas. October 2002.
4. "Resorbable Materials and Implants for Spine Surgery"
Emerging Technologies in Spine Surgery, Bolton Landing
New York. June, 2002.
3. "Biomechanics of Ankle External Fixation."
The Foot and Ankle Trauma Course
Chicago, Illinois. November, 2000.

2. *"The Role of a Biomedical Engineer in a Clinical Research Environment."*
Biomedical Engineering Seminar Series, Tulane University
New Orleans, Louisiana. March, 1998.

1. *"Regulatory Compliance and the Regulatory Approval Process for Medical Devices."*
Biomedical Engineering Seminar Series, Rensselaer Polytechnic Institute
Troy, New York. October, 1997.

Invited Workshops

"Forging Collaboration with Industry – Building Successfully Models of Academic and Industry Partnerships"
Capital Region Bioinnovation Forum '23.
Albany, NY. October, 2023. Invited Panelist.

"Smart Implants: Developing Battery-Powered and Self-Sensing Devices to Monitor Patient Recovery"
Orthopaedic Manufacturing & Technology Exposition and Conference (OMTEC) 2023.
Chicago, IL. June, 2023. Session Moderator.

"Pitching Technology From Academics"
Pitching to the Private Sector Workshop Hosted by the Orthopaedic Research Society.
Dallas, TX. February, 2023. Invited Speaker.

"Forming Collaborations and Expanding Your Professional Network"
Orthopaedic Research Society Workshop on Career Development
Virtual. January, 2023. Invited Panelist.

"Concept to Commercialization: Cultivating Biotech Ecosystems."
Capital Region BioInnovation Forum.
Albany, NY. October, 2022. Invited Panelist.

VentureB Business Competition
Capital Region Center for Economic Growth
Albany, NY. September, 2022. Invited Panelist.

"Wearable Technology and Smart Implants: Perspectives on the 'Smart' Path to Market."
Orthopaedic Research Society Industry Alliance Committee Workshop Series.
Virtual. September, 2022. Workshop Organizer and Speaker.

"Leveraging Ecosystems."
Life Sciences Entrepreneurship Spark Workshop: Solutions for Life Sciences Entrepreneurship.
Troy, NY. July, 2022. Invited Panelist.

"Imposter Syndrome". Social Issues in STEM forum.
Troy, NY. July, 2019. Invited Panelist.

"BMES Coulter College Innovation Scholars Program". Hosted by the Biomedical Engineering Society.
Minneapolis, MN. August, 2018. Faculty Mentor/Representative for RPI Student Team.

“Bringing Creativity to the Classroom.” Educator’s Symposium sponsored by the KERN Foundation. Schenectady, NY. November, 2013.

“RF and Analog ICs for Biomedical Applications.” RF and Analog ICs for Biomedical Applications. IEEE International Microwave Symposium. Montreal, QP. June, 2012. Workshop Speaker.

“Implantable Sensor Technology: From Research to Clinical Practice.” New Horizons Workshop. The 57th Annual Meeting of the Orthopaedic Research Society. Long Beach, CA. January, 2011. Workshop Organizer and Speaker.

United States Bone and Joint Decade Young Investigators Initiative. Chicago, Illinois. April, 2007.

United States Bone and Joint Decade Young Investigators Initiative. Chicago, Illinois. April, 2006.

ORS Invited Roundtable Discussion on Spine Biomechanics. San Francisco, California, March, 2004.

NIH/AAOS Workshop on New Engineering Technology Transfer In Orthopaedic Surgery. Baltimore, Maryland. April, 1998.

Recognition in the Media and Popular Press

“Center for Disability Services, Tufts Dental School Partnering on Innovative Oral Care for People With Disabilities.”

Empire Report.

March 29, 2023

<https://empirereportnewyork.com/center-for-disability-services-tufts-dental-school-partnering-on-innovative-oral-care-for-people-with-disabilities/>

“ReVivo Medical Announces First Ever In-Human Use of Its Cervical Fusion Devices.”

SpinalNews International. By Anthony Strzalek.

May 11, 2022

<https://spinalnewsinternational.com/revivo-medical-announces-first-ever-in-human-use-of-its-cervical-fusion-devices/>

“ReVivo Medical Products Used in Two Spinal Procedures in Clinical Trial.”

Albany Business Review. By Justin Dawes.

May 9, 2022

<https://www.bizjournals.com/albany/inno/stories/news/2022/05/09/revivo-medical-spinal-albany-med-cleveland-clinic.html>

“Implants Get ‘Smart’ In Orthopedics”

ModernHealthcare. By Jessica Cohen.

December 7, 2021

“ReVivo Medical Completes \$2 Million Fund Raise”

Spinemarket News.

October 12, 2021

“Albany Medical Device Startup Raises \$1.5M for Clinical Trials”

Albany Business Review. By Justin Dawes.

October 11, 2021

<https://www.bizjournals.com/albany/inno/stories/fundings/2021/10/11/revivo-medical-raises-2-million.html>

“A New Incubator for Medical Device Startups is Coming to the Capital Region”

Albany Business Review. By Justin Dawes.

September 14, 2021

<https://www.bizjournals.com/albany/news/2021/09/13/new-capital-region-health-tech-device-incubator.html>

Featured Guest, PhDcast

CBIS Graduate Program Association, Rensselaer Polytechnic Institute

Season 2, Episode 3. September, 2021.

<https://open.spotify.com/episode/2ZTM7RY0wyFEIY7d0ei2Yj?si=d1392e76b6a94ae4&nd=1>

“Serhan and Einhorn Join ReVivo’s Advisory Board.”

Orthopedics This Week. By Elizabeth Hofheinz

August 9, 2021.

<https://ryortho.com/breaking/serhan-and-einhorn-join-revivos-advisory-board/>

“ReVivo Medical Announces Advisory Board Appointments.”

Spinemarket News.

June 30, 2021.

<https://spine-market.com/news-article-detail/7833>

“ReVivo Medical Moves Into Fundraising Mode.”

Orthopedics This Week. By Kim Delmonico

March 19, 2021.

<https://ryortho.com/breaking/revivo-medical-moves-into-fund-raising-mode/>

“ReVivo Medical Scheduled for Clinical Trials of Its Flagship Products”

Albany Business review. By Justin Dawes.

February 16, 2021.

<https://www.bizjournals.com/albany/news/2021/02/16/revivo-medical-scheduled-for-clinical-trials.html>

“Eric Ledet on Solving the Right Problems”

Bone Zone by OrthoWorld. By Annie Zalenski.

February 11, 2021.

<https://www.bonezonepub.com/2913-eric-ledet-on-solving-the-right-problems>

“Novel Cervical Plate Design Lands \$550,000 Funding”

Orthopedics This Week. By Elizabeth Hofheinz.

January 20, 2021.

<https://ryortho.com/breaking/novel-cervical-plate-design-lands-550000-funding/>

“ReVivo Medical Concludes Seed Round Financing.”

Spine Market News.

January 12, 2021.

<https://spine-market.com/news-article-detail/7521>

“ReVivo Medical Closes on New Funding Round.”

Albany Business Review. By Justin Dawes.

January 12, 2021.

https://www.bizjournals.com/albany/news/2021/01/12/revivo-medical-closes-on-funding-round.html?cx_testId=7&cx_testVariant=cx_35&cx_artPos=0#cxrecs_s

“ReVivo Medical Preparing Device for \$2.5B Market.”

Albany Business Review. By Justin Dawes.

October 22, 2020.

<https://www.bizjournals.com/albany/news/2020/10/22/revivo-medical-spinal-implants-clinical-trials.html>

“ReVivo Medical Announces New Patent.”

Spine Market News.

October 17, 2020.

<https://spine-market.com/news-article-detail/7434>

“Lending a Helping Hand During a Crisis.”

Every Day Matters: RPI Research & Discovery Blog.

May 22, 2020.

<https://everydaymatters.rpi.edu/lending-a-helping-hand-during-a-crisis/>

“Venture Forth. Delivering Life-Saving Research From the Lab to the Marketplace.”
Rensselaer Alumni Magazine. By Jodi Ackerman.
Spring, 2020.
<https://magazine.rpi.edu/feature/venture-forth>

“Capital Region Gives: Nonprofits Donate Shields to Albany Med”
Times Union. By Rebecca Carballo.
April 17, 2020
<https://www.timesunion.com/news/article/Capital-Region-Gives-Nonprofits-donate-shields-15208874.php>

“ORS Spine Section Member Spotlight.”
Orthopaedic Research Society Newsletter: *The Spinal Column*
January 31, 2019.
<https://ors.memberclicks.net/orsspinenews>

“Can an Elastically Deformable Plate Deliver Better Fusion?”
Orthopedics This Week. By Elizabeth Hofheinz.
August 9, 2018.
<https://ryortho.com/breaking/can-an-elastically-deformable-plate-deliver-better-fusion/>

“ReVivo Medical Efficacy Study Results”
OrthoWorld.
<https://www.orthoworld.com/index.php/publications/orthoflash/revivo-medical-efficacy-study-results>

“Bringing the Operating Room Into the Classroom.”
Faculty Highlight: Eric Ledet.
January, 2018.
<http://bme.rpi.edu/node/282>.

“Eric Ledet - ASEE Campus Star.”
<https://www.asee.org/member-resources/resources/leaders-in-engineering-education/eric-ledet>.

“Albany Med Startup Run by Plug Power Founder Gets First Patent.”
Albany Business Review. By Chelsea Diana.
September 20, 2016.
<http://www.bizjournals.com/albany/news/2016/09/20/albany-med-startup-run-by-plug-power-founder-gets.html>.

“Here's how smart implants can help improve health outcomes.”
Healthcare DIVE. Healthcare IT Newsletter. By Meg Bryant.
September 1, 2016.
<http://www.healthcaredive.com/news/heres-how-smart-implants-can-help-improve-health-outcomes/425614/>.

“Relieving the Ordeal of Surgery.”
ASME Engineering Topics. By Eric Buttermann.
December 11, 2015.
<https://www.asme.org/engineering-topics/articles/bioengineering/relieving-the-ordeal-of-surgery>.

“Albany Biotech Company Gets Grant to Develop Flexible Spinal Implant.”
Albany Times Union. By Claire Hughes.
October, 2015.
<https://www.timesunion.com/business/article/Albany-biotech-company-gets-grant-to-develop-6596668.php>

"Biomedical Startup Headed by Plug Power Founder Secures Grant for Testing of Spinal Surgery Device."
Albany Business Review. By Marie French.
October 28, 2015.

<http://www.bizjournals.com/albany/blog/health-care/2015/10/biomedical-startup-headed-by-plug-power-founder.html>.

"Former Plug Power CEO Hired to Bring Guilderland Startup's Spinal Surgery Product to Market."
Albany Business Review. By Marie French.
September 28, 2015.

<http://www.bizjournals.com/albany/blog/health-care/2015/09/former-plug-power-ceo-hired-to-bring-guilderland.html>.

"Researchers Investigate a Non-Invasive Test for Surgical Site Infections in Orthopaedic Implants."
Rensselaer News. By Mary Martialay.
August 25, 2015.

<http://news.rpi.edu/content/2015/08/25/non-invasive-test-surgical-site-infections-orthopedic-implants>.

"Wireless Sensors in Orthopedic Implants May Detect SSIs — 4 Things to Know."
Becker Spine Review. By Mary Rechteris.

August 26, 2015.

<http://www.beckersspine.com/orthopedic-a-spine-device-a-implant-news/item/26890-http-www-news-medical-net-news-20150826-researchers-examine-how-small-wireless-sensors-integrated-into-orthopedic-implants-can-help-detect-ssi.aspx.html?tmpl=component&print=1>.

"Sensor Detects Orthopedic Implant Infections Early."

ApplySci Discoveries. By Lisa Weiner.

August 26, 2015.

<http://blog.applysci.com/?p=4455>.

"Shaping Future Careers, One Experience at a Time. A Conversation With Eric Ledet."
2015 Rensselaer Engineering Magazine. August, 2015.

<http://www.rpi.edu/dept/eng/homepage/SOENewsR1.pdf>

"Entrepreneurs Pitch New Companies at Rensselaer's Startup Showcase."

Albany Business Review. By Megan Rogers.

October 22, 2014.

<http://www.bizjournals.com/albany/news/2014/10/22/entrepreneurs-pitch-new-companies-at-rensselaers.html>.

"Next-Gen Orthopedic Sensors Will Embrace Simplicity."

Medical Device and Diagnostic Industry. By Chris Wiltz

October 21, 2014.

<http://www.mddionline.com/article/next-gen-orthopedic-sensors-will-embrace-simplicity-141021>

"Nimodipine Can Slow Disk Degeneration in the Spine."

AAOS Now Magazine. By Mark Crawford.

February, 2014 issue.

<http://www.aaos.org/news/aaosnow/feb14/research1.asp>.

"NASS 2013 Best Papers."

SpineLine. The Clinical and News Magazine for Spine Care Professionals.

November-December 2013.

http://www.spine-line-digital.org/spine-line/november_december_2013?pg=27#pg27.

“Lemelson Prize Finalist – Enabling Personalized Medicine Through an Elementary and Robust Implantable Sensor”

<https://www.youtube.com/watch?v=MQN3cREzirY>

“NYCAP Research Alliance”

<https://www.youtube.com/watch?v=fk8BYlvIS0g>

“Implantable Sensors Make Medical Implants Smarter.”

ASME Engineering Topics. By Mark Crawford.

September 2013.

<https://www.asme.org/engineering-topics/articles/bioengineering/implantable-sensors-make-medical-implants-smarter>.

“Coming Attractions: What’s Gaining Traction in Orthopedics?”

Orthopedic Design & Technology Magazine. By Jim Stommen.

09/15/12.

<http://www.odtmag.com/articles/2012/09/coming-attractions>.

“Biomed Students Study African Medical Clinics.”

The Polytechnic. By Max Verni-Kovskiy.

03/07/12.

https://poly.rpi.edu/2012/03/07/biomed_students_study_african_medical_clinics/

“RPI Develops a Sensor to Monitor Recovery From Surgery.”

WNYT News (NBC). By Benita Zahn.

03/06/12.

<http://wnyt.com/article/stories/S2526410.shtml?cat=12404&v=1#.T1am2QpfoSp.email>.

“Implantable, Wireless Sensors Share Secrets of Healing Tissues.”

Rensselaer Polytechnic Institute News. By Michael Mullaney.

02/21/12.

<http://news.rpi.edu/update.do?artcenterkey=2997>.

“Implantable Sensors Will Keep Wireless Tabs on Mending Bones.”

Gizmodo Top Stories. By Andrew Tarantola.

<http://gizmodo.com/5885922/implantable-sensors-will-keep-wireless-tabs-on-mending-bones>

02/17/12.

“Tiny Sensor Transmits Data From Orthopedic Implants.”

Gizmag Emerging Technology Magazine, By Ben Coxworth.

<http://www.gizmag.com/orthopedic-implant-sensor/21497/>

02/16/12.

“Biomedical Engineering Students Visit South Africa To Observe Medical Clinics.”

Inside Rensselaer. By Michael Mullaney.

01/20/12.

“Rensselaer Engineering Students Visit South Africa to Study Medical Clinic Needs.”

Biomedical Engineering News. Biomedical Engineering Society.

01/04/12.

"RPI Students Study South African Clinics."
Albany Times Union. By Scott Waldman.
12/28/11.

"Spotlight Technology: Orthopaedic Smart Device Provides Personalized Medicine."
Orthopaedic Research Society Media Spotlight by Annie Hayashi.
December, 2011.

"New Horizons in Orthopaedic Research."
AAOS Now. Research and Technology at Work by Annie Hayashi.
November, 2010.

"Back Off: Dealing With Chronic Back Pain."
The Albany New York Times Union. HealthyLife by Jill Montag.
08/29/10.

"Class Allows RPI Students to View Live Surgery."
WNYT News (NBC). By Benita Zahn.
09/26/07.

"Learning How To Engineer Medical Miracles"
The Albany New York Times Union. By Alan Wechler.
09/26/07.

"Surgical Solutions."
WTEN News (ABC). By Mark O'Brien.
09/25/07.

Teaching

Course and Curriculum Development

“Translating Biotechnology: Protecting and Commercializing the Products of Academic Research”
Developed lectures, coordinated external speakers, and developed course curriculum with faculty at Mt. Sinai School of Medicine. Spring 2020.

Department of Biomedical Engineering, Rensselaer Polytechnic Institute. Troy, New York.

“Protecting and Commercializing Your Innovation.” Developed lectures and co-coordinated course with faculty at Mt. Sinai School of Medicine. Fall 2017.

Department of Biomedical Engineering, Rensselaer Polytechnic Institute. Troy, New York.

“Biomedical Engineering Senior Design.” Comprehensive update of course content to dovetail with Biomedical Product Design and Development. Spring 2016.

Department of Biomedical Engineering, Rensselaer Polytechnic Institute. Troy, New York.

“Biomedical Product Design and Development.” Developed and coordinated course to integrate with Biomedical Engineering Senior Design. 2014-2015.

Department of Biomedical Engineering, Rensselaer Polytechnic Institute. Troy, New York.

“Clinical Orthopaedics and Contemporary Research.” 2007-2021.

Department of Biomedical Engineering, Rensselaer Polytechnic Institute. Troy, New York.

“Biomedical Engineering Senior Design.” 2005-2021.

(Communications intensive course 2010-Present.)

Department of Biomedical Engineering, Rensselaer Polytechnic Institute. Troy, New York.

“Biomedical Engineering Laboratory.” Comprehensive update of course content and delivery. 2004-2006.

Department of Biomedical Engineering, Rensselaer Polytechnic Institute. Troy, New York.

“Introduction to Engineering Design.” 2000-2002.

Core Engineering, Rensselaer Polytechnic Institute. Troy, New York.

Courses Taught

ENGR-2050 – Introduction To Engineering Design

BMED-1330 – Introduction To Biomedical Engineering

BMED-4010 – Biomedical Engineering Lab

BMED-4260 – Biomedical Product Development and Commercialization

BMED-4420 – Clinical Orthopaedics and Contemporary Research

BMED-4600 – Biomedical Engineering Senior Design

BMED-6420 – Clinical Orthopaedics and Contemporary Research

BMED-6961 – Translating Biotechnology

BMED-6962 – Protecting & Commercializing Innovation

Teaching Evaluations (2001-2021, Rensselaer Polytechnic Institute)

Overall Instructor Rating (42 course semesters): 4.69/5.00

Graduate Course Instructor Rating (14 course semesters): 4.80/5.00

Undergraduate Elective Course Instructor Rating (12 course semesters): 4.73/5.00

Additional Teaching – Guest Lectures

BMED-1330	Introduction to Biomedical Engineering (2004)
BMED-2540	Biomechanics (2012)
BMED-4260	Biomed Product Development (2014, '15, '17, '18)
BMED-4961	Biomedical Product Design & Development (2004, '05, '06, '07)
BMED-4963	BioMEMS (2005, '06, '07, '08, '09, '10, '11, '13)
BMED-6962	Commercialization (2021, '22, '23, '24)
ECSE- 4965	Integrated Sensor Design (2006, '07)
ENGR-1700	Better World Engineering (2019, '20)
ENGR-2050	Introduction to Engineering Design (2012, '13, '17)
MTLE-4960	Failure Analysis (2009, '10, '11)
MTLE-4470	Processing of Biomaterials (2014)

Sponsored Educational Programs

“Variable Terrain Walker”

RPI Life Sciences Entrepreneurship Program Marketing Capstone Project Sponsored by the Center for Disability Services.

January, 2024 – May, 2024.

Role: Sponsor Lead

“Infant Car Seat Alert System”

RPI Biomedical Engineering Capstone Senior Design Project Sponsored by the Center for Disability Services.

November, 2023 – May, 2024.

Role: Sponsor Lead

“Wheelchair Transfer System”

RPI Biomedical Engineering Capstone Senior Design Project Sponsored by the Center for Disability Services.

November, 2022 – May, 2023.

Role: Sponsor Lead

“Variable Terrain Walker”

RPI Biomedical Engineering Capstone Senior Design Project Sponsored by the Center for Disability Services.

November, 2022 – May, 2023.

Role: Sponsor Lead

“Smart Incontinence Brief”

RPI Biomedical Engineering Capstone Senior Design Project Sponsored by the Center for Disability Services.

November, 2021 – May, 2022.

\$5,000

Role: Sponsor Lead

“Load-Sharing Lumbar Spine Fusion System”

RPI Biomedical Engineering Capstone Senior Design Project Sponsored by the Center for Disability Services.

November, 2021 – May, 2022.

\$5,000

Role: Sponsor Lead

Extramurally Funded Educational Programs

“Emergency Epinephrine Dispensing System”

Capstone Senior Design Project Sponsored by Mid-Island Allergy.

April, 2021 – December, 2021.

\$5,000

Role: Principal Investigator

“SPYDR Sizing Assessment System”

Capstone Senior Design Project Sponsored by SpotLight Lab.

October, 2020 – May, 2021. \$5,000

Role: Principal Investigator

“Scapular Dyskinesis Fixation System”

Capstone Senior Design Project Sponsored by DePuy-Synthes Mitek.

October, 2020 – May, 2021. \$5,000

Role: Principal Investigator

“Bone Quality Detection System”

Capstone Senior Design Project Sponsored by Stryker.

October, 2020 – May, 2021. \$5,000

Role: Principal Investigator

“New Materials in Total Knee Arthroplasty”

Capstone Senior Design Project Sponsored by DJO Global.

October, 2019 – May, 2020. \$5,000

Role: Principal Investigator

“Remote Monitoring of Post-Operative Recovery After Joint Arthroplasty”

Capstone Senior Design Project Sponsored by Quest Global.

October, 2019 – May, 2020. \$5,000

Role: Principal Investigator

“Novel Baby Bottle”

Capstone Senior Design Project Sponsored by Howard Inventions.

October, 2019 – May, 2020. \$5,000

Role: Principal Investigator

“Knee Arthroplasty Trial Reduction.”

Capstone Senior Design Project Sponsored by Stryker.

October, 2019 – May, 2020. \$5,000

Role: Principal Investigator

“Dural Shield for Spine Surgery”

Capstone Senior Design Project Sponsored by Spine Teknix, LLC.

October, 2019 – May, 2020. \$5,000

Role: Principal Investigator

“Shoulder Arthroplasty Fixation System.”

Capstone Senior Design Project Sponsored by DJO Global.

October, 2018 – May, 2019. \$5,000

Role: Principal Investigator

“Shoulder Arthroplasty Conversion System.”

Capstone Senior Design Project Sponsored by DJO Global.

October, 2018 – May, 2019. \$5,000

Role: Principal Investigator

“Knee Arthroplasty Trial Reduction.”

Capstone Senior Design Project Sponsored by Stryker.

October, 2018 – May, 2019. \$5,000

Role: Principal Investigator

“Additive Manufacturing in Total Knee Arthroplasty.”

Capstone Senior Design Project Sponsored by Stryker.

October, 2018 – May, 2019. \$5,000

Role: Principal Investigator

“Hospital Acquired Infection Prevention.”

Capstone Senior Design Project Sponsored by PDI.

October, 2018 – May, 2019. \$5,000

Role: Principal Investigator

“Secure PICC Line.”

Capstone Senior Design Project Sponsored by RM Alley.

October, 2018 – May, 2019. \$5,000

Role: Principal Investigator

“Joint Functional Assessment.”

Capstone Senior Design Project Sponsored by Jenkins NeuroSpine.

October, 2018 – May, 2019. \$5,000

Role: Principal Investigator

“Patient Positioning System.”

Capstone Senior Design Project Sponsored by Parace Bionics.

March, 2018 – December 2018. \$5,000

Role: Principal Investigator

“SI Joint Fusion System.”

Capstone Senior Design Project Sponsored By Spine Teknix, LLC.

November, 2017 – June, 2018. \$5,000.

Role: Principal Investigator

“3D Scoliosis Brace.”

Capstone Senior Design Project Sponsored By East Coast Orthotic & Prosthetic Corp.

November, 2017 – June, 2018. \$5,000.

Role: Principal Investigator

“Oral Hygiene Apparatus for Individuals With Disabilities.”

Capstone Senior Design Project Sponsored By Center for Disability Services.

November, 2017 – June, 2018. \$5,000.

Role: Principal Investigator

“Bathtub Safety System for Individuals With Disabilities.”

Capstone Senior Design Project Sponsored By Center for Disability Services.

November, 2017 – June, 2018. \$5,000.

Role: Principal Investigator

“X-Ray Based Bone Deformation Assessment.”

Capstone Senior Design Project Sponsored By Stryker.

November, 2017 – June, 2018. \$5,000.

Role: Principal Investigator

“Bone Lengthening Intramedullary Rod.”

Capstone Senior Design Project Sponsored By Stryker.

November, 2017 – June, 2018. \$5,000.

Role: Principal Investigator

“Reversible Glenoid Component for Shoulder Replacement.”

Capstone Senior Design Project Sponsored By Stryker.

November, 2017 – June, 2018. \$5,000.

Role: Principal Investigator

“Back Brace for High BMI Patients.”

Capstone Senior Design Project Sponsored By DJO Global.

December, 2015 – June, 2016. \$5,000.

Role: Principal Investigator

“Personalized Range of Motion Monitoring System.”

Capstone Senior Design Project Sponsored By DJO Global.

December, 2015 – June, 2016. \$5,000.

Role: Principal Investigator

“Neuroceutical Electronics Interface.”

Capstone Senior Design Project Sponsored By General Electric.

December, 2015 – June, 2016. \$5,000.

Role: Principal Investigator

“Self-Fixating Hernia Mesh.”

Capstone Senior Design Project Sponsored By Davol/Bard.

December, 2015 – June, 2016. \$5,000.

Role: Principal Investigator

“Active Heat Reducing Prosthetic Socket.”
Capstone Senior Design Project Sponsored By Vivonics.
December, 2015 – June, 2016. \$5,000.
Role: Principal Investigator

“Metabolic Prosthetic Socket.”
Capstone Senior Design Project Sponsored By Vivonics.
December, 2015 – June, 2016. \$5,000.
Role: Principal Investigator

“Surgical Prep Delivery System.”
Capstone Senior Design Project Sponsored By PDI, Inc.
December, 2015 – June, 2016. \$5,000.
Role: Principal Investigator

“Disectomy Size Measuring Instrument.”
Capstone Senior Design Project Sponsored By Intrinsic Therapeutics.
December, 2015 – June, 2016. \$5,000.
Role: Principal Investigator

“Non-Punching Port Access Needle.”
Capstone Senior Design Project Sponsored By Zoid Medical.
December, 2015 – June, 2016. \$5,000.
Role: Principal Investigator

ProFab Studio Gift.
\$250,000 gift from an alum to establish the Prototype Fabrication Studio for Biomedical Engineering.

“Post-Operative Leg Motion Tracking System.”
Capstone Senior Design Project Sponsored By Foot Innovations, LLC.
January, 2015 – June, 2015. \$5,000.
Role: Principal Investigator

“Custom Orthotic Fabrication System.”
Capstone Senior Design Project Sponsored By Foot Innovations, LLC.
January, 2015 – June, 2015. \$5,000.
Role: Principal Investigator

“Adaptable Lower Limb Prosthetic Socket.”
Capstone Senior Design Project Sponsored By Foot Innovations, LLC.
January, 2015 – June, 2015. \$5,000.
Role: Principal Investigator

“Laparoscopic Closure of Hernias.”
Capstone Senior Design Project Sponsored By Medtronic-Covidien.
January, 2015 – June, 2015. \$5,000.
Role: Principal Investigator

“Soft Tissue Suture Anchor Delivery System.”
Capstone Senior Design Project Sponsored By Medtronic-Covidien.
January, 2015 – June, 2015. \$5,000.
Role: Principal Investigator

“Surgical Mesh Positioning Device.”
Capstone Senior Design Project Sponsored By Medtronic-Covidien.
January, 2015 – June, 2015. \$5,000.
Role: Principal Investigator

“Local Fabrication of Hernia Meshes.”
Capstone Senior Design Project Sponsored By Medtronic-Covidien.
January, 2015 – June, 2015. \$5,000.
Role: Principal Investigator

“Global Engineering Teams – Neck Injury Prevention.”
Funded by NeuroTect, LLC.
March, 2014 – December, 2014. \$25,000.
Role: Principal Investigator.

“Wearable Joint Strengthening System.”
Capstone Senior Design Project Sponsored By Tau Orthopaedics, LLC.
January, 2014 – June, 2014. \$5,000.
Role: Principal Investigator

“Low Power Cardiac Output Monitoring System.”
Capstone Senior Design Project Sponsored By Edwards Scientific.
January, 2014 – June, 2014. \$5,000.
Role: Principal Investigator

“Neck Injury Prevention System.”
Capstone Senior Design Project Sponsored By NeuroTect, LLC.
January, 2014 – June, 2014. \$5,000.
Role: Principal Investigator

“Global Engineering Teams – Pressure Sore Prevention Project.”
Funded by the Center for Disability Services.
March, 2013 – February, 2014. \$25,000.
Role: Principal Investigator.

“International Collaboration for Fundamental Engineering Design – An Opportunity for Undergraduates.”
Funded by RPI School of Engineering “Dean’s Grant”.
October, 2012 – June, 2013. \$12,500.
Role: Principal Investigator.

“REU Site: Materials and Systems Biology Research in Biotechnology and Biomedicine.”
NSF-EEC #1238021.
April, 2012 – February, 2014. \$226,756.
Role: Co-Principal Investigator (50%).
Co-PI: Juergen Hahn, RPI.

“Rehabilitation Toilet Interface for Total Joint Arthroplasty Patients.”
MDL Design Project Sponsored by Ranawat Orthopaedics.
August, 2009 - May, 2010. \$40,000.
Role: Co-Advisor.

“Development of a Minimally Invasive Plantar Fasciotomy Instrument.”
MDL Design Project Sponsored by MicroAire, Inc.
August, 2009 - May, 2010. \$40,000.
Role: Co-Advisor.

“Rehabilitation Toilet Interface for Total Joint Arthroplasty Patients.”
Capstone Senior Design Project Sponsored By Ranawat Orthopaedics.
January, 2009 – June, 2009. \$10,000.
Role: Co-Advisor.

“Clinic To Classroom: Long Bone Trauma Module.”
Sponsored by Synthes.
December, 2008. \$2,000.
Role: Co-Principal Investigator

“Clinic To Classroom: Navigation Assisted Total Knee Replacement Module.”
Sponsored by Stryker Orthopaedics.
October, 2008. \$2,500.
Role: Principal Investigator

“Clinic To Classroom: Open and Endoscopic Carpal Tunnel Release Module.”
Sponsored by Stryker Orthopaedics.
September, 2008. \$2,500.
Role: Principal Investigator

“An Automated Lumbar Discectomy System: A Biomedical Engineering Design Challenge.”
Capstone Senior Design Project Sponsored By DePuy Spine.
January, 2008 – June, 2008. \$5,000.
Role: Principal Investigator

Advised Capstone Design Projects

- 79. Scapular Dyskinesia Fixation System
RPI Biomedical Engineering Senior Design Team, 2020-2021.
- 78. Home Therapy Spinal Traction Device
RPI Biomedical Engineering Senior Design Team, 2020-2021.
- 77. Knee Support Device for Descending
RPI Biomedical Engineering Senior Design Team, 2020-2021.
- 76. System for Customizing Foot Orthotics
RPI Biomedical Engineering Senior Design Team, 2020-2021.
- 75. Pedicle Screw Guidance System
RPI Biomedical Engineering Senior Design Team, 2019-20.
- 74. TKA Trial Reduction
RPI Biomedical Engineering Senior Design Team, 2019-20.
- 73. Antegrade Ankle Fusion
RPI Biomedical Engineering Senior Design Team, 2019-20.

72. Flexible Scoliosis Implant
RPI Biomedical Engineering Senior Design Team, 2019-20.
71. Leg Length Discrepancy Following Total Hip Arthroplasty
RPI Biomedical Engineering Senior Design Team, 2019.
70. Shoulder Arthroplasty Conversion System
RPI Biomedical Engineering Senior Design Team, 2018-19.
69. Craniotomy Defect Closure System
RPI Biomedical Engineering Senior Design Team, 2018-19.
68. System to Diagnose Joint Function
RPI Biomedical Engineering Senior Design Team, 2018-19.
67. Wheelchair Door Access System
RPI Biomedical Engineering Senior Design Team, 2018-19.
66. Pediatric Mobile Ventilator.
RPI Biomedical Engineering Senior Design Team, 2018-19.
65. Spinal Decompression Home Therapy Apparatus.
Coulter College Innovation Scholars Program, 2018.
RPI Biomedical Engineering Senior Design Team, 2018-19.
64. SI Joint Fusion System.
RPI Biomedical Engineering Senior Design Team, 2017-18.
63. 3D Scoliosis Brace.
RPI Biomedical Engineering Senior Design Team, 2017-18.
62. Oral Hygiene Apparatus for Individuals With Disabilities.
RPI Biomedical Engineering Senior Design Team, 2017-18.
61. Bathtub Safety System for Individuals With Disabilities.
RPI Biomedical Engineering Senior Design Team, 2017-18.
60. Plantar Fasciitis Person Health System.
RPI Biomedical Engineering Senior Design Team, 2017-18.
59. Bone Lengthening Intramedullary Rod.
RPI Biomedical Engineering Senior Design Team, 2017-18.
58. Highly Mobile Pediatric Ventilator.
RPI Biomedical Engineering Senior Design Team, 2015-16.
57. Anterior Interbody Fusion System for Spondylolisthesis.
RPI Biomedical Engineering Senior Design Team, 2015-16.
56. Back Brace for High BMI Patients.
RPI Biomedical Engineering Senior Design Team, 2015-16.
55. Personalized Range of Motion Monitoring System.
RPI Biomedical Engineering Senior Design Team, 2015-16.
54. Discectomy Size Measuring Instrument.
RPI Biomedical Engineering Senior Design Team, 2015-16.
53. Automated Foot Analysis and Orthotic Fabrication System.
RPI Biomedical Engineering Senior Design Team, 2015.
52. Patella Fracture Fixation System.
RPI Biomedical Engineering Senior Design Team, 2014-2015.
51. Intra-Operative Pedicle Screw Guidance System
RPI Biomedical Engineering Senior Design Team, 2014.
50. Neck Strengthening Apparatus and Technique.
RPI Biomedical Engineering Senior Design Team, 2014.
49. Spinal Injury Prevention System.
RPI Biomedical Engineering Senior Design Team, 2014.

48. *Wearable Joint Strengthening System.*
RPI Biomedical Engineering Senior Design Team, 2014.
47. *Facet Fusion Implant and Technique.*
RPI Biomedical Engineering Senior Design Team, 2013.
46. *System for Minimally Invasive Posterior Fixation of the Cervical Spine.*
RPI Biomedical Engineering Senior Design Team, 2013.
45. *Technique and Apparatus for Anular Closure.*
RPI Biomedical Engineering Senior Design Team, 2013.
44. *Minimally Invasive Spinal Decompression System.*
RPI Biomedical Engineering Senior Design Team, 2012.
43. *Interactive Low Back Pain Prevention System.*
RPI Biomedical Engineering Senior Design Team, 2012.
42. *Apparatus and Method for Prevention of Skin Ulcers for Wheelchair-Bound Individuals.*
RPI Biomedical Engineering Senior Design Team, 2012.
41. *A Minimally Invasive System for Microdiscectomy in the Lumbar Spine.*
RPI Biomedical Engineering Senior Design Team, 2011.
40. *A Method for Objective Detection of Fracture Healing.*
RPI Biomedical Engineering Senior Design Team, 2011.
39. *Pneumatic Fracture Reduction and Fixation System.*
RPI Biomedical Engineering Senior Design Team, 2011. Co-Advisor.
38. *Improved Surgical Instrumentation for Unicondylar Knee Replacement.*
RPI Biomedical Engineering Senior Design Team, 2011. Co-Advisor.
37. *Development of An Orthopaedic "Smart Drill".*
RPI Biomedical Engineering Senior Design Team, 2010.
36. *A System for Temporary Retention of Fracture Fragments Prior to Fracture Plating.*
RPI Biomedical Engineering Senior Design Team, 2010.
35. *A Neck Strengthening Apparatus.*
RPI Biomedical Engineering Senior Design Team, 2010.
34. *Expandable TLIF Interbody Implant.*
RPI Biomedical Engineering Senior Design Team, 2010.
33. *A Novel Surgical Guide for Placement of Femoral Tunnels During ACL Repair.*
RPI Biomedical Engineering Senior Design Team, 2010.
32. *A Technique and Device for Hinge Craniotomies*
RPI Biomedical Engineering Senior Design Team, 2010.
31. *A Minimally Invasive Plantarfasciotomy Endoscopic Instrument.*
RPI Multi-Disciplinary Design Laboratory Engineering Senior Design Team, 2009-2010.
30. *Rehabilitation Toilet Seat for Use During Rehabilitation Following Total Joint Replacement.*
RPI Multi-Disciplinary Design Laboratory Engineering Senior Design Team, 2009-2010.
29. *A Novel Implant for Facilitating Facet Arthrodesis.*
RPI Biomedical Engineering Senior Design Team, 2009.
28. *A Modular Anterior Cervical Plating System for Increased Intraoperative Visualization.*
RPI Biomedical Engineering Senior Design Team, 2009.
27. *An Adjustable Dynamic Stabilization Device for the Lumbar Spine.*
RPI Biomedical Engineering Senior Design Team, 2009.
26. *Enhancements to a Minimally Invasive Carpal Tunnel Release Surgical Instrument.*
RPI Biomedical Engineering Senior Design Team, 2009.
25. *A Rehabilitation Toilet Seat for Use During Post-Operative Rehabilitation Following Total Joint Replacement.*
RPI Biomedical Engineering Senior Design Team, 2009.
24. *Wii Spine: An Interface for Real Time Feedback in the Home During Lumbopelvic Exercises.*
RPI Biomedical Engineering Senior Design Team, 2009.

23. Comfortable Lumbar Spinal Traction Device.
RPI Biomedical Engineering Senior Design Team, 2007-2008.
22. Automated Lumbar Discectomy System
RPI Biomedical Engineering Senior Design Team, 2007-2008.
21. A Scoliosis Correcting Brace
RPI Biomedical Engineering Senior Design Team, 2007-2008.
20. Non-Contacting Intervertebral Disc Spacer & Decompression Device
RPI Biomedical Engineering Senior Design Team, 2007-2008.
19. Spine Instability Diagnostic Device
RPI Biomedical Engineering Senior Design Team, 2007-2008.
18. A Novel Device For Femoral Periprosthetic Fracture Fixation.
RPI Biomedical Engineering Senior Design Team, 2006-2007.
17. A Comfortable X-ray Shield for Intraoperative Use.
RPI Biomedical Engineering Senior Design Team, 2006-2007.
16. An Implant for Correction of Forefoot Deformity.
RPI Biomedical Engineering Senior Design Team, 2006-2007.
15. Real Time Intra-Operative Cerebrospinal Fluid Leak Detector.
RPI Biomedical Engineering Senior Design Team, 2006-2007.
14. Total Hip Replacement Limb Length Measuring System.
RPI Biomedical Engineering Senior Design Team, 2006-2007.
13. An Automated Computer Vision Based Fracture Plate Contouring System – Part II.
RPI Biomedical Engineering Senior Design Team, 2006.
12. A System for Intraoperative Fabrication of Custom THA Antibiotic Eluding Spacer
RPI Biomedical Engineering Senior Design Team, 2005-2006.
11. Development of a Force Indicating Diagnostic Lumbar Spinal Implant
RPI Biomedical Engineering Senior Design Team, 2005-2006.
10. A Technique and Device for Reduction of Comminuted Metaphyseal Fractures.
RPI Biomedical Engineering Senior Design Team, 2005-2006.
9. Design of a Posterior Assist Walker for a Physical Therapy and Rehabilitation Environment
RPI Biomedical Engineering Senior Design Team, 2005-2006. Co-advised with M. Steiner
8. Design of a Novel Compression Fracture Plating System for Long Bone Fractures.
RPI Biomedical Engineering Senior Design Team, 2005.
7. A Low Profile Fibular Fixation Device.
RPI Biomedical Engineering Senior Design Team, 2005.
6. An Intraoperative Pelvic Fracture Reduction and Stabilization System.
RPI Biomedical Engineering Senior Design Team, 2005.
5. An Automated Computer Vision Based Fracture Plate Contouring System.
RPI Biomedical Engineering Senior Design Team, 2005.
4. Design of a Non-Invasive Dynamizable Intramedullary Nail.
RPI Biomedical Engineering Senior Design Team, 2004.
3. System for Tracking the Spatial Motion of Articulating Tissue During Mechanical Testing.
RPI Electrical Engineering Senior Design Team, 2004.
2. “VivoSim” – An Environmental Chamber for Mechanical Testing of Fresh Tissue.
RPI Biomedical Engineering Senior Design Team, 1999.
1. A Partial Weight Bearing Indicator for Lower Limb Post-Operative Rehabilitation.
RPI Biomedical Engineering Senior Design Team, 1998.

Research

Research Proposals Funded (Federal & State: \$4,976,620; Foundation: \$690,034; Industry: \$3,275,644)

Current and Active

58. Department of Veterans Affairs

RR&D Merit Award. VA 1 I01 RX005006

“Predicting the Efficiency of Therapeutic Spinal Loading for Intervertebral Disc Regeneration.”

January 1, 2024 – December 31, 2027.

Role: Consultant

PI: Sarah Gullbrand (University of Pennsylvania)

57. SEFCU & CAPCOM

“Caregiver Assisted Oral Hygiene. Clinical Investigation”

April 1, 2022 – December 31, 2024

\$200,000

Role: Principal Investigator

56. Rifton Equipment Co.

“Mobility Opportunities Via Education/Experience (MOVE): Healthcare Impact Assessment. Clinical Investigation”

March 1, 2022 – February 28, 2024.

\$178,352

Role: Principal Investigator

Completed

55. National Science Foundation

NSF I-Corps National Program

October 1, 2022 – November 30, 2022

\$50,000

Role: Industry Advisor (Entrepreneurial Lead: Tyree Williams, Kratos Orthopaedics)

54. Orthopaedic Trauma Association

“Smart Fracture Plate for Monitoring Healing After Plate Osteosynthesis”

Research Grant

January 1, 2020 – June 30, 2022.

\$49,957

Role: Principal Investigator

53. Gotham Innovation Gambit Program

Innovation Lean Bootcamp I-Corp I-Site Grant.

“Mortar Bone Cement System for Vertebroplasty Augmentation”

February 1, 2022 – March 31, 2022.

\$1,000.

Role: Industry Mentor (PI: Tyree Williams, Kratos Orthopedics)

52. Lemelson Foundation Burt Swersey Inventor's Studio Challenge

"Caregiver Assisted Oral Hygiene for Individuals With Disabilities"

January 1, 2020 – December 31, 2021.

\$10,000

Role: Principal Investigator

51. National Science Foundation

I-Corp I-Site Grant.

"Wireless Intracompartmental Pressure Monitoring System."

January 1, 2021 – April 15, 2021

\$2,500.

Role: Academic Lead (PI: Benjamin Liddle, RPI)

50. National Administration For Community Living

"Wireless Moisture Sensing Brief for Non-Invasive Monitoring of Adult Incontinence"

NIDILRR SBIR Phase I Grant 90BISA0039-01-00.

September 1, 2020 – August 31, 2021

\$99,830

Role: Co-Investigator (PI: David Fiorella, inSense Medical)

49. Department of Veterans Affairs

RR&D Merit Award. VA 1 I01 RX002148-01A1

"Optimizing Motion Therapy to Arrest the Progression of Intervertebral Disc Degeneration"

January 1, 2017 – June 30, 2021.

\$1,991,426

Role: Principal Investigator

48. Rifton Equipment Co.

"Mobility Opportunities Via Education Outcomes Assessment"

June 1, 2019 – May 31, 2020.

\$50,000

Role: Project Lead

54. National Science Foundation

I-Corp I-Site Grant.

"Wireless Sensor Enabled Smart Diaper Customer Discovery"

February 1, 2019 – April 15, 2019.

\$2,500.

Role: Academic Lead (PI: David Fiorella, inSense Medical)

46. Musculoskeletal Transplant Foundation

Established Investigator Grant.

"Optimizing Interbody Allograft Loading to Facilitate Spinal Fusion."

February 1, 2015 – July 30, 2019.

\$299,329.

Role: Principal Investigator (100%)

45. National Research Foundation of South Africa

Investigator Initiated Research Grant. Grant No: 112125

“Measuring Patellar Reaction Forces to Investigate the Role of Mechanical Loading on Patellar Biomechanics”

January 1, 2018 – December 31, 2020

R138,600 (Direct costs)

Role: Consultant (PI: Cobus Muller, Stellenbosch University)

44. Dental Trade Alliance

Foundation Dental Lifeline Network Grant. Grant #17-093.

“Oral Hygiene Apparatus for Individuals With Disabilities”

October 1, 2017 – December 31, 2018.

\$25,000

Role: Project Lead

43. National Institutes of Health

R21 AI119428-01

“Non-Invasive Local Diagnosis of Surgical Infections.”

July 1, 2015 – June 30, 2018.

\$429,560.

Role: Principal Investigator (100%)

42. National Institutes of Health

SBIR Phase I R43 AR068819-01

“Continuously Load-Sharing Elastically Deformable Spinal Fusion Implant.”

July 1, 2015 – June 30, 2017. \$224,794.

Role: Principal Investigator (100%)

41. Scripps Health Research Institute

“Development of a Novel Smart Patella Implant.”

February 1, 2015 – January 31, 2016.

\$27,198.

Role: Principal Investigator (100%)

40. National Institutes of Health

R01 EB016977

“Grating-based X-ray Phase-contrast Tomography Methods”

April 1, 2014– March 30, 2018.

\$1,471,145.

Role: Co-Investigator (PI: Ge Wang)

39. RPI-Mt. Sinai School of Medicine Collaborative Research Pilot Funding Program

“Continuous Monitoring of Compartmental Pressures for Objective Diagnosis of Compartment Syndrome.”

January 1, 2014 – December 31, 2016.

\$77,670.

Role: Principal Investigator (100%)

38. National Institutes of Health

R21 AR063285-01A1.

"Implementation of an Elementary and Robust Implantable Sensor for Musculoskeletal Personalized Medicine."

March 1, 2013 – February 28, 2016.

\$362,497

Role: Principal Investigator (100%)

37. NYCAP Research Alliance

Seed Grant

"Robust Implantable Sensor Technology For Musculoskeletal Medicine."

September 1, 2012 – December 31, 2013.

\$75,000.

Role: Principal Investigator (100%)

36. DePuy Spine

Tier II, Pre-Clinical Research Grant.

"Adjacent Level Disease: The Effects of Spinal Instrumentation on Redistribution of Spinal Motion."

September, 2011 – December, 2013.

\$57,751.

Role: Principal Investigator (100%)

35. Orthopaedic Research and Education Foundation

Young Investigator Grant.

"Restoration of Intervertebral Disc Diffusion by Nimodipine Administration."

July, 2011 – March 31, 2014.

\$49,950.

Role: Co-Principal Investigator (50%)

Co-PI: James Lawrence, MD, Albany Medical College.

34. NASA

Research Opportunities in Space Life Sciences NNX10AU51G S01

"Integrated Stress Response in Space."

September, 2010 – March, 2013. \$267,368

Role: Co-Principal Investigator (67%)

Co-PI: Hiroki Yokota, Ph.D., IUPUI.

33. DePuy Spine

"Cervical Endplate Topography."

August, 2010 – December, 2011.

\$14,273

Role: Principal Investigator (100%)

32. DePuy Spine

"Three Dimensional Morphometry of Commonly Used Animal Models of the Lumbar Spine."

May, 2008 – December, 2009.

\$16,250

Role: Principal Investigator (100%)

31. Stryker Orthopaedics

"Biomechanics of Intertrochanteric Fracture Fixation Devices."

June, 2007 – October, 2009.

\$28,395

Role: Principal Investigator (100%)

30. Stryker Orthopaedics

"Implantable Microtransducers For Incorporation Into Orthopaedic Implants."

December, 2004 – August, 2007

\$254,000

Role: Principal Investigator (100%)

29. DePuy Biologics

"Efficacy of Small Intestinal Submucosa for Repair of Anular Defects – Efficacy in the Sheep Lumbar Spine."

August, 2005 – May, 2006

\$122,963

Role: Co-Investigator (100%)

28. Rensselaer Polytechnic Institute Office of Research

Seed Grant

*"A Novel System To Measure Real Time *In Vivo* Forces In the Human Musculoskeletal System."*

January, 2005 – December, 2005.

\$19,950.

Role: Principal Investigator (100%)

27. Stryker Orthopaedics

"Safe Lifecycle of Reprocessed External Fixation Devices."

August, 2004- December, 2004. \$54,000.

Role: Principal Investigator (100%)

26. DePuy Acromed

*"Evaluation of the Safety and Efficacy of the DePuy Spine Cervical Disc: An *In-Vivo* Sheep Model."*

June, 2004 - August, 2005.

\$314,850.

Role: Principal Investigator (100%)

25. TranS1, Inc.

"Efficacy of the Spine Axial Fusion Rod for Lumbar Spinal Arthrodesis."

October, 2003- June, 2004.

\$49,800.

Role: Principal Investigator (100%)

24. Interpore Cross International

*"*In Vitro* Measurement of Force Transmission Through Lumbar Facet Joints in the Normal Human Spine."*

September, 2003- May, 2004.

\$23,200.

Role: Principal Investigator (100%)

23. DePuy Acromed

"Discal Cryosurgery – Pilot Study in the Caprine Lumbar Spine."

July, 2003- March, 2004.

\$64,900.

Role: Principal Investigator (100%)

22. Anulex Technologies

"In Vitro Biomechanical Evaluation of an Anular Support Device in the Lumbar Spine."

June, 2003- May, 2004.

\$28,000.

Role: Principal Investigator (100%)

21. TranS1, Inc.

"Preliminary Biomechanical Evaluation of the Lumbar Spine Axial Fusion Rod."

2002.

\$12,500.

Role: Principal Investigator (100%)

20. Howmedica Osteonics

"Static and Dynamic Frame and Component Testing of The Hoffmann II Hybrid and Synthes A/O Hybrid External Fixators."

2002.

\$91,000.

Role: Principal Investigator (100%)

19. DePuy Ace

"The Effects of Platelet Rich Plasma on Soft Tissue Healing Following High Energy Open Tibial Fractures."

2002.

\$68,000

Role: Principal Investigator (100%)

18. DePuy Acromed

"Platelet Rich Plasma as an Adjunct Therapy for Cervical Spinal Fusion in a Goat – A Pilot Study."

2001-2002.

\$34,890.

Role: Principal Investigator (100%)

17. Replication Medical

"Efficacy of a Novel Hydrogel for Intervertebral Disc Nucleus Replacement."

2001.

\$29,450.

Role: Principal Investigator (100%)

16. DePuy Acromed

"The Effectiveness of Small Intestinal Submucosa for Spinal Ligament Repair."

2001.

\$34,150.

Role: Principal Investigator (100%)

15. Orthovita, Inc.

"Lumbar Interbody and Posterolateral Fusion with Orthovita's Vitoss Synthetic Bone Substitute and Novel Bioactive Interbody Implant."

2000-2001.

\$163,000.

Role: Principal Investigator (100%)

14. Raymedica, Inc.

"Evaluation of the PDN® Prosthetic Disc Nucleus in the Lumbar Spine of the Baboon – A Pilot Study."

2000-2001. \$115,000.

Role: Principal Investigator (100%)

13. Orthovita, Inc.

"Healing of Tibial Segmental Defects in Dogs with Orthovita's Vitoss Synthetic Bone Substitute – Long Term Healing Time Course."

2000-2001.

\$198,850.

Role: Principal Investigator (100%)

12. Musculoskeletal Transplant Foundation

"Impaction Grafting: Basic Science and Clinical Applications in Revision Total Hip Arthroplasty."

2000.

\$78,650.

Role: Principal Investigator (100%)

11. Jeffrey Schneider Spinal Cord Research Fund

"Clinical Tolerance and Response of the Spinal Cord to Slow Vertebral Distraction."

1995-2000.

\$100,000.

Role: Co-Principal Investigator (50%).

Co-Principal Investigator: Allen Carl, MD (Albany Medical College).

10. DePuy Acromed

*"Real-Time *In Vivo* Loading in the Lumbar Spine."*

1999.

\$33,250.

Role: Principal Investigator (100%)

9. Spinal Concepts

*"The Biomechanics of Intradiscal Spinal Implants - A Comprehensive *In Vitro* Study - Phase II."*

1999.

\$6,950.

Role: Principal Investigator (100%)

8. Howmedica Osteonics

"A Biomechanical Analysis of Ankle External Fixation Systems."

1999.

\$9,950

Role: Principal Investigator (100%)

7. North American Spine Society

*"Real-Time *In Vivo* Loading in the Lumbar Spine of the Baboon – A Novel Approach Using an Interbody Implant Load Cell."*

1998.

\$49,950.

Role: Principal Investigator (100%)

6. Stryker Biotech

"Healing of Tibial Segmental Defects with the OP-1™ Device – Long Term Implantation."

1997-2000.

\$363,095.

Role: Principal Investigator (100%)

5. Stryker Biotech

"Anterior Interbody Fusion in the Cervical Spine – A Comparison of Allograft and OP-1."

1997-1999.

\$316,815.

Role: Principal Investigator (100%)

4. Stryker Biotech

"Healing of Tibial Segmental Defects with the OP-1™ Device – Multiple Implantations."

1997-1998.

\$226,660.

Role: Principal Investigator (100%)

3. Sulzer Spine-Tech

*"The Biomechanics of Intradiscal Spinal Implants – A Comprehensive *In Vitro* Study."*

1997.

\$10,000.

Role: Principal Investigator (100%)

2. DePuy Acromed

*"The Biomechanics of Intradiscal Spinal Implants – A Comprehensive *In Vitro* Study – Phase I."*

1997.

\$14,000.

Role: Principal Investigator (100%)

1. Stryker Biotech

"Healing of Tibial Segmental Defects with the OP-1™ Device – Healing Time Course."

1996-1997.

\$216,350.

Role: Principal Investigator (100%)

Publications

Books and Book Chapters

3. Ledet EH, Zhaomin Z. *Animal Models of Back Pain and Sciatica*. From: Sharan A, Tang S, Vaccaro A (Eds.). Basic Science of Spinal Diseases. New Delhi: Jaypee Brothers. 2013.
2. Ledet EH, Grabowsky MB[†]. *Practical Guide to Statistical Analysis*. From: Bhandari M, Johansson A (Eds.). Clinical Research for Surgeons. New York: Thieme Medical Publishers. 2009.
1. Carl AL, Ledet EH, Oliveria C, Pimenta L, Orduz RD, Cragg AH. *Percutaneous Axial Lumbar Spine Surgery*. From: Perez-Cruet M, Khoo L, Fessler RG (Eds.). An Anatomical Approach to Minimally Invasive Spine Surgery. St. Louis: Quality Medical Publishing. 2006; 653-70.

Journal Articles

Articles in Refereed Journals

34. Capogna EA, Brown E, Walrath E, Furst W, Dong Q, Zhou CM, Gullbrand SE, Vo NV, Sowa GA, Ledet EH. ISSLS Prize Winner: Low Rate Cyclic Loading as a Therapeutic Strategy for Intervertebral Disc Regeneration. *European Spine Journal*, 2022; 5:1-11. DOI: <https://doi.org/10.1007/s00586-022-07239-2>. Link: <https://rdcu.be/cM3fq>. **Awarded 2022 ISSLS Prize for spine research.**
33. Kerr H, Ledet EH, Hollowood K, Nelson C, Light D, Hahn J. Quantitative Assessment of Balance for Accurate Prediction of Return to Sports From Sport-Related Concussion. *Sports Health*, 2022;2:1-10. DOI: <https://doi.org/10.1177/19417381211068817>.
32. Ledet EH, Caparaso SM, Cole KP, Stout M, Liddle B, Cady NC, Archdeacon MT. Smart Fracture Plate for Quantifying Fracture Healing: Preliminary Efficacy in a Biomechanical Model. *Journal of Orthopaedic Research*, 2022; 40:2414-20. DOI: <https://doi.org/10.1002/jor.25254>.
31. Costi J, Ledet EH, O'Connell G. Spine Biomechanical Testing Methodologies: The Controversy of Consensus vs Scientific Evidence. *Journal of Orthopaedic Research Spine*, 2021; e1138. DOI: <https://doi.org/10.1002/jsp2.1138>
30. Drazan JF, Abdoun OT, Wassick MT, Dahle R, Beardslee L, Marcus GA, Cady NC, Ledet EH. Simple Implantable Wireless Sensor Platform to Measure Pressure and Force. *Medical Engineering & Physics*, 2018;59:81-7. NIHMS ID 1502204.
29. Ledet EH, Liddle B, Kradinova K, Harper S[†]. Smart Implants in Orthopaedic Surgery, Improving Patient Outcomes: A Review. *The Journal Innovation and Entrepreneurship in Health*, 2018;5:41-51.
28. Peterson JM, Chlebek C, Clough AM, Wells AK, Batzinger KE, Houston JM, Kradinova K, Glennon JC, DiRisio DJ, Ledet EH. Stiffness Matters: Part II – The Effects of Plate Stiffness on Load-Sharing and the Progression of Fusion Following ACDF In Vivo. *SPINE*, 2018; 43(18):E1069-76.

27. Peterson JM, Chlebek C, Clough AM, Wells AK, Ledet EH. Stiffness Matters: Part I – The Effects of Plate Stiffness on the Biomechanics of ACDF In Vitro. *SPINE*, 2018; 43(18):E1061-8.
26. Ledet EH, Sanders GP, DiRisio DJ, Glennon JC. Load-Sharing Through Elastic Micro-Motion Accelerates Bone Formation and Interbody Fusion. *The Spine Journal*. 2018;18(7):1222-30. PMID: PMC6008179
25. Kerr H, Ledet EH, Ata A, Newitt JL, Santa Barbara M, Kahanda M, Sperry E. Does Instructional Video Footage Improve Rugby Tackle Technique? *International Journal of Sports Science & Coaching*, 2017;6:1-13.
24. Peterson JM, Healey CP, Visser GJ, Crombie C, Ledet EH. Pressure Ulcer Prevention: Optimizing a Temporally Redistributing Support Interface. *American Journal of Engineering and Applied Sciences*, 2016;9(4):1222-31.
23. Dion MK, Drazan JF, Giddings S, Desai V, Cady NC, Dahle R, Roberts JT, Ledet EH. Smart Orthopaedic Implants: Application in Total Knee Arthroplasty. *American Journal of Engineering and Applied Sciences*, 2016;9(4):1232-38.
22. Gullbrand SE, Peterson J, Ahlborn J, Mastropolo R, Fricker A, Roberts TT, Abousayed M, Lawrence JP, Glennon JC, Ledet EH. ISSLS Prize Winner: Dynamic Loading-Induced Convective Transport Enhances Intervertebral Disc Nutrition. *SPINE*, 2015; 40(15):1158-64. **Awarded 2015 ISSLS Prize for spine research.**
21. Steiner M, Kanai J, Hsu C, Ledet EH, Walczyk D, Morris J, Anderson M, Miller S, Anderson K. Preparing Engineering Students for Professional Practice: Using Capstone to Drive Continuous Improvement. *International Journal of Engineering Education*, 2015; 31(1):154-64.
20. Gullbrand SE, Peterson J, Mastropolo R, Roberts TT, Lawrence JP, Glennon JC, DiRisio DJ, Ledet EH. Low Rate Loading Induced Convection Enhances Net Transport into the Intervertebral Disc In Vivo. *The Spine Journal*, 2015;15:1028-33. PMID: 25500262.
19. Drazan JF, Gunko AA, Abdoun O, Healey C, Dion M, Cady N, Connor KP, Ledet EH. Archimedean Spiral Pairs With No Electrical Connections as Passive Wireless Implantable Force Sensors. *The Journal of Biomedical Technology and Research*, 2014; 6000104:1-8. PMID: PMC4945132.
18. Gullbrand SE, Peterson J, Mastropolo R, Lawrence JP, Lopes L, Lotz J, Ledet EH. Drug-Induced Changes to the Vertebral Endplate Vasculature Affect Transport Into the Intervertebral Disc In Vivo. *The Journal of Orthopaedic Research* 2014; 32(12):1694-1700. PMID: 25185989.
17. Wachs RA, Ellstein D, Drazan J, Healey CP, Uhl RL, Connor KA, Ledet EH. Elementary Implantable Force Sensor for Smart Orthopaedic Implants. *Advances in Biosensors and Bioelectronics* 2013;2(4):57-64. PMID: PMC4037930. PMID: 24883335.
16. Dezman ZDW, Ledet EH, Kerr HA. Neck Strength Imbalance Correlates With Increased Head Acceleration in Soccer Heading. *Sports Health Journal*, 2013; 5(4):320-6. **Awarded 2014 Sports Health T. David Sisk Award for Best Original Research Paper.**

15. Korduba LA, Grabowsky MBM, Uhl RL, Hella MM, Ledet EH. Radiofrequency Identification as a Testbed for Integration of Low Frequency Radio Frequency Sensors Into Orthopaedic Implants. *Journal of Medical Devices*, 2013; 7(1):011008-8.
14. Zhao L, Tanjung N, Swarnkar G, Ledet EH, Yokota H. Regulation of eIF2 α Phosphorylation in Hindlimb-Suspended and STS-135 Space-Flown Mice. *Advances in Space Research*, 2012; 50:576-83.
13. Ledet EH, D'Lima D, Westerhoff P, Szivek JA, Wachs RA, Bergmann G. Implantable Sensor Technology: From Research to Clinical Practice. *Journal of the American Academy of Orthopaedic Surgery*. 2012; 20:383-392. PMID: 22661568.
12. Zhang P, Jiang C, Ledet EH, Yokota. H. Loading- and Unloading-Driven Regulation of Phosphorylation of eIF2 α . *Biological Sciences in Space* 2011; 25(1):3-6.
11. Bellapianta J, Dow K, Pallotta N, Hospodar PP, Uhl RL, Ledet EH. Threaded Screw Head Inserts Improve Locking Plate Biomechanical Properties. *Journal of Orthopaedic Trauma*, 2011;25(2):65-71. PMID: 21245707.
10. Ledet EH, Carl AL, Glennon JC, Jeshuran W, De Deyne P, Belden C. Small Intestinal Submucosa for Annular Repair: Long Term Response In An In Vivo Sheep Model. *SPINE*, 2009; 34(14):1457-63.
9. Ledet EH, Carl AL, Cragg A. A Novel Lumbosacral Axial Fixation Technique. *Expert Review of Medical Devices*, 2006; 3(3): 327-34.
8. Ledet EH, Tymeson MP, Salerno S, Carl AL, Cragg A. Biomechanical Evaluation of a Novel Lumbosacral Axial Fixation Device. *Journal of Biomechanical Engineering*, 2005; 127:929-33.
7. Singh K, Ledet EH, Carl AL. Intradiscal Therapy: A Review of Current Treatment Modalities. *SPINE*, 2005; 30(17): S20-6.
6. Ledet EH, Tymeson MP, DiRisio DJ, Cohen B, Uhl RL. Direct Real Time Measurement of In Vivo Forces in the Lumbar Spine. *The Spine Journal*, 2005; 5(1):85-94. PMID: 15653089.
5. Panjabi MM, Goel VK, Cripton PA, Dooris AP, Ledet EH, Moumene M, Natarajan RN, Patwardhan AG, Sengupta DK, Serhan HA, Wilke HJ. Biomechanical Terminology and Concepts. *Roundtables in Spine Surgery*, 2004; 1(1):99-106.
4. Goel VK, Cripton PA, Dooris AP, Ledet EH, Moumene M, Natarajan RN, Panjabi MM, Patwardhan AG, Sengupta DK, Serhan HA, Wilke HJ. Spine Biomechanics: Roundtable Discussion. *Roundtables in Spine Surgery*, 2004; 1(1):59-95.
3. Carl AL, Ledet EH, Yuan H, Sharan A. New Developments in Nucleus Pulposus Replacement Technology. *The Spine Journal*, 2004; 4(6):325S-329S.
2. Ledet EH, Carl AL, DiRisio DJ, Tymeson MP, Andersen LB, Slivka MA, Serhan H. A Pilot Study to Evaluate The Effectiveness of Small Intestinal Submucosa Used to Repair Spinal Ligaments in the Goat. *The Spine Journal* 2002;2:188-96.

1. Ledet EH, Sachs BL, Brunski JB, Gatto CE, Donzelli PS: Real Time In Vivo Loading in the Lumbar Spine. Part 1: Interbody Implant – Load Cell Design and Preliminary Results. *SPINE* 2000;25(20): 2595-600. PMID: 11034643.

Manuscripts Submitted, Reviewed, and in Revision

2. Hast M, Glatt V, Lewis G, Ahn J, Ledet EH, Archdeacon M, Haller J. Biomechanics of Fracture Healing: How Best to Optimize Your Construct in the OR. Submitted to *OTA International*. Manuscript # OTAI-D-23-00046.
1. Gullbrand SE, Peterson J, Mastropolo R, Roberts TT, Lawrence JP, Glennon JC, DiRisio DJ, McCallum SA, Ledet EH. Mechanical Loading Rate Modulates Small Molecule Transport into the Intervertebral Disc and Cartilage Endplates. Submitted to the *European Spine Journal*. Manuscript # ESJO-D-16-00019.

Abstracts

Abstracts Published in Refereed Journals

29. Peterson JM, Chlebek C, Clough A, Wells A, Ledet EH. Cervical Plate Stiffness Affects the Distribution of Loads and the Location of the Instantaneous Axis of Rotation of the Spine In Vitro. *The Spine Journal* 2016; 16(10S):S260-1.
28. Peterson JM, Chlebek C, Ledet EH. Spinal Fusion Implant Stiffness Affects Load Sharing. *The Spine Journal* 2016; 16(10S):S260.
27. Ledet EH, Peterson JM, Wachs RA, Grabowsky MBM, Glennon JC, DiRisio DJ. Direct Measure of Cervical Interbody Forces In Vivo: Load Reversal After Plating. *The Spine Journal* 2016; 16(10S):S238-9.
26. Drazan JF, Abdoun OT, Wassick MT, Marcus GA, Dahle R, Beardslee LA, Cady NC, Ledet EH. Reducing the Effect of parasitic Capacitance on Implantable Passive Resonant Sensors. *IEEE Transactions of the Engineering in Medicine and Biology Society 38th Annual International Conference*; August 2016.
25. Peterson JM, Chlebek C, Clough AM, DiRisio DJ, Ledet EH. Optimization of Spinal Fusion Implant Stiffness and Its Effect on Instantaneous Axis of Rotation. *Biomedical Engineering Conference (NEBEC), 2015 41st Annual Northeast: IEEE, 2015:158-9.*
24. Jackson JZ, Dion MK, Drazan JF, Forsh DA, Cady NC, Ledet EH. A Wireless Sensing System for Continuous Monitoring of Intracompartmental Pressures. *Biomedical Engineering Conference (NEBEC), 2015 41st Annual Northeast: IEEE, 2015:115-6.*
23. Drazan JF, Abdoun OT, Wassick MT, Beardsley LA, Cady NC, Ledet EH. Strategies for the Implementation of a Simple Implantable Sensor Across Different In Vivo Applications. *Biomedical Engineering Conference (NEBEC), 2015 41st Annual Northeast: IEEE, 2015:96-97.*
22. Dion MK, Healey CP, Giddings SL, Drazan JF, Roberts JT, Cady NC, Ledet EH. Force measurement Across the Patellofemoral joint using a Smart Patellar Implant Following Total Knee Arthroplasty. *Biomedical Engineering Conference (NEBEC), 2015 41st Annual Northeast: IEEE, 2015:94-95.*

21. Capogna EA, Munoz-Pinto DJ, Hahn MS, Ledet EH. Identifying a Crosslink Density Relationship of Acrylamide Hydrogels to be Used With Passive Sensors for Detecting Periprosthetic Infection. Biomedical Engineering Conference (NEBEC), 2015 41st Annual Northeast: IEEE, 2015:86-87.
20. Drazan JF, Scott JM, Hoke JI, Ledet EH. Using Biomedical Engineering and Hidden Capital to Provide Educational Outreach to Disadvantaged Populations. IEEE Transactions of the Engineering in Medicine and Biology Society 36th Annual International Conference; August 26-30, 2014; 5160-3.
19. Linley SE, Peterson J, Mastropolo R, Roberts TT, Frank S, Glennon JC, Lawrence JP, Ledet EH. Net Transport in the Intervertebral Disc Is Dependent on Mechanical Loading Rate. *The Spine Journal* 2013; 13(9S):S55.
18. Linley SE, Peterson J, Mastropolo R, Roberts TT, Lopes L, Lawrence JP, Lotz JC, Ledet EH. Factors Affecting Small Molecule Trans-Endplate Transport Into the Intervertebral Disc In Vivo. *The Spine Journal* 2013; 13(9S):S49.
17. Wachs RA, Grabowsky MBM, Glennon JC, Ledet EH. In Vivo Loads in the Cervical Spine: A Preliminary Investigation Using a Force Sensing Implant. *The Spine Journal* 2012; 12(9S):S141.
16. Wachs RA, Michna MM, Ledet EH. Three-Dimensional morphometry of Human Cervical Endplates. *The Spine Journal* 2012; 12(9S):141S-2S.
15. Linley SE, Mastropolo R, Lawrence JP, Glennon JC, DiRisio DJ, Roberts TT, Ledet EH. Forced Convection Enhances Net Transport to the Intervertebral Disc In Vivo. *The Spine Journal* 2012; 12(9S):70S.
14. Linley SE, Peterson J, Mastropolo R, Lawrence JP, Lopes L, Glennon JC, Ledet EH. The Effects of Nimodipine and Nicotine on Diffusion Into the Intervertebral Disc In Vivo. *The Spine Journal* 2012; 12(9S):138S-9S.
13. Elsabee KA, Wason JD, Boyle J, Nazarian R, Wen JT, Carl AL; Ledet EH. Adjacent Level Changes in the Entire Thoracolumbar Spine Following Surgical Intervention as Measured Using a Novel In Vivo/In Vitro Active/Passive Robotic Simulator. *The Spine Journal* 2010; 10(9S):84S.
12. Sanders GP, Linley S, McCallum S, Brule E, Vandeventer E, Leimer E, Van Etten B; Colloggi K, Puzas JE, Sowa GA, Lotz JC, Vanderzanden J, Glennon JC, DiRisio DJ, Lawrence JP, Ledet EH. Identifying the Early Effects of Mechanical Loading on the Lumbar Spine Using A Novel In Vivo Animal Model. *The Spine Journal* 2010; 10(9S):75S.
11. Grabowsky MBM, Pallotta NA, Connelly MW, Van Etten B, MacDonald RA, Alley M, Glennon JC, Dubin AH, German JW, Uhl RL, Ledet EH. The Potential Role of Extensor Muscle Fatigue in the Onset of Intervertebral Disc Degeneration: a Novel In Vivo Model. *The Spine Journal* 2010; 10(9S):74S-5S.
10. Ledet EH, Sanders GP, Jackson JL, Wagner C, Tymeson MP. A Comprehensive Interspecies Comparison of Commonly Used Animal Models for Study of the Human Lumbar Spine. *The Spine Journal* 2010; 10(9S):59S.

9. Sanders GP, Linley S, Ramsey D, Abbott R, Puzas JE, Glennon JC, DiRisio DJ, Lawrence J, Carl AL, Ledet EH. Effects of Chronic Cyclic Loading on the Lumbar Spine: An In Vivo Pilot Study. *The Spine Journal* 2009; 9(10S):26S-7S.
8. Campbell EE, Elsabee K, Wason J, Wen J, Carl AL, DiRisio DJ, Ledet EH. Adjacent Level Effects: A Novel Method for Assessing Kinematic Changes of the Entire Thoracolumbar Spine Following Surgical Intervention. *The Spine Journal* 2009; 9(10S):198S-9S.
7. Jackson JM, Tymeson MP, Ledet EH. A Comprehensive Interspecies Comparison of the Mammalian Lumbar Spine – Part II: Morphometrics. *The Spine Journal* 2007; 7(5S):160S.
6. Ledet EH, Carl AL, Glennon JC, Jeshuran W, De Deyne P, Belden C, Shaffrey C. Small Intestinal Submucosa for Anular Repair: Long Term Response in an In Vivo Sheep Model. *The Spine Journal* 2007; 7(5S):57S.
5. Ledet EH, DiRisio DJ, Tymeson MP, Andersen LB, Sachs BL, Kallakury B, Sheehan CE. The Raymedica PDN Prosthetic Disc Nucleus Device in the Baboon Lumbar Spine. *The Spine Journal* 2002; 2:94S.
4. Sachs BL, Ledet EH, Kelly A, Ross JS, Tran TA, King R, Sheehan CE, Tymeson M. Histopathology of Tibial Healing in Dogs Treated With the OP-1 Implant. *Modern Pathology* 2000; 13(1):1183A.
3. Sheehan CE, Tran TA, Ross J, Ledet EH, Sachs BL: Pathologic Features of Cervical Spine Fusion Promoted by OP-1™ Putty. *Modern Pathology* 2000; 13(1):1184A.
2. Khanuja H, Ledet EH, Strominger NL, Tymeson MP, Carl AL: Clinical Tolerance and Response of the Spinal Cord to Mechanical Stimulus. Presented at the 26th Annual Meeting of the American Spinal Injury Association, Orlando, Florida. March, 2000. (*Journal of Spinal Cord Medicine*.)
1. Carl AL, Ledet EH, Strominger NL, Khanuja HS, Gatto CE: Clinical Tolerance and Response of the Spinal Cord to Slow Vertebral Distraction. Presented at the 25th Annual Meeting of the American Spinal Injury Association, Atlanta, Georgia. April, 1999. (*Journal of Spinal Cord Medicine*.)

Abstracts in Conference Proceedings as Podium Presentations

68. Archdeacon MT, Ledet EH, Stout M, Caparaso S, Cole KP, Liddle B, Cady N. Smart Fracture Plate for Monitoring Callus Stiffness. Presented at the Basic Science Focus Forum at the Annual Meeting of the Orthopaedic Trauma Association. Tampa, FL. October, 2022.
67. Archdeacon MT, Stout M, Caparaso S, Cole KP, Liddle B, Cady N, Dahle R, Ledet EH. Smart Fracture Plate for Monitoring Callus Stiffness. Presented at the 9th World Congress of Biomechanics. Taipei, Taiwan. July, 2022.
66. Capogna EA, Brown E, Walrath E, Furst W, Zhou CM, Dong Q, Sowa G, Vo N, Ledet EH. Repeated Cyclic Loading Induces Intervertebral Disc Regeneration. Presented at the 2022 Annual Meeting of the International Society for Study of the Lumbar Spine. Boston, MA. May, 2022.

65. Levy R, Ronin Y, DiRisio DJ, Ledet EH. Novel Low Stiffness Cervical Spinal Implants Indicate Load Sharing Through the Interbody Space. Presented at the 48th Annual Meeting of the Northeast Bioengineering Conference. New York, NY. April, 2022.
64. Ledet EH, Stout M, Caparaso S, Cole KP, Liddle B, Cady N, Dahle R, Archdeacon MT. Smart Fracture Plate Monitors Callus Stiffness. Presented at the Annual Meeting of the Orthopaedic Trauma Association. Fort Worth, TX. October, 2021.
63. Capogna E, Walrath E, Brown E, Furst W, Glennon J, Ledet EH. Cyclic Loading Induced Convection Enhances Transport of Small Molecules into a Degenerated Rabbit Intervertebral Disc. Presented at the 47th Annual Meeting of the Northeast Bioengineering Conference. Virtual. March, 2021.
62. Capogna EA, Brown EP, Walrath E, Daley AB, Lai J, Furst W, Glennon JC, Ledet EH. Cyclic Loading Enhances Small Molecule Transport in the 8-Week Degenerated Rabbit Intervertebral Disc. Presented at the Annual Meeting of the Orthopaedic Research Society. February, 2021.
61. Schroeder D, Abdoun K, Liddle B, Dahle R, Cady N, Ledet EH. Performance of a Passive, Wireless, Resonant Force Sensor for Smart Orthopedic Implants. Presented at the Annual Meeting of the Biomedical Engineering Society, (Virtual). October, 2020.
60. Stout M, Caparaso S, Hanggi C, Liddle B, Schroeder D, Cole K, Archdeacon M, Ledet EH. Smart Fracture Fixation Device. Presented at the Annual Meeting of the Biomedical Engineering Society, (Virtual). October, 2020.
59. Cole KP, Caparaso S, Kradinova KV, Liddle B, Archdeacon MT, Ledet EH. Smart Fracture Plate for Quantifying Fracture Callus Stiffness: Proof of Feasibility. Presented at the Annual Meeting of the American Academy of Orthopaedic Surgeons, (Virtual). March, 2020.
58. Peterson JM, Chlebek C, Clough AM, Wells AK, Batzinger KE, Kradinova K, Glennon JC, DiRisio DJ, Ledet EH. Stiffness Matters: Part II – The Effects of Plate Stiffness on Load-Sharing and the Progression of Fusion In Vivo. Presented at the 45th Annual Meeting of the International Society for Study of the Lumbar Spine, Banff, Canada. May, 2018.
57. Peterson JM, Chlebek C, Clough AM, Wells AK, Batzinger KE, DiRisio DJ, Glennon JC, Ledet EH. Interbody Implant Loading as a Measure of Fusion Maturity. Proceedings of the 62nd Annual Meeting of the Orthopaedic Research Society, San Diego, CA. March, 2017.
56. Ledet EH, Peterson JM, Wachs RA, Grabowsky MB, Glennon JC, DiRisio DJ. Direct Measure of Cervical Interbody Forces In Vivo: Load Reversal After Plating. Proceedings of the 31st Annual Meeting of the North American Spine Society, Boston, MA. October 2016.
55. Drazan JF, Wassick MT, Dahle R, Beardslee LA, Cady NC, Ledet EH. A Simple Sensing Mechanism for Wireless, Passive Pressure Sensors. Proceedings of the 38th Annual International Conference of IEEE Engineering in Medicine and Biology Society, Orlando, FL. August 2016.
54. Drazan JF, Abdoun OT, Wassick MT, Marcus GA, Dahle R, Beardslee LA, Cady NC, Ledet EH. Reducing the Effect of parasitic Capacitance on Implantable Passive Resonant Sensors. Proceedings of the 38th Annual International Conference of IEEE Engineering in Medicine and Biology Society, Orlando, FL. August 2016.

53. Dion MK, Giddings SL, Roberts J, Beardslee LA, Cady NC, D'Lima D, Ledet EH. A Smart Patellar Implant for Patellofemoral Joint Force Measurement – In Vitro Validation. Proceedings of the 61st Annual Meeting of the Orthopaedic Research Society, Orlando, FL. March, 2016.
52. Peterson JM, Healey CP, Crombie C, Visser C, Ledet EH. Pressure Sore Prevention for the Disabled in Under-Resourced Environments. Proceedings of the 37th Annual International Conference of the IEEE Engineering in Medicine and Biology Society. Milan, Italy, August, 2015.
51. Chlebek C, Peterson J, Clough A, Ledet EH. Load Sharing and Kinematic Properties of Varying Stiffness Cervical Plates In Vitro. Proceedings of the Annual Regional Meeting of the Society of Women Engineers, Boston, MA. February, 2015.
50. Gullbrand SE, Peterson J, Ahlborn J, Mastropolo R, Fricker A, Roberts TT, Abousayed M, Lawrence JP, Glennon JC, Ledet EH. Cyclic Loading-Induced Convection Enhances Net Transport Into the Intervertebral Disc. Proceedings of the 42nd Annual Meeting of the International Society for Study of the Lumbar Spine, San Francisco, CA. June, 2015.
49. Drazan JF, D'Amato AR, Winkelman MA, Littlejohn AJ, Johnson C, Cooke L, Ledet EH, Eglash R. Social Capital in Urban Youth in STEM Outreach Activities. Terra Foundation Urban STEM Education Conference. October, 2014.
48. Drazan JF, Scott JM, Hoke JJ, Ledet EH. Using Biomedical Engineering and “Hidden Capital” to Provide Educational Outreach to Disadvantaged Populations. Proceedings of the Annual Meeting of IEEE/EMBS, Chicago, IL. August, 2014.
47. Shah MA, Ledet EH, Hahn J. Effect of Loading Frequency on Trans-Endplate Nutrition Across the Intervertebral Disc: A Force-Controlled Unconfined Compression Experiment. Proceedings of the 2014 Annual Meeting of the Northeast Bioengineering Conference, Boston, MA. April, 2014.
46. Linley SL, Peterson J, Mastropolo R, Roberts T, Lopes L, Lotz JC, Lawrence JP, Ledet EH. Factors Affecting Small Molecule Trans-Endplate Transport into the Intervertebral Disc In-Vivo. Proceedings of the 28th Annual Meeting of the North American Spine Society, New Orleans, LA. October, 2013.
45. Linley SL, Peterson J, Mastropolo R, Frank S, Roberts T, Glennon JC, Lawrence JP, DiRisio DJ, Ledet EH. Net Transport in the Intervertebral Disc is Dependent on Mechanical Loading Rate. Proceedings of the 28th Annual Meeting of the North American Spine Society, New Orleans, LA. October, 2013. **Selected as “Best Paper Basic Sciences”.**
44. Hartman RA, Yurube T, Cruz MA, Sowa GA, Ledet EH. Effects of Short-Term Compression on Tissues of the Functional Spinal Unit. Proceedings of the 2013 American Association of Physiatrists Annual Meeting, New Orleans, LA. March 2013.
43. Linley SE, Peterson J, Mastropolo R, Roberts TT, Lawrence JP, Glennon JC, DiRisio DJ, Ledet EH. Mechanical Loading Rate Modulates Intervertebral Disc Trans-Endplate Transport. Proceedings of the 59th Annual Meeting of the Orthopaedic Research Society, San Antonio, TX. January, 2013.

42. Linley SE, Peterson J, Mastropolo R, Lawrence JP, Glennon JC, DiRisio DJ, Ledet EH. Forced Convection Enhances Net Transport to the Intervertebral Disc In-Vivo. Proceedings of the 27th Annual Meeting of the North American Spine Society. Dallas, TX. October, 2012.
41. Wachs RA, Cole KP, Ellistein D, Fiorella DB, Connor K, Ledet EH. A Force Sensor With No Electrical Connections For Orthopaedic Smart Implants. Proceedings of the 58th Annual Meeting of the Orthopaedic Research Society. San Francisco, CA. February, 2012:305. **One of five abstracts selected from the national meeting for a media spotlight.**
40. Ledet EH, Helder CW, Grabowsky MB, Wachs RA, Leimer E, Cole K, Dubin A, Glennon JC. Factors that Affect Loading in the Spine In Vivo As Measured with a Novel Force-Sensing Implant. Proceedings of the Annual Meeting of the Biomedical Engineering Society. Hartford, CT. October, 2011:102.
39. Elsabee KA, Wason JD, Boyle J, Nazarian R, Wen JT, Carl AL, Ledet EH. An In Vivo/In Vitro Active/Passive Simulator to Quantify 3D Kinematics of the Thoracolumbar Spine. Proceedings of the Annual Meeting of the Biomedical Engineering Society. Hartford, CT. October, 2011:102.
38. Albano¹ T, Grabowsky MB, Rodriguez L, Lavelle W, Uhl R, Ledet EH, Sanders G. Designing Patient-Specific Orthopaedic Mesh Implants to Treat High-Energy Tibial Fractures. Proceedings of the 37th Annual Northeast Bioengineering Conference. Troy, NY. April, 2011.
37. Wachs RA, Cole KP, Fiorella DL, Alley M, Ledet EH. Design, Fabrication and Characterization of Miniature Passive Wireless Force Sensors. Proceedings of the 37th Annual Northeast Bioengineering Conference. Troy, NY. April, 2011.
36. Linley SE, Sanders GP, McCallum S, Brule E, Vandeventer E, Leimer E, VanEtten B, Colloggi K, Puzas JE, Sowa GA, Lotz JC, Vanderzanden J, Glennon JC, DiRisio DJ, Lawrence JP, Ledet EH. Frequency Dependent Effects of Chronic Cyclic Loading on the Lumbar Spine In-Vivo. Proceedings of the 37th Annual Northeast Bioengineering Conference. Troy, NY. April, 2011. **Awarded second prize best presentation, biomechanics category.**
35. DeWitt MI, Ledet EH, Spilker RL. The Significance of Non-Uniform Anatomic Geometry on Diffusion to the Intervertebral Disc. Proceedings of the 37th Annual Northeast Bioengineering Conference. Troy, NY. April, 2011.
34. Ledet EH; Sanders GP; Jackson JL; Wagner C; Tymeson MP. A Comprehensive Interspecies Comparison of Commonly Used Animal Models for Study of the Human Lumbar Spine. Proceedings of the 25th Annual Meeting of the North American Spine Society. October, 2010:129.
33. Sanders GP; Linley S; McCallum S; Brule E; Vandeventer E; Leimer E; VanEtten B; Colloggi K; Puzas JE; Sowa GA; Lotz JC; Vanderzanden J; Glennon JC; DiRisio DJ; Lawrence JP; Ledet EH. Identifying the Early Effects of Mechanical Loading on the Lumbar Spine Using A Novel In Vivo Animal Model. Proceedings of the 25th Annual Meeting of the North American Spine Society. October, 2010:164.

32. Grabowsky MBM; Pallotta NA; Connelly MW; Van Etten B; MacDonald RA; Alley M; Glennon JC; Dubin AH; German JW; Uhl RL; Ledet EH. The Potential Role of Extensor Muscle Fatigue in the Onset of Intervertebral Disc Degeneration: a Novel In Vivo Model. Proceedings of the 25th Annual Meeting of the North American Spine Society. October, 2010:161.
31. Elsabee KA; Wason JD; Boyle J; Nazarian R; Wen JT; Carl AL; Ledet EH. Adjacent Level Changes in the Entire Thoracolumbar Spine Following Surgical Intervention as Measured Using a Novel In Vivo/In Vitro Active/Passive Robotic Simulator. Proceedings of the 25th Annual Meeting of the North American Spine Society. October, 2010:182.
30. Sanders GP, Linley SE, McCallum S, Brule E, Vandeventer E, Leimer E, VanEtten B, Colloggi K, Puzas JE, Sowa GA, Lotz JC, Vanderzanden J, Glennon JC, DiRisio DJ, Lawrence JP, Ledet EH. Identifying The Early Effects Of Mechanical Loading On The Lumbar Spine Using A Novel In Vivo Animal Model. Proceedings of the 2nd Annual World Forum for Spine Research. Montreal, QP, Canada. July 5-8, 2010:9.
29. Sanders GP, Linley S, Ramsey DS, Abbot R, Puzas JE, Glennon JC, DiRisio DJ, Lawrence J, Carl AL. Ledet EH. Effects of Chronic Cyclic Loading on the Lumbar Spine: An In Vivo Pilot Study. Proceedings of the 24th Annual Meeting of the North American Spine Society. November 10-14, 2009. San Francisco, CA.
28. Sanders GP, Linley S, Ramsey DS, Abbott R, Puzas JE, Glennon JC, DiRisio DJ, Belden C, Ledet EH. The Effects of Chronic Cyclic and Static Loading on the Rabbit Lumbar Spine: An In Vivo Pilot Study. Proceedings of the 55th Annual Meeting of the Orthopaedic Research Society. Las Vegas, NV. February 22-25, 2009:256.
27. Ledet EH, Uhl RL. Clinical to Classroom: A New Paradigm in Biomedical Engineering Education. Proceedings of the 38th Annual ASEE/IEEE Frontiers in Education Conference. Saratoga Springs, NY. October 22-25, 2008:57.
26. Ledet EH, Carl AL, Glennon JC, Jeshuran W, De Deyne P, Belden C. Small Intestinal Submucosa for Annular Repair: Long Term Response In An In Vivo Sheep Model. Proceedings of the 22nd Annual Meeting of the North American Spine Society. Austin, TX. October 23-27, 2007.
25. Bellapianta J, Dow K, Hospodar PP, Uhl RL, Ledet EH. Threaded Screw Head Inserts Improve Locking Plate Biomechanical Properties. Proceedings of the 23rd Annual Meeting of the Orthopaedic Trauma Association. Boston, MA. October 17-20, 2007:35.
24. Ledet EH, Uhl RL, Hospodar PP, Tymeson MP, Silberberg JE, Sachs BL. Treatment of Multiple, Staged Tibial Segmental Defects With The OP-1 Implant. Proceedings of the 23rd Annual Meeting of the Orthopaedic Trauma Association. Boston, MA. October 17-20, 2007:91.
23. Ledet EH, Carl AL, Glennon JC, Jeshuran W, De Deyne P, Belden C. Small Intestinal Submucosa for Annular Repair: Long Term Response In An In Vivo Sheep Model. Proceedings of the 53rd Annual Meeting of the Orthopaedic Research Society, San Diego, CA. February 11-14, 2007: 323.
22. Korduba LA, Ledet EH, Grabowsky MB, Hella MM, Uhl RL. RFID As a Testbed For Low Frequency RF Communication in Orthopaedic Implants. Proceedings of the 53rd Annual Meeting of the Orthopaedic Research Society, San Diego, CA. February 11-14, 2007: 361.

21. Stegemann J, Mehta S, Ledet EH. Bringing Product Development and Commercialization into the BME Design Curriculum. Proceedings of the 2005 Annual Meeting of the Biomedical Engineering Society. Baltimore, MD. September 29-October 2, 2005.
20. Elting J, Wintner TE, Ledet EH, Tymeson MP, Durbhakula S. Impaction Grafting in Revision Total Hip Arthroplasty. Proceedings of the 18th Annual Symposium for International Society for Technology in Arthroplasty. Kyoto, Japan. September 29-October 2, 2005.
19. Ledet EH, Carl AL, Tymeson MP, Salerno S, Cragg A. Biomechanical Evaluation of a Novel Lumbosacral Axial Fixation Device. Proceedings of the 4th Annual ASME Design of Medical Devices Conference. Minneapolis, MN. April 13-14, 2005:A2.
18. Ledet EH, McVoy JL, Sanders GP, Tymeson MP. Normal Mechanical and Physical Properties of Commonly Used Animal Models for Study of the Lumbar Spine. Proceedings of the 51st Annual Meeting of the Orthopaedic Research Society. Washington, DC. February 19-23, 2005. 274. PMID: 15653089.
17. Elting J, Wintner TE, Tymeson MP, Durbhakula S, Ledet EH. Impaction Grafting: Basic Science and Clinical Applications in Revision Total Hip Arthroplasty. Proceedings of the 72nd Annual Meeting of the American Academy of Orthopaedic Surgeons. Washington, DC. February 23-27, 2005:279.
16. Ledet EH, Tymeson MP, Carl AL, Yuan H, Timm JP. Direct Measurement of Facet Forces in the Intact and Total Disc Implanted Lumbar Spine. Proceedings of the 4th Annual Global Symposium on Intervertebral Disc Replacement & Non-Fusion Technology. Vienna, Austria. May, 2004.
15. Pimenta L, Bellera F, Carl A, Ledet EH, Cragg A: New Percutaneous Access Method and Implant for L5-S1 Spinal Fusion Surgery. Proceedings of IMAST. Southampton Bermuda. July 1-3 2004.
14. Pierce AR, Ketchum M, Ledet EH, Toth CA: Sequential OP-1 Implantation in a Canine Critical-Size Defect. Proceedings of the 5th International Conference on Bone Morphogenetic Proteins. Nagoya, Japan. September 12-16, 2004.
13. Ledet EH, Carl AL, Tymeson MP, Cohen B. Preliminary Biomechanical Evaluation of an Anisotropic Synthetically Engineered Hydrogel for Nucleus Replacement. Proceedings of the World Spine II Congress: The Second Interdisciplinary Congress on Spine Care. Chicago, Illinois. August 10-13, 2003:19.
12. Ledet EH, DiRisio DJ, Tymeson MP, Cohen B. Direct Experimental Measurement of the Real Time In Vivo Loads Imposed on an Interbody Fusion Implant in the Baboon Lumbar Spine. Proceedings of the World Spine II Congress: The Second Interdisciplinary Congress on Spine Care. Chicago, Illinois. August 10-13, 2003:75-6.
11. Sachs BL, Miller B, Tymeson MP, Ledet EH, Vialle E, Ohnmeiss DD. A Bone Growth Dose Response Study of OP-1 Putty in Interbody Fusion. Proceedings of the World Spine II Congress: The Second Interdisciplinary Congress on Spine Care. Chicago, Illinois. August 10-13, 2003:30-1.

10. Carl AL, Ledet EH, Tymeson MP, Prewett A, Edwards J, Stoy V. Preliminary Biomechanical Evaluation of an Anisotropic Synthetically Engineered Hydrogel for Nucleus Replacement. Proceedings of the 16th Annual Meeting of the International Intradiscal Therapy Society. Chicago, Illinois. April 3-4, 2003:12.
9. Ledet EH, Carl AL, Tymeson MP, Cohen B: Assessment of a Novel Hydrogel for Intervertebral Disc Replacement - In Vitro Mechanical Testing and Range of Motion. Presented at the Winter Meeting of the New England Spine Study Group. Boston, Massachusetts. January, 2002.
8. Carl AL, Ledet EH, DiRisio DJ, Tymeson MP, Andersen LB, Slivka M, Serhan H: Efficacy of Small Intestinal Submucosa to Regenerate Ligamentous Tissue in the Spine. Proceedings of the 16th Annual Meeting of the North American Spine Society. Seattle, Washington. October 31 – November 3, 2001:77.
7. Sachs BL, Ledet EH, Uhl RL, Hospodar PP, King R, Disler DG, Gundel J, Silberberg JE, Tymeson MP: Healing of Tibial Segmental Defects with the OP-1[™] Device. Proceedings of the 67th Annual Meeting of the American Academy of Orthopaedic Surgeons. Orlando, Florida. March 15-19, 2000:168.
6. Keller G, Ledet EH, Tymeson MP, Pell R, Hospodar PP: Biomechanical Evaluation of Thermally Treated Glenohumeral Joint Capsule. Proceedings of the 19th Annual Meeting of the Arthroscopy Association of North America. Miami, Florida. April 13-16, 2000.
5. Sachs BL, Ledet EH, Uhl RL, Hospodar PP: Healing Time Course of Segmental Defects in Dogs Using the OP-1 NOVOS[™] (BMP-7) Device. Proceedings of the 21st Annual Meeting of SICOT. Sydney, Australia. April 18-23, 1999:218.
4. Ledet EH, Sachs BL, Brunski JB, Gatto CE: Real Time In Vivo Loading in the Baboon Lumbar Spine Using and Interbody Implant Load Cell. Proceedings of the 14th Annual Meeting of the North American Spine Society. Chicago, Illinois. October 20-23, 1999:202.
3. Sachs BL, Miller B, Ledet EH, Gatto CA, Boulos A, Tranmer B, Tran A, Disler DG, Krause KE: Anterior Interbody Fusion in the Cervical Spine - A Comparison of Allograft and OP-1 In a Goat Model. Proceedings of the 13th Annual Meeting of the North American Spine Society. New York, New York, October, 1998:151.
2. Ledet EH. "The Biomechanics of Intradiscal Spinal Implants – A Comprehensive In Vitro Study." The 1st Annual Sulzer Spine-Tech Research Symposium, Minneapolis, Minnesota. November, 1998.
1. Ledet EH, Uhl RL, Ali MS: How Many Degrees of Freedom Does the Thumb CMC Joint Have? Proceedings of the 26th Annual Meeting of the American Association for Hand Surgery. Palm Springs, California, January 10-12, 1996.

Abstracts in Conference Proceedings as Poster Presentations

101. Capogna EA, Brown E, Walrath E, Furst W, Sowa G, Vo N, Ledet EH. Repeated Cyclic Loading Induces Regeneration of Degenerated Intervertebral Discs. Presented at the 2022 Annual Meeting of the Orthopaedic Research Society. Tampa Bay, FL. February, 2022.

100. Capogna EA, Brown E, Walrath E, Daley AB, Lai J, Glennon JC, Ledet EH. Cyclic Loading Enhances Nutrient Transport in the Annulus Fibrosus. Orthopaedic Research Society Spine Section Virtual Poster Tour. July, 2021.
99. Stout M, Caparaso C, Hanggi C, Liddle B, Schroeder D, Cole KP, Archdeacon MT, Ledet EH. Smart Fracture Fixation Plate. Presented at the 47th Annual Meeting of the Northeast Bioengineering Conference. Virtual. March, 2021.
98. Levy R, Blondeau S, DiRisio DJ, Ledet EH. Novel Anterior Cervical Plate to Promote Vertebral Fusion Through Controlled Micromotion. Presented at the 47th Annual Meeting of the Northeast Bioengineering Conference, Virtual. March 2021
97. Liddle B, Dahle R, Ledet EH. Characterization of Novel Passive Resonant Implantable Sensor Platform. Presented at the 47th Annual Meeting of the Northeast Bioengineering Conference. Virtual. March, 2021.
96. Ludwicki K, Liddle B, Ledet EH. Smart Intramedullary Nail for Monitoring Fracture Healing: Computational Model. Presented at the Annual Meeting of the Biomedical Engineering Society, (Virtual). October, 2020.
95. Ledet EH, Capogna EA, Zimmer N, Furst W, Ruff L. Caregiver Assisted Oral Hygiene. Presented at the Annual Meeting of the Biomedical Engineering Society, (Virtual). October, 2020.
94. Capogna E, Brown E, Walrath E, Daley A, Lai J, Furst W, Glennon JC, Ledet EH. Cyclic Loading Enhances Small Molecule Transport in an 8-Week Degenerated Rabbit Intervertebral Disc. Presented at the Annual Meeting of the Biomedical Engineering Society, (Virtual). October, 2020.
93. Levy R, Zimmer N, Blondeau S, DiRisio DJ, Ledet EH. Optimization of a Novel Interbody Implant to Promote Vertebral Fusion. Presented at the Annual Meeting of the Biomedical Engineering Society, (Virtual). October, 2020.
92. Liddle B, Arboleda M, Ronin Y, Bealer E, Schroeder D, Cady N, Dahle R, Ledet EH. Wireless Pressure Sensor For Compartment Syndrome: Computational Model. Presented at the Annual Meeting of the Biomedical Engineering Society, (Virtual). October, 2020.
91. Capogna EA, Brown E, Walrath E, Daley AB, Lai J, Glennon JC, Ledet EH. Cyclic Loading Enhances Nutrient Transport in the Annulus Fibrosus. Presented at the Annual Meeting of the Orthopaedic Research Society, Phoenix, AZ. February, 2020.
90. Caparaso, S, Cole KP, Kradinova K, Liddle B, Schroeder D, Cady N, Archdeacon M, Ledet EH. Smart Osteosynthesis Plate Quantifies Progression of Fracture Healing. Presented at the Annual Meeting of the Orthopaedic Research Society, Phoenix, AZ. February, 2020.
89. Capogna EA, Daley A, Lai J, Glennon S, Vincent J, Alarian D, Glennon JC, Ledet EH. Cyclic Loading of the Lumbar Spine Enhances Nutrient Transport. Presented at the 62nd Annual Meeting of the Orthopaedic Research Society, Austin, TX. March, 2019.

88. Capogna EA, Daley A, Vincent J, Alarian D, Glennon S, Ledet EH. A Pilot Study to Quantify the Effects of Convection on Nutrient Transport to the Intervertebral Disc. Presented at the Annual Meeting of the Biomedical Engineering Society, Atlanta, GA. October, 2018.
87. Sachs B, Yao H, Chlebek C, Langley T, Ledet EH. Finite Element Analysis Measurement of Deforming Anterior Soft Tissue Ligament Forces in Lumbar Spondylolisthesis -- Development of Innovative Implant Technology to Surgically Reduce and Stabilize High-Grade Deformity. Presented at the 25th Annual Meeting of International Meeting on Advanced Spine Techniques. Los Angeles, CA. July, 2018.
86. Kerr HA, Ledet EH, Nelson C, Light DJ, Cronin A. Assessment Algorithm for Successful Management of Return to Play After Sports-Related Concussion. Presented at the Annual Meeting of American Medical Society for Sports Medicine. Orlando, FL. April, 2018.
85. DiRisio DJ, Ledet EH, Sanders GP, Glennon JC. Elastically Deformable Cervical Plate Promotes Rapid Robust Bone Fusion. Presented at the 86th Annual Meeting of the American Academy of Neurological Surgeons Meeting, New Orleans, LA. April, 2018.
84. Ledet EH, Sanders GP, DiRisio DJ, Glennon JC. Load-Sharing Through Elastic Micro-Motion Accelerates Bone Formation and Interbody Fusion. Presented to the 45th Annual Meeting of the International Society for Study of the Lumbar Spine, Banff, Canada. May, 2018.
83. Peterson JM, Chlebek C, Clough AM, Wells AK, Batzinger KE, Kradinova K, Glennon JC, DiRisio DJ, Ledet EH. Stiffness Matters: Part II – The Effects of Plate Stiffness on Load-Sharing and the Progression of Fusion In Vivo. Presented at the 45th Annual Meeting of the International Society for Study of the Lumbar Spine, Banff, Canada. May, 2018.
82. Peterson JM, Chlebek C, Clough AM, Wells AK, Ledet EH. Stiffness Matters: Part I – The Effects of Plate Stiffness on the Biomechanics of ACDF In Vitro. Presented to the 45th Annual Meeting of the International Society for Study of the Lumbar Spine, Banff, Canada. May, 2018.
81. Sachs BL, Yao H, Chlebek C, Langley T, Ledet EH. Finite Element Analysis Measurement of Deforming Anterior Soft Tissue Ligament Forces in Lumbar Spondylolisthesis - Development of Innovative Implant Technology to Surgically Reduce and Stabilize High-Grade Deformity. Presented at the 18th Annual Meeting of the International Society for the Advancement of Spine Surgery (ISASS), Toronto, Canada. April, 2018.
80. Dion MK, Banerjee S, Sullivan C, Abdoun K, Beretvas B, Dahle R, Roberts JT, Cady NC, Ledet EH. Effect of Implant Thickness on Patellofemoral Joint Forces as Measured by a Smart Patellar Implant. Proceedings of the 63rd Annual Meeting of the Orthopaedic Research Society, New Orleans, LA. March, 2018.
79. Peterson JM, Chlebek C, Ledet EH. Cervical Fusion Plate Bending Stiffness Affects Load-Sharing In Vitro. Proceedings of the 63rd Annual Meeting of the Orthopaedic Research Society, New Orleans, LA. March, 2018.
78. Peterson JM, Chlebek C, Wells AK, Clough AM, Batzinger KE, Houston JM, Kradinova KV, Glennon JC, DiRisio DJ, Ledet EH. Cervical Plate Stiffness Affects Load-Sharing and Fusion Outcomes In Vivo. Proceedings of the 63rd Annual Meeting of the Orthopaedic Research Society, New Orleans, LA. March, 2018. **Selected as a finalist for Best Poster Award.**

77. Ledet EH, Sanders GP, DiRisio DJ, Glennon JC. Elastically Deformable Spinal Implant Accelerates Bone Formation and Interbody Fusion. Proceedings of the 63rd Annual Meeting of the Orthopaedic Research Society, New Orleans, LA. March, 2018.
76. Drazan JF, Wassick MT, Bartos J, Schroeder D, Cady NC, Dahle R, Ledet EH. Measurement of Intracompartmental Pressures Using a Wireless Sensing System. Proceedings of the 63rd Annual Meeting of the Orthopaedic Research Society, New Orleans, LA. March, 2018.
75. Capogna EA, Graf T, Erndt-Marino J, Hahn MS, Cady NC, Ledet EH. Antigen Sensitive Hydrogels Enable Wireless Infection Sensors. Proceedings of the 63rd Annual Meeting of the Orthopaedic Research Society, New Orleans, LA. March, 2018.
74. Drazan JF, Wassick MT, Drayton KA, Mayo SR, Cady NC, Dahle R, Ledet EH. Long Term In Vitro Testing of a Wireless Pressure Sensor for Detection of Acute Compartment Syndrome. Proceedings of the Annual Meeting of the Orthopaedic Trauma Association, Vancouver, BC. October, 2017.
73. Dion MK, Abdoun K, Caruso A, Beretvas B, Dahle R, Desai V, Roberts JT, Cady NC, Ledet EH. Smart Patellar Implant for Characterization of Patellofemoral Joint Forces – An In Vitro Study. Proceedings of the 62nd Annual Meeting of the Orthopaedic Research Society, San Diego, CA. March, 2017.
72. Dion MK, Drazan JF, Abdoun K, Caruso A, Beretvas B, Roberts J, Cady NC, Dahle R, Ledet EH. Passive, Wireless Force Sensors Designed for an Implantable Smart Patellar Implant. Proceedings of the 62nd Annual Meeting of the Orthopaedic Research Society, San Diego, CA. March, 2017.
71. Capogna EA, Erndt-Marino JD, Nawfel J, Hahn MS, Cady NC, Ledet EH. Preliminary Feasibility of a Wireless Implantable Infection Sensor. Proceedings of the 62nd Annual Meeting of the Orthopaedic Research Society, San Diego, CA. March, 2017.
70. Drazan JF, Wassick MT, Drayton KA, Mayo SR, Cady NC, Dahle R, Ledet EH. Long Term In Vitro Testing of a Wireless Pressure Sensor for Detection of Acute Compartment Syndrome. Proceedings of the 62nd Annual Meeting of the Orthopaedic Research Society, San Diego, CA. March, 2017. **Awarded Orthopaedic Research Society's Best Trauma Poster 2017.**
69. Ledet EH, Drazan JF, Wassick MT, Drayton K, Dahle R, Beardslee LA, Cady NC. Simple Implantable Wireless Sensor for Monitoring Intracompartmental Pressures. Proceedings of the 2016 Annual Meeting of the Biomedical Engineering Society, Minneapolis, MN. October 2016.
68. Peterson JM, Chlebek C, Ledet EH. Spinal Fusion Implant Stiffness Affects Load Sharing. Proceedings of the 31st Annual Meeting of the North American Spine Society, Boston, MA. October 2016.
67. Peterson JM, Chlebek C, Clough AM, Wells AK, Ledet EH. Cervical Plate Stiffness Affects the Distribution of Loads and the Location of the Instantaneous Axis of Rotation of the Spine In Vitro. Proceedings of the 31st Annual Meeting of the North American Spine Society, Boston, MA. October 2016.

66. Capogna EA, Marino J, Munoz-Pinto DJ, Hahn MS, Cady NC, Ledet EH. Fabrication and Preliminary Evaluation of Antigen-Sensitive Hydrogels to Enable Wireless Infection Sensors. Proceedings of the 61st Annual Meeting of the Orthopaedic Research Society, Orlando, FL. March, 2016.
65. Drazan JD, Wassick MT, Dion MK, Abdoun OT, Beardslee LA, Cady NC, Dahle R, Ledet EH. Evaluation of a Passive Resonator-Based Force Sensor for Orthopaedic Smart Implants: Simulated In Vivo Testing. Proceedings of the 61st Annual Meeting of the Orthopaedic Research Society, Orlando, FL. March, 2016.
64. Drazan JF, D'Amato AR, Winkleman MA, Littlejohn AJ, Johnson C, Ledet EH, Eglash R. Experimental and Credentialing Capital: An Adaptable Framework for Facilitating Science Outreach for Underrepresented Youth. Proceedings of the 37th Annual International Conference of the IEEE Engineering in Medicine and Biology Society. Milan, Italy. August, 2015.
63. Ledet EH, Eisenberg M, Parkinson M, Scheffer C. Global Engineering Teams: Enhanced Capstone Design Experience. Proceedings of the 37th Annual International Conference of the IEEE Engineering in Medicine and Biology Society. Milan, Italy. August, 2015.
62. Peterson JM, Chlebek C, Clough A, DiRisio DJ, Ledet EH. Optimization of Spinal Fusion Implant Stiffness and Its Effect on Instantaneous Axis of Rotation. Proceedings of the 41st Annual Northeast Bioengineering Conference, Troy, NY. April 2015.
61. Capogna EC, Munoz-Pinto DJ, Hahn MS, Ledet EH. Identifying a Crosslink Density Relationship of Acrylamide Hydrogels to be used with Passive Sensors for Detecting Periprosthetic Infection. Proceedings of the 41st Northeast Bioengineering Conference, Troy NY. February, 2015.
60. Drazan JF, Abdoun OT, Wassick MT, Beardsley L, Cady NC, Ledet EH. Strategies for the Implementation of a Simple, Implantable Sensor Across Different In Vivo Applications. Proceedings of the 41st Annual Northeast Bioengineering Conference, Troy, NY. April, 2015.
59. Dion MK, Healey CP, Giddings SL, Drazan JF, Roberts J, Cady N, Ledet EH. Force Measurement across the Patellofemoral Joint using a Smart Patellar Implant Following Total Knee Arthroplasty. Proceedings of the 41st Annual Northeast Bioengineering Conference, Troy, NY. April, 2015.
58. Abdoun O, Drazan JF, Ledet EH. Simple Robust Wireless Transducers for In Vivo Force Sensing. Proceedings of the KAUST 4th Annual Research Competition for Undergraduates, Thuwal Saudi Arabia. January, 2015. **Finalist, KAUST International Research Competition for Undergraduates.**
57. Peterson JM, Chlebek C, Meier K, Ledet EH. Variable Stiffness Cervical Plates Affect Load Sharing in the Interbody Space In Vitro. Proceedings of the 61st Annual Meeting of the Orthopaedic Research Society, Las Vegas, NV. March, 2015.
56. Gullbrand SE, Ahlborn J, Roberts TT, Abousayed M, Glennon JC, Ledet EH. Net Transport Into the Degenerated Intervertebral Disc is Enhanced via Low Rate Loading-Induced Convection. Proceedings of the 61st Annual Meeting of the Orthopaedic Research Society, Las Vegas, NV. March, 2015.

55. Drazan JF, Sammon A, Abdoun O, Dahle R, Cady N, Connor KA, Ledet EH. Fabrication and Function of a Passive, Wireless Force Sensor for Orthopedic Implants. Proceedings of the 61st Annual Meeting of the Orthopaedic Research Society, Las Vegas, NV. March, 2015.
54. Dion MK, Healey C, Roberts J, Ledet EH. Smart Patellar Implant for In Vivo Force Measurement Across the Patellofemoral Joint. Proceedings of the 61st Annual Meeting of the Orthopaedic Research Society, Las Vegas, NV. March, 2015.
53. Chlebek C, Peterson JM, Ledet EH. Technique for Designing Cervical Plates of Varying Stiffness. National Meeting of the Society of Women Engineers, Los Angeles, CA. October, 2014. **Awarded 3rd Place Best Poster.**
52. Drazan JF, Gunko A, Dion MK, Abdoun O, Connor KA, Cady NC, Ledet EH. Coupled Archimedean Spirals as Passive Wireless Force Sensors Exhibit Linear Frequency Shifts With Strain. Annual Meeting of IEEE/EMBS, Chicago, IL. September 2014.
51. Shah M, Hahn J, Ledet EH. Effect of Frequency on the Trans-endplate Transport of Nutrients to the Intervertebral Disc, a Biphasic Swelling Model Study. Proceedings of the 60th Annual Meeting of the Orthopaedic Research Society, New Orleans, LA. March 2014.
50. Linley SE, Peterson J, Mastropolo R, Fricker A, Frank S, Roberts T, Lawrence J, Glennon J, DiRisio D, Ledet EH. Loading Rate Dependent Net Transport Into the Cartilage Endplate and Intervertebral Disc In Vivo. Proceedings of the 60th Annual Meeting of the Orthopaedic Research Society, New Orleans, LA. March 2014.
49. Linley SE, Peterson J, Mastropolo R, Salamone G, Lawrence J, Lotz J, Ledet EH. The Effects of Altered Vertebral Endplate Vasculature on Diffusion Into the Intervertebral Disc In Vivo. Proceedings of the 60th Annual Meeting of the Orthopaedic Research Society, New Orleans, LA. March 2014.
48. Tucci E, Bravo C, Ledet EH, Vashishth D. Contributions of Cancellous Bone to Vertebral Fracture: An Experimental Approach. Proceedings of the 60th Annual Meeting of the Orthopaedic Research Society, New Orleans, LA. March 2014.
47. Mingrone A, Juffras W, Leahy S, Elsabee K, Carl AL, Wen JT, Ledet EH. A Robotic Manipulator for Simulating Three-Dimensional Spine Kinematics. NYSTAR CATS Advanced Manufacturing Conference. April, 2013. **Awarded Best Poster.**
46. Deal A, Ledet EH, Vashishth D. Contribution of the Cortical Shell to the Mechanical Properties of the Entire Vertebra: Development of a New Experimental Model. Proceedings of the 59th Annual Meeting of the Orthopaedic Research Society. February, 2013.
45. Linley SE, Peterson J, Mastropolo R, Lawrence JP, Lopes Luciana, Lotz J, Ledet EH. The Effects of Nimodipine and Nicotine on Intervertebral Disc Trans-Endplate Transport. Proceedings of the 59th Annual Meeting of the Orthopaedic Research Society. February, 2013.
44. Hartman RA, Yurube TY, Cruz MA, Coelho JP, Ledet EH, Sowa GA. Effects of Short-Term Compression on Tissues of the Functional Spinal Unit. Proceedings of the 59th Annual Meeting of the Orthopaedic Research Society. February, 2013.

43. Wachs RA, Michna V, Ledet EH. Three-Dimensional Morphometry of Human Cervical Endplates. Proceedings of the 27th Annual Meeting of the North American Spine Society. Dallas, TX. October, 2012.
42. Grabowsky MBM, Wachs RA, Helder CW, Leimer E, Cole K, Glennon JC, Dubin A, Uhl RL, Ledet EH. In Vivo Loads in the Cervical Spine: A Preliminary Investigation Using a Force-Sensing Implant. Proceedings of the 27th Annual Meeting of the North American Spine Society. Dallas, TX. October, 2012.
41. Linley SE, Peterson J, Mastropolo R, Lopes L, Glennon JC, Lawrence JP, Ledet EH. The Effects of Nimodipine and Nicotine Treatment on Diffusion into the Intervertebral Disc In-Vivo. Proceedings of the 27th Annual Meeting of the North American Spine Society. Dallas, TX. October, 2012.
40. Ledet EH. "New Market Opportunities in Medical Devices." Venture Summit hosted by Rensselaer Polytechnic Institute. Troy, NY. April 12, 2012.
39. Wachs RA, Michna VM, Ledet EH. Human Cervical Vertebral Endplate Morphometry: Variation by Gender and Age. Proceedings of the 58th Annual Meeting of the Orthopaedic Research Society. San Francisco, CA. February, 2012:1124.
38. Grabowsky MBM, Wachs RA, Helder CW, Dubin A, Glennon JC, Leimer E, Cole K, Uhl RL, Ledet EH. Posture and Motion Technique Modulate Interbody Forces in the Cervical Spine: Direct In Vivo Measurements Using a Force-Sensing Implant in the Goat. Proceedings of the 58th Annual Meeting of the Orthopaedic Research Society. San Francisco, CA. February, 2012:2113.
37. Linley SE, Sanders GS, McCallum S, Leimer E, Puzas JE, Sowa GA, Vanderzanden J, Glennon JC, DiRisio DJ, Lawrence JP, Ledet EH. Response of the Intervertebral Disc and Subchondral Bone to In Vivo Dynamic and Static Loading. Proceedings of the 58th Annual Meeting of the Orthopaedic Research Society. San Francisco, CA. February, 2012:1165.
36. Wachs RA, Cole KP, Fiorella DL, Alley M, Ledet EH. Development of Implantable Single Component Resonant Circuits for Wireless Force Sensing. Proceedings of the Annual Meeting of the Biomedical Engineering Society. Hartford, CT. October, 2011:51.
35. Linley SE, Sanders GP, McCallum S, Brule E, Leimer E, Puzas JE, Sowa GA, Lotz JC, Vanderzanden J, Glennon JC, DiRisio DJ, Lawrence JP, Ledet EH. Rate Dependent Effects of Chronic Cyclic Loading on the Lumbar Spine in an In-Vivo Animal Model. Proceedings of the Annual Meeting of the Biomedical Engineering Society. Hartford, CT. October, 2011:71.
34. Helder CW, Grabowsky MB, Wachs RA, Leimer E, Cole K, Dubin A, Glennon JC, Ledet EH. Behavior Compensation Reduces Loads in the Cervical Spine Measured With a Force-Sensing Implant. Proceedings of the 37th Annual Northeast Bioengineering Conference. Troy, NY. April, 2011.
33. Elsabee KA, Wason JD, Nazarian R, Wen JT, Carl AL, Ledet EH. Three Dimensional Kinematics of the Thoracolumbar Spine as Quantified by a Novel In Vivo/In Vitro Active/Passive Robotic Simulator. Proceedings of the 37th Annual Northeast Bioengineering Conference. Troy, NY. April, 2011.

32. Subramaniam G, Linley S, Ledet E, Ozisik R. Numerical Investigation of the Annulus Fibrosus. Proceedings of the 37th Annual Northeast Bioengineering Conference. Troy, NY. April, 2011.
31. DeWitt M, Ledet EH, Spilker RL. The Significance of Non-Uniform Endplate Thickness on Diffusion To the Intervertebral Disc. Proceedings of the 57th Annual Meeting of the Orthopaedic Research Society. Long Beach, CA. January, 2011.
30. Sowa GA, Woods B, Coelho JP, Witt W, Vo N, Sanders GP, Linley SE, Ledet EH. Alterations in Intervertebral Disc Matrix Homeostasis by In Vivo Dynamic Compression. Proceedings of the Annual Meeting of the American Academy of Physical Medicine and Rehabilitation. Seattle, WA. November, 2010.
29. Grabowsky MB, Pallotta NA, Connelly MW, Van Etten B, MacDonald RA, Alley M, Glennon JC, Dubin AH, German JW, Uhl RL, Ledet EH. A Novel In Vivo Model To Characterize The Role Of Extensor Muscle Fatigue In The Onset Of Intervertebral Disc Degeneration. Proceedings of the 2nd Annual World Forum for Spine Research. Montreal, QP, Canada. July 5-8, 2010:25.
28. Sanders GP, Linley S, McCallum S, Brule E, Vandeventer E, VanEtten B, Colloggi K, Glennon JC, DiRisio DJ, Lawrence J, Vanderzanden J, Ledet EH. T1 Relaxation Maps in the Rabbit Lumbar Spine after Chronic Cyclic Loading In Vivo: Identifying Early Signs of Intervertebral Disc Degeneration. Proceedings of the 56th Annual Meeting of the Orthopaedic Research Society. New Orleans, LA. March 6-9, 2010:1467.
27. Sanders GP, Linley S, Brule E, Vandeventer E, VanEtten B, Colloggi K, Glennon JC, DiRisio DJ, Lawrence J, Vanderzanden J, Ledet EH. Disc Height Reduction and Recovery after Cyclic Compression in an In Vivo Rabbit Model. Proceedings of the 56th Annual Meeting of the Orthopaedic Research Society. New Orleans, LA. March 6-9, 2010:1553.
26. Grabowsky MBM, Pallotta NA, Connelly MW, Fiorella DL, Uhl RL, Ledet EH. An Articulating Wireless Multi-Axial Force-Sensing Implant for Real Time Measurement of In Vivo Loads in the Spine. Proceedings of the 56th Annual Meeting of the Orthopaedic Research Society. New Orleans, LA. March 6-9, 2010:1513.
25. Elsabee KA, Wason JD, Boyle J, Diefel EE, Wen JT, Carl AL, Ledet EH. Three-Dimensional Distribution of Intersegmental Motion on the Entire Intact Thoracolumbar Spine As Measured by a Novel In Vivo/In Vitro Active/Passive Testing Protocol. Proceedings of the 56th Annual Meeting of the Orthopaedic Research Society. New Orleans, LA. March 6-9, 2010:1514.
24. Elsabee KA, Wason, JD, Boyle J, Nazarian R, Diefel EE, Wen JT, Carl AL, Ledet, EH. Adjacent Level Changes in the Entire Thoracolumbar Spine Following Surgical Intervention as Measured Using a Novel In Vivo/In Vitro Active/Passive Robotic Simulator. Proceedings of the 56th Annual Meeting of the Orthopaedic Research Society. New Orleans, LA. March 6-9, 2010:1511.
23. Campbell EE, Elsabee KA, Wason JD, Wen JT, Carl AL, DiRisio JD, Ledet EH. Adjacent Level Effects: A Novel Method for Assessing Kinematic Changes of the Entire Thoracolumbar Spine Following Surgical Intervention. Proceedings of the 24th Annual Meeting of the North American Spine Society. San Francisco, CA. November 10-14, 2009.
22. Sanders GP, Ramsey DS, Glennon JC, DiRisio DJ, Ledet EH. A Novel In Vivo Model to Study the Effects of Chronic Cyclic Loading in the Lumbar Spine. Proceedings of the 55th Annual Meeting of the Orthopaedic Research Society. Las Vegas, NV. February 22-25, 2009:1843.

21. Campbell EE, Elsabee KA, Wason JD, Wen JT, Vachon C, Carl AL, Ledet EH. A Novel Robotic Simulator for Assessing the Three-Dimensional Kinematics of the Entire Thoracolumbar Spine: Application for Evaluating the Adjacent Level Effects of Spinal Interventions. Proceedings of the 55th Annual Meeting of the Orthopaedic Research Society. Las Vegas, NV. February 22-25, 2009:1703.
20. Grabowsky MBM, Pallotta NA, Fiorella DL, Glennon JC, Dubin A, German JW, Uhl RL, Van Etten BR, Ledet EH. A Novel Model for Studying the Effects of Muscle Fatigue on the In Vivo Biomechanics of the Spine. Proceedings of the 55th Annual Meeting of the Orthopaedic Research Society. Las Vegas, NV. February 22-25, 2009:1706.
19. Bellapianta J, Dow K, Hospodar PP, Uhl RL, Ledet EH. Threaded Screw Head Inserts Improve Locking Plate Biomechanical Properties. Proceedings of the 75th Annual Meeting of the American Academy of Orthopaedic Surgeons. San Francisco, CA. March 5-8, 2008:494.
18. Jackson JM, Tymeson MP, Ledet EH. A Comprehensive Interspecies Comparison of the Mammalian Lumbar Spine – Part II: Morphometrics. Proceedings of the 22nd Annual Meeting of the North American Spine Society. Austin, TX. October 23-27, 2007.
17. Ledet EH, Korduba LA, Grabowsky MB, Uhl RL. RFID as a Testbed for Low Frequency RF Communication in Orthopaedic Trauma Implants. Proceedings of the 23rd Annual Meeting of the Orthopaedic Trauma Association. Boston, MA. October 17-20, 2007:270.
16. Bellapianta J, Dow K, Hospodar PP, Uhl RL, Ledet EH. Threaded Screw Head Inserts Improve Locking Plate Biomechanical Properties. Proceedings of the 23rd Annual Meeting of the Orthopaedic Trauma Association. Boston, MA. October 17-20, 2007:299.
15. Campbell EE, Cusack W, Gressick W, Wen JT, Carl AL, Ledet EH. Evaluating the Effects of Spinal Interventions on the Kinematics of the Thoracolumbar Spine Using A Robotic Simulator. Proceedings of the 3rd Annual Tech Valley Engineering Symposium, Troy, NY. April 17, 2007.
14. Korduba L, Ledet EH, Grabowski MB, Hella MM. Is Radio Frequency Identification Technology Ready For Orthopaedic Surgery? Proceedings of the 2006 Annual Meeting of the Biomedical Engineering Society, Chicago, IL. October 11-14, 2006:1528.
13. Pierce AR, Ketchum M, Chapdelaine JM, Ledet EH, Toth CA. Anti OP-1 Antibody in Sequential OP-1 Implantation: Canine Critical Sized Defect. Proceedings of the 51st Annual Meeting of the Orthopaedic Research Society, Washington, DC. February 19-23, 2005:1108.
12. Salerno SA, Tymeson MP, Carl AL, Cragg A, Ledet EH: In Vitro Characterization of A Novel Anulus Sparing Interbody Device. Proceedings of the 53rd Annual Meeting of the Congress of Neurological Surgeons. Denver, Colorado. October 18-23, 2003:299.
11. Ledet EH, Tymeson MP, DiRisio DJ, Cohen B, Uhl RL: Direct Experimental Measurement of Real Time In Vivo Loads Imposed on an Interbody Fusion Implant in the Baboon Lumbar Spine. Proceedings of the ASME Summer Bioengineering Conference. Key Biscayne, Florida, June, 2003:74.

10. Carl AL, Ledet EH, Tymeson MP, Cohen B: Assessment of a Novel Hydrogel for Intervertebral Disc Replacement - In Vitro Mechanical Testing and Range of Motion. Proceedings of the 52nd Annual Meeting of the Congress of Neurological Surgeons. Philadelphia, Pennsylvania. September 21-26, 2002:314.
9. Uhl RL, Ledet EH: Does Adding Calcium to Orange Juice Affect Its Taste? Proceedings of the 114th Annual Meeting of the American Orthopaedic Association. Palm Beach, Florida. June 13-16, 2001:69.
8. Ledet EH, Cooke JE, McVoy JL, Gatto CE, Khanuja H, Uhl RL, Sachs BL: Biomechanical Loads Transmitted to Adjacent Motion Segments Following Placement of Lumbar Interbody Cages. Proceedings of the 46th Annual Meeting of the Orthopaedic Research Society. Orlando, Florida. March 12-15, 2000:351.
7. Sachs BL, Ledet EH, Tymeson M, Silberberg J, Uhl RL, Hospodar PP, King R, Tran A, Disler DG, Gundel J: Healing of Tibial Segmental Defects with the OP-1[™] Device. Proceedings of the 46th Annual Orthopaedic Research Society. Orlando, Florida. March 12-15, 2000:855.
6. Ledet EH, Gatto CE, McVoy JL, Brunski JB, Donzelli PS, Sachs BL: Real Time In Vivo Loading in the Baboon Lumbar Spine Using an Interbody Implant Load Cell. Proceedings of the 46th Annual Meeting of the Orthopaedic Research Society. Orlando, Florida. March 12-15, 2000:384.
5. Carl AL, Strominger NL, Ledet EH, Gatto C, Khanuja HS: Clinical Tolerance and Response of the Spinal Cord to Slow Vertebral Distraction. Proceedings of the 113th Annual Meeting of the American Orthopaedic Association. Hot Springs, VA. June 14-17, 2000:10.
4. Khanuja H, Ledet EH, Strominger NL, Tymeson MP, Carl AL: Clinical Tolerance and Response of the Spinal Cord to Slow Vertebral Distraction. Proceedings of the 13th Annual Meeting of the North American Spine Society. San Francisco, California. October 28-31, 1998:223.
3. Traub J, Hospodar PP, Uhl RL, Ashman E, Ledet EH, Manseau C: Minimal Fixation of Lateral Malleolar Fractures: A Biomechanical Study. Proceedings of the Annual Meeting of the Orthopaedic Trauma Association Louisville, KY. October 17-19, 1997:80.
2. Hospodar PP, Ledet EH, Uhl RL, Disler DG, Sachs BL: "Healing Time Course of Tibial Segmental Defects in Dogs Using the rhOP-1 (BMP-7) Device". Proceedings of the 13th Meeting of the Orthopaedic Trauma Association. Louisville, Kentucky. October 17-19, 1997:152.
1. Ledet EH, Uhl, RL, Ali MS: "Modeling of Thumb Motion at the Carpometacarpal Joint". Proceedings of the 51st Annual Meeting of the American Society for Surgery of the Hand. Nashville, Tennessee. September 30-October 3, 1996:36.

Articles in Non-Refereed Journals

12. Ledet EH, Wachs RA[†]. Wireless Implantable Sensors With No Electrical Connections Enable the Next Generation of Smart Orthopaedic Implants. Bone Zone, 2012; 82-4.
11. Connelly MW, Roberts J, Buckle R, Ledet EH. The Effect of Anti-Rotation and Anti-Cutout Features in Cephalomedullary Nail Fixation of Intertrochanteric Femur Fractures: An Acute Biomechanical Study. The Albany Medical College Orthopaedic Journal, 2010; 2:60-9.

10. Sanders GP, Linley SE, Sowa GA, Glennon JC, DiRisio DJ, Lawrence JP, Vanderzanden J, Leimer E, Lotz JC, Ledet EH. In Vivo Effects of Cyclic Compression on the Intervertebral Disc and Endplates of the Lumbar Spine: A Pilot Study with a Novel Animal Model. *The Albany Medical College Orthopaedic Journal*, 2010; 2:48-59.
9. Grabowsky MBM, Pallotta NA, Connelly MW, Van Etten B, MacDonald RA, Alley M, Glennon JC, Dubin AH, German JW, Uhl RL, Ledet EH. The Role of Extensor Muscle Fatigue in the Onset of Intervertebral Disc Degeneration: An In Vivo Model. *The Albany Medical College Orthopaedic Journal*, 2010; 2:40-7.
8. Elsabee KA, Wason JD, Boyle J, Nazarian R, Wen JT, Carl AL, Ledet EH. Adjacent Level Effects: A Novel In Vivo/In Vitro Active/Passive Protocol for Assessing Redistribution of Motion of the Entire Thoracolumbar Spine Following Surgical Intervention. *The Albany Medical College Orthopaedic Journal*, 2010; 2:32-9.
7. Carl AL, Ledet EH, Tymeson MP, Sheehan CE, Glennon JC, Nastase R, Kallakury B. Discal Cryotherapy – Morphologic Assessment of a Possible Therapeutic Modality. *The Albany Medical College Orthopaedic Journal*, 2008; 1:44-49.
6. Campbell EE, Gressick WT, Cusack W, Elsabee K, Carl AL, Lisella J, DiRisio DJ, Wen J, Ledet EH. A Novel Method for Assessing Adjacent Level Effects Following Lumbar Interbody Intervention. *The Albany Medical College Orthopaedic Journal*, 2008; 1:50-6.
5. Bellapianta J, Dow K, Hospodar PP, Uhl RL, Ledet EH. Threaded Screw Head Inserts Improve Locking Plate Biomechanical Properties. *The Albany Medical College Orthopaedic Journal*, 2008; 1:38-43.
4. Korduba LA, Grabowsky MB, Hella MM, Uhl RL, Ledet EH. RFID as a Testbed for Low Frequency RF Communication in Orthopaedic Implants. *The Albany Medical College Orthopaedic Journal*, 2008; 1:57-64.
3. Dow KP, Ledet EH, Dow M, Peacock J, Alley RM. Are Women's Lacrosse Helmets Needed? A Dynamic Impact Comparison of Lacrosse Balls and Baseballs. *The Albany Medical College Orthopaedic Journal*, 2008; 1:33-7.
2. Uhl RL, Ledet EH. Operating Room to Classroom: Teaching the Next Generation of Biomedical Engineers. *The Albany Medical College Orthopaedic Journal*, 2008; 1:65-9.
1. Ledet EH, Jeshuran W, Glennon JC, De Deyne P, Belden C, Carl AL. Small Intestinal Submucosa for Anular Repair: Long Term Response in an In Vivo Sheep Model. *The Albany Medical College Orthopaedic Journal*, 2008; 1:11-21.

Published White Papers

1. Ledet EH. Biomechanical Factors in External Fixation and Hybrid External Fixation. Technical Manuscript of Stryker Trauma 2004; Literature Number: LSA48.

Student Supervision

Student Thesis Supervision

Doctoral Thesis Supervision – Completed

Benjamin Liddle

Thesis: “Wireless Implantable Sensor to Monitor Intracompartmental Pressures In Vivo.”

Doctor of Philosophy, Biomedical Engineering.

Completed: November, 2022.

Awarded the 2021-22 Life Quality Solutions Incubator Graduate Fellowship.

Awarded the 2020-21 Life Quality Solutions Incubator Graduate Fellowship.

Awarded the 2019-20 Life Quality Solutions Incubator Graduate Fellowship.

Elizabeth Capogna.

Thesis: “Cyclic Loading as a Rehabilitation Strategy for Intervertebral Disc Degeneration.”

Doctor of Philosophy, Biomedical Engineering.

Completed: June, 2021.

Awarded the 2017-18 Life Quality Solutions Incubator Graduate Fellowship.

Awarded the 2018-19 Life Quality Solutions Incubator Graduate Fellowship.

Awarded the 2019-20 Life Quality Solutions Incubator Graduate Fellowship.

Awarded the 2020-21 Life Quality Solutions Incubator Graduate Fellowship.

Matthew Dion.

Thesis: “Analysis of Intraoperative Technique and its Effect on Loading Patterns Across the Patellofemoral Joint Using a Smart Patellar Implant.”

Awarded: Doctor of Philosophy in Biomedical Engineering.

Completed: September, 2017.

Josh Peterson.

Thesis: “Optimization of Spinal Instrumentation Stiffness and Its Effect on Interbody Fusion.”

Awarded: Doctor of Philosophy, Biomedical Engineering.

Completed: August, 2017.

Awarded the 2016-17 Life Quality Solutions Incubator Graduate Fellowship.

John Drazan.

Thesis: “Novel Implantable Sensor System for Continuous Monitoring of Intracompartmental Pressures.”

Awarded: Doctor of Philosophy, Biomedical Engineering.

Completed: July, 2017.

Mitul Shah.

Thesis: “Effect of Loading Frequency on the Transport of Nutrients to the Intervertebral Disc.”

Awarded: Doctor of Philosophy in Biomedical Engineering.

Completed: April, 2015.

Co-Advisor: Juergen Hahn, Ph.D.

Sarah (Linley) Gullbrand.

Thesis: "Factors Affecting Small Molecule Transport Into the Intervertebral Disc."

Awarded: Doctor of Philosophy in Biomedical Engineering.

Completed: May, 2014.

Awarded 2011 National Science Foundation (NSF) Graduate Research Fellowship for research in low back pain.

Rebecca (MacDonald) Wachs.

Thesis: "The Effects of Subclinical Muscle Injury on In Vivo Intradiscal Biomechanics."

Awarded: Doctor of Philosophy in Biomedical Engineering.

Completed: February, 2013.

Awarded the 2011 American Association of University Women's Dissertation Fellowship.

Mary Beth (Mulrane) Grabowsky

Thesis: The Effects of Extensor Muscle Fatigue on In Vivo Loading in the Spine.

Awarded: Doctor of Philosophy in Biomedical Engineering.

Completed: April, 2011.

Glenn Sanders

Thesis: The Mechanism of Endplate Sclerosis as a Precursor to Degenerative Disc Disease.

Awarded: Doctor of Philosophy in Biomedical Engineering.

Completed: February, 2010.

Doctoral Thesis Supervision – Current

Rebecca Levy.

Thesis: "Real Time In Vivo Forces in the Cervical Spine During Spine Fusion."

Doctor of Philosophy, Biomedical Engineering

Expected: December, 2022.

Awarded the 2021-22 Life Quality Solutions Incubator Graduate Fellowship.

Awarded the 2020-21 Life Quality Solutions Incubator Graduate Fellowship.

Best Poster Award, RPI Graduate Research Symposium, 2021.

Medical Doctor With Distinction Supervision – Completed

Elizabeth Leimer

Thesis: The Effects of Nimodipine on Trans-Endplate Transport in the Lumbar Spine.

MDDR: Albany Medical College.

Completed: May, 2014.

Jennifer Newitt.

Thesis: Analysis of Experience and Instruction on Rugby Tackle Biomechanics

MDDR: Albany Medical College.

Completed: August, 2011.

Co-Advisor: Hamish Kerr, MD.

Erin Sperry.

Thesis: A Three-Dimensional Biomechanical Investigation of the Sources of Injury in a Rugby Tackle.

MDDR: Albany Medical College.

Completed: April, 2011.

Co-Advisor: Hamish Kerr, MD.

Medical Resident Thesis Supervision – Completed

Cole K. Monitoring of Fracture Healing Via Smart Fracture Plate Fixation. Orthopaedic Surgical Resident Research Thesis, Albany Medical College, 2021.

Roberts TT. Strategies for Enhancing Transport to the Intervertebral Disc. Orthopaedic Surgical Resident Research Thesis, Albany Medical College, 2015.

Vanderzanden J. Identifying The Early Effects Of Mechanical Loading On The Lumbar Spine Using A Novel In Vivo Animal Model. Orthopaedic Surgical Resident Research Thesis, Albany Medical College, 2011.

Bellapianta J. Threaded Screw Head Inserts Improve Locking Plate Biomechanical Properties. Orthopaedic Surgical Resident Research Thesis, Albany Medical College, 2009.

Durbhakula S. Impaction Grafting: Basic Science and Clinical Applications in Revision Total Hip Arthroplasty. Orthopaedic Surgical Resident Research Thesis, Albany Medical College, 2003.

Andersen LB. Efficacy of Small Intestinal Submucosa to Regenerate Ligamentous Tissue in the Spine. Orthopaedic Surgical Resident Research Thesis, Albany Medical College, 2002.

Pell R. Biomechanical Evaluation of Thermally Treated Glenohumeral Joint Capsule. Orthopaedic Surgical Resident Research Thesis, Albany Medical College, 2002.

Khanuja HS: Clinical Tolerance and Response of the Spinal Cord to Slow Vertebral Distraction. Orthopaedic Surgical Resident Research Thesis, Albany Medical College, 2001.

Gundel J. Healing of Tibial Segmental Defects with the OP-1™ Device. Orthopaedic Surgical Resident Research Thesis, Albany Medical College, 2000.

Gatto CE: Real Time In Vivo Loading in the Baboon Lumbar Spine Using and Interbody Implant Load Cell. Orthopaedic Surgical Resident Research Thesis, Albany Medical College, 1999.

Manseau C: Minimal Fixation of Lateral Malleolar Fractures: A Biomechanical Study. Orthopaedic Surgical Resident Research Thesis, Albany Medical College, 1996.

Masters Thesis Supervision – Completed

Madelyn Stout. Master of Science in Biomedical Engineering. Completed: November, 2021. "Progression of Fracture Healing Via Smart Fracture Plate."

Awarded the 2019-20 Life Quality Solutions Incubator Graduate Fellowship.

Dustin Schroeder. Master of Science in Biomedical Engineering, Completed March, 2020.
"Performance of a Passive, Wireless, Resonant Force Sensor for Smart Orthopedic Implants."
Awarded the 2017-18 Life Quality Solutions Incubator Graduate Fellowship.

Mehrin Kiani. Master of Science in Electrical, Computer, and Systems Engineering. Completed August, 2011.
"Adaptation of a Six Degree of Freedom Industrial Robot for Use as a Human Spine Simulator."

Kyle Elsabee. Master of Science in Biomedical Engineering. Completed, May, 2011.
"Three-Dimensional Redistribution of Thoracolumbar Spinal Motion Following Surgical Intervention."

Nicholas Pallotta. Master of Science in Biomedical Engineering. Completed May, 2009.
"Evaluation of Polymers for Encapsulation of Implantable Sensors."

Erin Campbell. Master of Science in Biomedical Engineering. Completed December, 2008.
"Assessment of Adjacent Level Effects Following Lumbar Interbody Intervention."

David Fiorella. Master of Science in Biomedical Engineering. Completed December, 2008.
"An Implantable Force Sensor For Measuring Real Time Forces in the Intervertebral Disc."

Laryssa Korduba. Master of Science in Biomedical Engineering. Completed December, 2006.
"Feasibility of Incorporating RFID and Micro Sensors Into Orthopaedic Trauma Implants."

Tara Wintner. Master of Science in Biomedical Engineering. Completed May, 2003.
"Effects of Bone Graft Morphology on The Graft Impaction Procedure For Revision Total Hip Arthroplasty – A Parametric Study."
Co-advisor: John Brunski, Ph.D.

Jennifer McVoy. Master of Science in Biomedical Engineering. Completed August, 2002.
"A Comprehensive Interspecies Comparison of the Mammalian Lumbar Spine."
Co-advisor: John Brunski, Ph.D.

Justin Silberberg. Master of Science in Biomedical Engineering. Completed May, 2001.
"A Surgical Guidance System for Placement of Orthopaedic Implants."
Co-advisor: John Brunski, Ph.D.

Masters Project Supervision – Completed

Sierra Blondeau.
"Cervical Spine Biomechanics to Optimize Fusion"
Master of Engineering in Biomedical Engineering.
Completed May, 2021.

Evan Walrath.
"Forced Convection as a Strategy for Enhancing Intervertebral Disc Regeneration."
Master of Engineering in Biomedical Engineering.
Completed December, 2020.

Michael Arboleda

"Wireless In-Vivo Pressure Sensor for Acute Compartment Syndrome."

Master of Engineering in Mechanical Engineering.

Completed May, 2020.

Co-Advisor: Theo Borca-Tasciuc, Ph.D.

Katerina Kradinova

"Smart Intramedullary Rod for Assessing Progression of Fracture Healing."

Master of Engineering in Biomedical Engineering.

Completed December, 2019.

Michael Wassick

"The Effects of Geometry On Resonant Frequency Modulation in Passive LC Resonator Circuits."

Master of Science in Biomedical Engineering.

Completed May, 2017.

Elizabeth Capogna.

"A Peptide Sensitive Hydrogel for Early Detection and Diagnosis of Periprosthetic Infection."

Master of Science in Biomedical Engineering.

Completed May, 2016.

Colleen Healey

"Instrumenting a Tibial Prosthesis to Facilitate In Vivo Force Measurement."

Master of Science in Biomedical Engineering.

Completed December, 2014.

Adam Brooks

"A Novel Actuator for Application in Smart Hand Prosthetics."

Master of Science in Biomedical Engineering.

Completed May, 2014.

Erin Miller.

"Mechanical Stimulation of a Healing Fracture Callus in a Mouse Model."

Master of Science in Biomedical Engineering.

Completed May, 2014. Co-Advisor: Jennifer Currey, Ph.D. Union College.

Ariel Mingrone

"Three-Dimensional Redistribution of Motion of the Spine Following Surgical Intervention."

Master of Science in Biomedical Engineering.

Completed May, 2013.

Shawn Leahy

"Kinematics of Adjacent Level Disease."

Master of Science in Biomedical Engineering.

Completed December, 2012.

Amba Nair

"Optimal Plating Configuration for Hinge Craniotomy."

Master of Science in Biomedical Engineering.

Completed August, 2012.

Evan Wiley
“Comprehensive Interspecies Comparison of Lumbar Spinal Properties.”
Master of Science in Biomedical Engineering.
Completed May, 2012.

Christian Wagner.
“Solid Models for Comparative Lumbar Spinal Anatomy.”
Master of Science in Biomedical Engineering.
Completed December, 2009.

Student Thesis Committees

Doctoral Thesis Committees

Samuel Stephen. Doctor of Philosophy in Biomedical Engineering. Expected May 2024.
“The Impact of Glycooxidation on The Perilacunar Matrix Quality of Bone.”
Deepak Vashishth, Ph.D. advisor. Rensselaer Polytechnic Institute, Troy, NY.

Tyree Williams. Doctor of Philosophy in Biomedical Engineering. Expected May 2024.
“Novel Bone Cement for Vertebral Compression Fractures”
Jonathan Dordick, Ph.D. advisor. Rensselaer Polytechnic Institute, Troy, NY.

Joan Llabre. Doctor of Philosophy in Biomedical Engineering. Completed December 2023.
“Type 2 Diabetes as It Relates to Bone Health and Overall Quality.”
Deepak Vashishth, Ph.D. advisor. Rensselaer Polytechnic Institute, Troy, NY.

Farzaneh Mohammadbeigi. Doctor of Philosophy in Medical Devices. Completed August, 2023.
“Design and Implementation of a Passive Wireless Sensor to Monitor Bone Fracture Healing.”
Karen Reynolds, Ph.D advisor. Flinders University, Bedford Park, South Australia.

Bowen Wang. Doctor of Philosophy in Biomedical Engineering. Completed May 2023.
“Fragility Fractures Resulting From Glycation.”
Deepak Vashishth, Ph.D. advisor. Rensselaer Polytechnic Institute, Troy, NY.

Matthew Tice. Doctor of Philosophy in Biomedical Engineering. Completed April 2022.
“The Effects of Diabetes on Bone Structure.”
Deepak Vashishth, Ph.D. advisor. Rensselaer Polytechnic Institute, Troy, NY.

Zemin Liu. Doctor of Philosophy in Electrical Engineering. Completed May, 2019.
“Power Management Circuits for Hybrid Energy Harvesting.”
Mona Hella, Ph.D. advisor. Rensselaer Polytechnic Institute, Troy, NY.

Michael Conward. Doctor of Philosophy in Mechanical Engineering. Completed July, 2018.
“Effects of Haversian and Plexiform Components on the Machining of Cortical Bone.”
Johnson Samuel, Ph.D. advisor. Rensselaer Polytechnic Institute, Troy, NY.

Allison Fleck. Doctor of Philosophy in Biomedical Engineering. Completed July, 2018.
“MRI Explorations of Structure-Function Relationships in Articular Cartilage.”
Leo Wan, Ph.D. advisor. Rensselaer Polytechnic Institute, Troy, NY.

Ahmad Abu-Hakmeh. Doctor of Philosophy in Biomedical Engineering. Completed June, 2018.
"Engineering Stratified Cartilage Using Scaffold-Free Approaches."
Leo Wan, Ph.D. advisor. Rensselaer Polytechnic Institute, Troy, NY.

Johan van der Merwe. Doctor of Philosophy of Bioengineering. Completed January, 2018.
"Development of a Patient-Specific Unicompartamental Knee Replacement."
Dawie Van den Heever, Ph.D. advisor. Stellenbosch University, Stellenbosch, South Africa.

Corinne Thomas. Doctor of Philosophy in Biomedical Engineering. Completed May, 2017.
"The Characterization of Bone Extracellular Matrix Quality by Proteome Profiling."
Deepak Vashishth, Ph.D. advisor. Rensselaer Polytechnic Institute, Troy, NY.

Stacyann Morgan. Doctor of Philosophy in Biomedical Engineering. Completed August, 2016.
"The Effect of Loss and Post-Translational Modification of Non-Collagenous Proteins on Bone Fracture."
Deepak Vashishth, Ph.D. advisor. Rensselaer Polytechnic Institute, Troy, NY.

Brian Bradke. Doctor of Philosophy in Biomedical Engineering. Completed May, 2014.
"Role of Cancellous Bone in Vertebral Body Mechanics."
Deepak Vashishth, Ph.D. advisor. Rensselaer Polytechnic Institute, Troy, NY.

Atharva Poundarik. Doctor of Philosophy in Biomedical Engineering. Completed April, 2013.
"The Structural and Biological Role of Osteocalcin in Fragility Fractures."
Deepak Vashishth, Ph.D. advisor. Rensselaer Polytechnic Institute, Troy, NY.

Lamya Karim. Doctor of Philosophy in Biomedical Engineering. Completed November, 2011.
"Biomolecular Basis of Bone Fracture and Its Modification via Non-Enzymatic Glycation."
Deepak Vashishth, Ph.D. advisor. Rensselaer Polytechnic Institute, Troy, NY.

Lawrence Ruff. Doctor of Philosophy in Mechanical Engineering. Completed May, 2010.
"Design and Analysis of the Bicycle and Bicycle-Rider System."
Steve Derby, Ph.D. advisor. Rensselaer Polytechnic Institute, Troy, NY.

Coleen Janeiro. Doctor of Philosophy in Biomedical Engineering. Completed May, 2010.
"Effects of Bone Quality and Bone Marrow Derived Adult Stem Cells on Osteoclastic Bone Resorption."
Deepak Vashishth, Ph.D. advisor. Rensselaer Polytechnic Institute, Troy, NY.

Masters Thesis Committees

Brendan Nortjé. Master of Engineering in Bioengineering. Completed April, 2021.
"Feasibility of Additive Manufacturing for Patient-Specific Knee Replacements."
Advisor: Johan van der Merwe, Ph.D. Stellenbosch University, Stellenbosch, South Africa.

Josh Fischer. Master of Science in Bioengineering. Completed January, 2018.
"Diagnostic Aid for Concussion Management in Community Sport."
Advisor: Dawie van den Heever, Ph.D. Stellenbosch University, Stellenbosch, South Africa.

Sven Delport. Master of Science in Bioengineering. Completed January, 2015.
“The Optimal Patient-Specific Placement of the Reverse Total Shoulder Component.”
Advisor: Cornelius Scheffer, Ph.D. Stellenbosch University, Stellenbosch, South Africa.

Arun Nimani. Master of Science in Biomedical Engineering. Completed December, 2012.
“Task Analysis for Natural Orifice Translumenal Endoscopic Surgery (NOTES) Cholecystectomy”.
Advisor: Suvrano De, Ph.D. Rensselaer Polytechnic Institute, Troy, NY.

Monish Pimpalkhare. Master of Science in Biomedical Engineering. Completed January, 2012.
“Fluorescent Molecular Tomography for Imaging the Intervertebral Disc.”
Advisor: Xavier Intes, Ph.D. Rensselaer Polytechnic Institute, Troy, NY.

Supervised Graduate Fellows at the Health Innovations Incubator & Technology Center

1. Elizabeth Capogna
Health Innovations Incubator Fellow. 2021.
2. Benjamin Liddle
Health Innovations Incubator Fellow. 2021-2022.
3. Rebecca Levy
Health Innovations Incubator Fellow. 2021-Present.
4. Derek Nelson
Health Innovations Incubator Fellow. 2022-Present
5. Jessica Funnell
Health Innovations Incubator Fellow. 2022-Present
6. Nathan Lampen
Health Innovations Incubator Fellow. 2022-Present

Supervised Interns at the Health Innovations Incubator & Technology Center

1. Melissa Murphy (Union College)
Health Innovations Incubator Intern. 2021-2023.
2. Megan Bell (University of Rochester)
Health Innovations Incubator Intern. 2022.
3. Eli Thoma (Cornell University)
Health Innovations Incubator Intern. 2022.
4. Madison Perez (RPI)
Health Innovations Incubator Intern. 2022-2023.
5. Alex Adams (Union College)
Health Innovations Incubator Intern. 2022-2023.
6. Josh Burmeister (RPI)
Health Innovations Incubator Intern. 2023.
7. Lilah Wilkinson (RPI)
Health Innovations Incubator Intern. 2023.
8. Nilaan Nigam (RPI)
Health Innovations Incubator Intern. 2023.
9. Liv Eisenhardt (Stanford)
Health Innovations Incubator Intern. 2023.
10. Luc Trombley (RPI)
Health Innovations Incubator Intern. 2023-Present.

11. Bennett Beauleau (Union College)
Health Innovations Incubator Intern. 2023-Present.
12. Anton Safonov (RPI)
Health Innovations Incubator Intern. 2023-Present.
13. Alexandra Nicolaus (Union College)
Health Innovations Incubator Intern. 2024-Present.
14. Hope Elonga (RPI)
Health Innovations Incubator Intern. 2024-Present.

Advised Undergraduate Research Projects (URP)

84. Smart Cervical Spinal Implant
Student Undergraduate Research Project, 2022-2023. Luc Trombley.
83. Injectible Intracompartmental Monitoring Device
Student Undergraduate Research Project, 2021-2022. Nilaan Nigam.
82. Smart Spinal Fusion Implant
Student Undergraduate Research Project, 2021-2022. Yakaterina Ronin.
Awarded the 2022 'Paul B. Daitch Award' for outstanding scholarship and level of service to the RPI community.
81. Smart Fracture Fixation Plate
Student Undergraduate Research Project, 2021. Jakob Waryas.
80. *In Vivo* Cervical Spine Biomechanics
Student Undergraduate Research Project, 2021. Amanda Su.
79. Intracompartmental Pressure Monitoring Device
Student Undergraduate Research Project, 2020-2021. Yakaterina Ronin.
78. Smart Fracture Plate Biomechanics
Student Undergraduate Research Project, 2020-2021. Connor Hanggi.
77. *In Vivo* Spinal Forces
Student Undergraduate Research Project, 2019-2020. Sierra Blondeau.
76. Transport of Small Molecules to the Intervertebral Disc.
Student Undergraduate Research Project, 2019-2020. Evan Walrath.
75. Intervertebral Disc Therapy.
Student Undergraduate Research Project, 2019-2021. Emma Brown.
74. Smart Intramedullary Rod
Student Undergraduate Research Project, 2019-2020. Kristin Ludwicki.
73. Oral Hygiene for Individuals With Disabilities.
Student Undergraduate Research Project, 2018-2020. Nicole Zimmer.
72. Wireless Sensor for Detection of Acute Compartment Syndrome.
Student Undergraduate Research Project, 2018-2019. Mike Arboleda.

71. Rehabilitation Strategy for the Intervertebral Disc
Student Undergraduate Research Project, 2018-2019. James Lai.
70. Smart Fracture Fixation Plate
Student Undergraduate Research Project, 2018-2020. Sydney Caparaso.
69. Intervertebral Disc Regeneration
Student Undergraduate Research Project, 2017-2019. Jennifer Vincent.
68. Intervertebral Disc Regeneration
Student Undergraduate Research Project, 2017. Austin Salkind.
67. Cervical Spine Biomechanics
Student Undergraduate Research Project, 2016-2019. Katerina Kradinova.
Awarded best presentation at the 2019 RPI URP Symposium.
66. Intervertebral Disc Rehabilitation.
Student Undergraduate Research Project, 2016-2018. Dali Alarian.
65. Antigen Sensitive Hydrogel Formulation.
Student Undergraduate Research Project, 2016-2018. Sara Harper.
64. Optimizing Biomechanics of Spine Fusion.
Student Undergraduate Research Project, 2016-2018. Kate Batzinger.
Awarded honorable mention best poster presentation at the 2017 RPI URP Symposium.
63. Implantable Sensor Validation *In Vitro*
Student Undergraduate Research Project, 2016-2018. Jan Bartos.
62. *In Vivo* Patellofemoral Biomechanics.
Student Undergraduate Research Project, 2016-2019. Khaled Abdoun.
Awarded honorable mention best oral presentation at the 2017 RPI URP Symposium.
61. Novel Antigen Sensitive Hydrogel Fabrication
Student Undergraduate Research Project, 2016-2018. Jena Nawfel.
60. *In Vivo* Loading in the Cervical Spine.
Student Undergraduate Research Project, 2016-2017. John Houston.
59. Patellofemoral Knee Biomechanics *In Vivo*.
Student Undergraduate Research Project, 2016. HJ Kim.
58. Physics of Passive LC Resonator Sensors.
Student Undergraduate Research Project, 2015-2017. Khalil Drayton
Awarded second place poster presentation at the 2016 RPI URP Symposium.
57. Muscle Fatigue Alters Spine Biomechanics.
Student Undergraduate Research Project, 2014-2017. Michael Wassick.

56. Cranioflexor Strength Assessment Apparatus
Student Undergraduate Research Project, 2015-2016. Erika Shauer
Awarded honorable mention best poster presentation at the 2016 RPI URP Symposium.

55. Network Analyzer Custom Interface for S11 Parameter Monitoring.
Student Undergraduate Research Project, 2015-2016. Sam Mayo

54. Cervical Spinal Implant Stiffness Optimization.
Student Undergraduate Research Project, 2015-2016. Alexandra Wells.
Awarded first place poster presentation at the 2016 RPI URP Symposium.

53. Fabrication of Antigen Sensitive Hydrogels.
Student Undergraduate Research Project, 2015. Sabrina Ahamparam.

52. Effects of TKA Spacer Sizing on Knee Biomechanics.
Student Undergraduate Research Project, 2014-2016. Sarah Giddings.

51. Biomechanics of Spine Fusion
Student Undergraduate Research Project, 2014-2016. Ashley Clough.

50. Monitoring Compartment Syndrome
Student Undergraduate Research Project, 2014-2015. James Jackson.

49. Building Athletes of Different Sports
Student Undergraduate Research Project, 2014. Nick Gnitzcavich.

48. Building Athletes of Different Sports
Student Undergraduate Research Project, 2014. Ryan Bailey.

47. Effects of Construct Stiffness on Spinal Fusion.
Student Undergraduate Research Project, 2014. Karl Meier.

46. Head and Neck Impact During Mixed Martial Arts Sparring.
Student Undergraduate Research Project, 2014. Nolan Ryan.

45. Wireless Monitoring of Compartment Syndrome.
Student Undergraduate Research Project, 2014. Casey Lumia.

44. Augmenting Transendplate Transport in Degenerated Intervertebral Discs.
Student Undergraduate Research Project, 2013-2014. Jenna Ahlborn.

43. Optimizing the Biomechanics of Spinal Fusion.
Student Undergraduate Research Project, 2013-2016. Carolyn Chlebek.
Awarded honorable mention best poster presentation at the 2016 RPI URP Symposium.

42. Sensor Design For Orthopaedic Smart Implants
Student Undergraduate Research Project, 2013-2016. Omar Abdoun.

41. *In Vivo* Cervical Spine Biomechanics
Student Undergraduate Research Project, 2013-2015. Leslie Smith.

40. *In Vivo* Loading in the Cervical Spine.
Student Undergraduate Research Project, 2012-2014. Colleen Healey.
39. A Robotic Kinematic Simulator of Human Spinal Motion
Student Undergraduate Research Project, 2013-2014. R. Will Juffras.
38. Small Molecule Transport in the Lumbar Spine
Student Undergraduate Research Project, 2013-2014. Arun Fricker.
37. Correlation Between EMG and *In Vivo* Forces in the Cervical Spine.
Student Undergraduate Research Project, 2011-2013. Victoria Michna.
36. Rate Effects of Mechanical Loading on Intervertebral Disc Health
Student Undergraduate Research Project, 2011-2013. Rosemarie Mastropolo.
35. *In Vivo* Cervical Spine Forces
Student Undergraduate Research Project, 2011-2013. Anne Cropp.
34. Three-Dimensional Redistribution of Motion of the Spine Following Surgical Intervention.
Student Undergraduate Research Project, 2011-2012. Ariel Mingrone.
33. Kinematics of Adjacent Level Disease.
Student Undergraduate Research Project, 2011-2012. Shawn Leahy.
32. The Effects of Nicotine and Nimodipine on Trans-Endplate Diffusion.
Student Undergraduate Research Project, 2011-2012. Josh Peterson.
31. Muscle Tone Testing Apparatus
Student Undergraduate Research Project, 2011. Elizabeth Lewis.
30. Three-Dimensional Morphology of Human Cervical Vertebrae.
Student Undergraduate Research Project, 2011. Victoria Michna.
29. A Novel Implantable MEMS-Based Single Component L-C Force Sensor.
Student Undergraduate Research Project, 2010-12. Keegan Cole.
28. An MRI Compatible Mechanical Loading Apparatus.
Student Undergraduate Research Project, 2010-2011. Elizabeth Leimer.
27. Real Time *In Vivo* Forces in the Cervical Spine: Effects of Muscle Fatigue.
Student Undergraduate Research Project, 2010-2011. Cory Helder.
26. Computational Model of Diffusion Into the Intervertebral Disc
Student Undergraduate Research Project, 2010-2011. Megan DeWitt.
25. Repeated Cyclic Axial Loading and Its Effect on the Lumbar Spine.
Student Undergraduate Research Project, 2009-2010. Elizabeth Leimer.
24. The Effects of Repeated Mechanical Loading on the Lumbar Spine.
Student Undergraduate Research Project, 2009-2010. Eric Vandeventer.

23. *The Effects of Repeated Mechanical Loading on the Lumbar Spine.*
Student Undergraduate Research Project, 2009-2010. Elizabeth Brule.
22. *Real Time *In Vivo* Forces in the Cervical Spine: Effects of Muscle Fatigue.*
Student Undergraduate Research Project, 2008-2009. Matthew Connelly.
21. *Kinematic Tracking of Trunk Range of Motion in Normal Healthy Volunteers.*
Student Undergraduate Research Project, 2008-2009. Andrew Carl.
20. *Repeated Cyclic Mechanical Loading in the Lumbar Spine.*
Student Undergraduate Research Project, 2008-2009. Sarah Linley.
19. *Biomechanical Evaluation of Cephalomedullary Fixation Devices.*
Student Undergraduate Research Project, 2008. Haley Houde-Walter
18. *A Simulation of Three Dimensional Position of Individual Vertebrae During Motion.*
Student Undergraduate Research Project, 2007-2009. Kyle Elsabee.
17. *Dynamic Recovery of Intervertebral Disc Height as a Function of Load Frequency.*
Student Undergraduate Research Project, 2007-2008. Rosalyn Abbott.
16. *The Biomechanics of Cephalomedullary Fixation of Intertrochanteric Femur Fractures.*
Student Undergraduate Research Project, 2007-2008. Jared Marshall.
15. *Histopathology of Normal and Pathologic Lumbar Spinal Motion Segments.*
Student Undergraduate Research Project, 2007-2008. Akeel Merchant.
14. *The Effects of Cyclic Loading on Subchondral Bone Adjacent to the Intervertebral Disc.*
Student Undergraduate Research Project, 2006-2008. Daniel Ramsey.
13. *The Strength, Stiffness, and Fatigue Properties of Locking 1/3 Tubular Plates.*
Student Undergraduate Research Project, 2006-2007. Kyle Dow.
12. *Evaluation of Candidate Encapsulation Materials for Chronic Implantation of Microsensors.*
Student Undergraduate Research Project, 2006-2007. Nicholas Pallotta.
11. *A Passive Implantable Displacement Sensor For Incorporation Into A Spinal Implant.*
Student Undergraduate Research Project, 2006-2007. David Fiorella.
10. *Histopathology of Normal and Pathologic Lumbar Spinal Motion Segments.*
Student Undergraduate Research Project, 2006-2007. Aaron Weymouth.
9. *The Etiology of Lumbar Discogenic Pain.*
Student Undergraduate Research Project, 2006. Heather Scoffone.
8. *Effects of Single Level Surgical Intervention on Kinematics of the Whole Thoracolumbar Spine.*
Student Undergraduate Research Project, 2005-2006. William Cusack.
7. *Analytical and Computation Modeling of Force Sensing Interbody Fusion Implants.*
Student Undergraduate Research Project, 2005-2006. David Fiorella.

6. *Histopathology of Normal and Pathologic Lumbar Spinal Motion Segments.*
Student Undergraduate Research Project, 2005-2006. Aaron Weymouth.
5. *Analysis of Impact Force On the Skull of A Lacrosse Ball.*
Student Undergraduate Research Project, 2005-2006. Kyle Dow.
4. *Analytical and Computational Modeling of A Force Sensing Interbody Fusion Implant.*
Student Undergraduate Research Project, 2005. Brian Leach.
3. *Finite Element Model of a Normal Lumbar Spinal Motion Segment.*
Student Undergraduate Research Project, 2005. Daniel Fabius.
2. *Conversion of Computed Tomography Scans Into Patient Specific Mesh Implants.*
Student Undergraduate Research Project, 2005. Holly Brideau.
1. *Materials for Encapsulation of Electronics *In Vivo*.*
Student Undergraduate Research Project, 2004. Mary Beth Mulrane.

Advised Research Experience for Undergraduates (REU) Projects

8. *Injectable Pressure Sensor for Acute Compartment Syndrome.*
NSF REU Research Project, 2018. Elizabeth Bealer, Rowan University.
7. **In Vivo* Biomechanics of Spine Fusion.*
Student Undergraduate Research Project, 2016-2018. Sean Glennon, Union College.
6. *Smart Knee Prosthesis Biomechanics*
Student Undergraduate Research Project, 2016. Andrue Caruso, Boston University.
5. *Antigen Sensitive Hydrogel Formulation.*
Student Undergraduate Research Project, 2016. Taylor Stephens, University of Georgia at Savana.
4. *Effects of Muscle Knockout on Spinal Kinematics.*
Summer Intern from University of New Haven, 2014. Sierra Rocco.
3. *Vascularization of the Normal and Pathologic Vertebral Endplate.*
NSF Research Experience for Undergraduates, 2013. Greg Salamone (University of Buffalo).
2. *Viscoelastic Properties of the Lumbar Intervertebral Disc.*
NSF Research Experience for Undergraduates, 2012. Sarah Frank (Brown University).
1. *Spatial Tracking of Kinematic Motions of the Human Lumbar Spine.*
Howard Hughes Medical Institute Program, 2005. Greg Kanagaki (Union College).

International Study Program Project Supervision

- RPI-DTU-NTU Innovations Workshop 2015

“Intracranial Pressure Monitor Simulator.”

Innovations Workshop research project, 2015 with Technical University of Denmark (DTU), Nanyang Technological University (NTU), Singapore, and RPI.

- *RPI faculty representative to Global Engineering Teams. 2013-2015. Global Engineering Teams is a collaboration of universities from around the world which facilitates international interdisciplinary design for engineering students.*

“Oral Hygiene Improvement System for Costal Africa.”

Global Engineering Teams design project, 2013 with Stellenbosch University, Technical University of Berlin, and Pennsylvania State University.

“Passive System for Prevention of Wheelchair Pressure Sores.”

Global Engineering Teams design project, 2013 with Stellenbosch University.

“Wearable Neck Injury Prevention Device.”

Global Engineering Teams design project 2014 with Stellenbosch University

“LIMBS Project – Design of Prosthetic Limbs for Under Resourced Environments.”

Global Engineering Teams design project 2014 with Hasso Plattner Institut, Technische Universität Berlin, and Pennsylvania State University. Co-advisor.

Supervision of Pre-Collegiate Research Students

Christian Brothers Academy

Student Mentor. Health Innovations Incubator & Technology Center. 2023 – Present.

Jack Bouton

Emma Willard School Technology Program

Student Mentor. Health Innovations Incubator & Technology Center. 2022 – Present.

Ashlyn Bardack

Shaker High School Capstone Project Program

Team Mentor. 2022 – 2023

Jason Zhang and Saurav Bavdekar

Shaker High School Capstone Project Program

Team Mentor. 2022 – 2023

Priya Musku and Somida Oruganti

Shaker High School Career Exploration Internship Program

Student Mentor. Health Innovations Incubator & Technology Center. 2021 – 2022

Jack Chudzinski

Schenendahoa High School.

Student Mentor. Health Innovations Incubator & Technology Center. 2021

Araya De.

Balston Spa High School Science Program.

Student Mentor. 2018 – 2019.

Jacob Claypool.

Girls Inc., Mentored Technology Program.
Student Mentor. 2018 – 2019.
Ava Bashant.

Albany High School Science Program.
Student Mentor. 2015 – 2016.
Hunter Best.

Albany High School Science Program.
Student Mentor. 2015 – 2016.
Anthony Prato.

Emma Willard College Prep Program.
Student Mentor. 2015 – 2016.
Grace Bossolini.

Shaker High School “High School Scholars” Program.
Student Mentor. 2015 – 2018.
Benjamin Beretvas

Shenendehowa High School “High School Scholars” Program.
Student Mentor. 2015.
Jared Slosberg

Shaker High School “High School Scholars” Program.
Student Mentor. 2013 – 2015.
Manthan Vasavada

Albany Academy “May Project” High School Research Program.
Student Mentor. 2013.
Anthony Stefanelli.

“Siemens Math : Science : Technology Competition”
Student Mentor. 2012.
Daniel Baden, Half Hollow Hills High School.

“The Lab School: High School Mentored Science Project Program.”
Student Mentor. 2011 – 2012.
Kimberly Salvati, Hoosic Valley High School.

International Science and Engineering Fair High School Science Competition.
Student Mentor. 2010 – 2011.
Katie Piccioni, Academy of Holy Names High School.
Intel Science Fair: Regional First Prize, 2011.

International Science and Engineering Fair High School Science Competition.
Student Mentor. 2007 – 2009.
Erin Keaton, Academy of Holy Names High School.

“Project Lead The Way” High School Pre-Engineering Program.
Student Mentor. 2007 – 2010.
Maxwell Alley, Shaker High School.
National Society for Professional Engineers award, 2010.
Honorable Mention Greater Capital Region Science and Engineering Fair, 2010.

“The Lab School: High School Mentored Science Project Program.”
Student Mentor. 2004 – 2005.
Andrew Steiner, Bethlehem High School.

Service

University, School, and Departmental Committees

RPI Department of Biomedical Engineering:

Pre-Med Student Advisor	2018-2015, 2019-2021
Arch Discovery Day Organizer	2018-2021
Undergraduate Curriculum Committee Chair	2017-2021
Graduate Research Symposium Poster Judge	2016, '21
Undergraduate Curriculum Committee Member	2015-16
Undergraduate Curriculum Committee Member	2012-14
Undergraduate Curriculum Committee Member	2004-2007
Awards Committee	2014-15
Committee to Review Joint & Adjunct Professor Appointments	2014
Ajit Prabhu Graduate Fellowship Selection Committee	2012-2015
Prototype Fabrication Studio Director	2012-2021
BME PD/Design Program Curriculum Development	2012-2015
Industry Liaison	2010-2016
Faculty Search Committee	2009-2010
RPI/AMC Physician/Engineer Program Advisor	2008-2016
Seminar Series Coordinator	2008-2009
Undergraduate Lab Experience Committee Chair	2007-2008

RPI School of Engineering (SoE):

SoE Curriculum Committee, Department of Biomedical Engineering Rep.	2017-2021
Undergraduate Research Program Symposium Judge	2014-2021
SoE Curriculum Committee, Department of Biomedical Engineering Rep.	2009-2010
SoE Curriculum Committee, Department of Biomedical Engineering Rep.	2006-2007
Multidisciplinary Design Laboratory Faculty Advisory Committee	2011-2016
SoE "Engineer of the Future Task Force"	2006-2007

RPI Center for Biotechnology & Interdisciplinary Studies

"Entrepreneurship and Technology Commercialization." Panelist	2017
Bioimaging Core Oversight Committee	2011-2016

RPI Advancement Office

Search committee member. Senior Principle Gifts Officer	2013
---	------

Rensselaer Polytechnic Institute

Executive Advisor & Co-Founder, RPI Chapter Flying Pig Society	2022 - Present
Faculty Advisor, Tau Beta Pi National Engineering Honor Society	2021 - 2023
Welcome Address. First Year Convocation.	2016
Trustees' Outstanding Teacher Award Selection Committee	2014
Faculty Representative to Global Engineering Teams	2013 - 2016
Institute Prehealth Professions Committee Member	2006 - 2016
Commencement Marshall	2005 - 2021
Steering Committee. Center for Translational Research in Medicine	2013 - 2014
Biomedical Scholars Program	2012 - 2014
Leader in establishing Stratton VA Medical Center as a site for RPI	2012 - 2013
Mt. Sinai School of Medicine - RPI Collaboration Team Participant	2012 - 2013
New TA Trainer	2009 - 2010
PREFACE@ Rensselaer Lecturer	2008 - 2010

Faculty Advisor, Biomedical Engineering Graduate Council	2006 - 2013
Faculty Representative Medalist Day	2006, '07, '09
Summer Orientation	2005 - 2021
Rensselaer SURP Reviewer	2005 - 2014
Accepted Students Day	2005, '06, '08, '09
Medalist Day Presenter	2019
Faculty Judge Undergraduate Research Symposium	2012, '13, '14, '17, '18, '19
Multidisciplinary Design Laboratory Project Evaluator	2009 - 2014
Inventor's Studio Project Evaluator	2011 - 2014

Stratton VA Medical Center

Institutional Animal Care and Use Committee, Vice Chair	2018 - Present
---	----------------

Albany Medical College

Animal Resource Facility Oversight Committee	2000 - 2004
Animal Resource Facility Research Process Improvement Team	1999
Committee on Research Position Job Competency Assessment	1998
Good Laboratory Practice Review Committee	1996 - 2004

Service to Professional Societies

Society Memberships

International Society for Study of the Lumbar Spine (ISSLS).
 Orthopaedic Research Society.
 Orthopaedic Research Society Spine Section.
 Biomedical Engineering Society.
 North American Spine Society.
 IEEE/EMBS Engineers in Medicine and Biology Society.
 American Society for Engineering Education

Service to Societies

Biomedical Engineering Innovation Design and Entrepreneurship Alliance (IDEA)

Organizing Committee Member.
 National Meeting. San Diego, CA. October, 2020.

Reinventing the Future of HealthTech Through Academic-Industry Partnerships.
 Meeting Chair. International Interactive Live Webinar.
 August 19, 2020.

Remote Instruction for Design Curricula.
 Organizing Committee Member. International Interactive Live Webinar.
 August 5, 2020.

Organizing Committee Member.
 National Meeting. Atlanta, GA. 2018.

Global Exchange International Meeting Session Leader
 National Meeting. Atlanta, GA. 2018.

*Tech Transfer Breakout Session Chair
National Meeting. Atlanta, GA. 2018.*

*Organizing Committee Member.
National Meeting. Minneapolis, MN. 2016.*

*Quality & Regulatory Breakout Session Leader
National Meeting. Minneapolis, MN. 2016.*

Northeast Bioengineering Conference

Design Track Chair, Design Competition Organizer, Abstract Reviewer. 2015.

*Career Day Coordinator, Industry Liaison, Design Track Chair, Design Competition Organizer,
Abstract Reviewer. 2011.*

Orthopaedic Research Society

Co-Moderator: Career Tracks in Orthopaedics – Part III: Research. Virtual. November, 2022.

*Organizer & Moderator: Smart Implant and Wearable Technology Workshop. Virtual. August,
2022.*

Member: Industry Alliance Committee. 2021-Present.

New Investigator Mentor. 2019-2021.

*Session Moderator: Intervertebral Disc Treatments and Therapies. 65th Annual Meeting.
Austin, TX. February 2-5, 2019.*

*Session Moderator: Spine Biomechanics and Therapeutics. 55th Annual Meeting.
Las Vegas, NV. February 22-25, 2009.*

American Society for Engineering Education

Mentor, ASEE Student Mentorship Program. 2014.

Union College Bioengineering Program

Capstone Design Evaluator. 2015.

Community and Public Service

Board of Trustees

Woodland Hill Montessori School. East Greenbush, NY. 2022-Present.

Panel Judge

*New York State Industries for the Disabled (NYSID) Cultivating Resources for Employment with
Assistive Technology (CREATE) Annual Symposium.
Albany, NY. April 2022.*

“Technology to Improve the Life Quality for Individuals with Disabilities”

World Update program lecture. Albany Jewish Community Center. May 2021.

“Biomedical Engineering as a Career”

Principles of Engineering guest lecture. Albany Academy. 2020.

“Biomedical Engineering Research & Technology”

World Update program lecture. Albany Jewish Community Center. April, 2019.

“Design Thinking” middle school camp, Woodland Hill Montessori School.

Session leader. 2016.

Society of Women Engineers “A Day in the Life” Series.

Panel Participant. 2016

Center for Disability Services Annual Telethon participant. January, 2015, '16, '18, '20.

Center for Disability Services Technical Consultant. 2015-Present.

“Science of Sports” STEM Outreach Program. Albany High School.

Module Leader with 4th Family. 2014.

Montessori High School Curriculum Committee, Woodland Hill Montessori School. 2012-2013.

Faculty Evaluator: Medical Student Investigation Day. Albany Medical College. 2011-2012.

Keynote Speaker: “Why Biomechanics Is A Pain in the Neck (and Back)”.

16th Annual Science Research Symposium. Hoosic Falls High School, Schaghticoke, NY. 2011.

Invited Lecture: “The Role of the Biomedical Engineer in Orthopaedic Surgery”.

Bethlehem High School Lab School Science Program. Bethlehem, NY. 2011.

Albany High School Academy of Engineering Curriculum Development Workshop. 2009.

Youth Soccer Coach. 2008-2012.

Annual Boy Scout’s Learning for Life Tour. 1998-2004.

Albany Medical Center Community Explorer Post High School Student Outreach Program. 1998-2004.

Review of Manuscripts, Conference Abstracts, Books, and Research Proposals

Journal Manuscripts

<i>Annals of Biomedical Engineering.</i>	<i>2007 – 2022.</i>
<i>ASME Journal of Biomechanical Engineering</i>	<i>2018 – 2022.</i>
<i>Computer Methods in Biomechanics and Biomedical Engineering.</i>	<i>2011– 2022.</i>
<i>Current Rheumatology Reviews.</i>	<i>2016 – 2022.</i>
<i>European Spine Journal.</i>	<i>2014 – 2022.</i>
<i>IEEE Transactions on Mechatronics.</i>	<i>2010 – 2022.</i>
<i>Journal of Biomechanical Engineering</i>	<i>2019 – 2022.</i>
<i>Journal of Orthopaedic Research Spine.</i>	<i>2018 – Present.</i>
<i>Journal of Orthopaedic Research.</i>	<i>2010 – Present.</i>

Regional, National, and International Conference Abstract Reviews

ASME Summer Bioengineering Conference. 2008 – 2014.
North American Spine Society. 2015 – 2022.
Northeast Bioengineering Conference. 2011, 2015.
Orthopaedic Research Society. 2008 – 2017, 2019-Present.

Book Reviews

Financial Decision Making for Engineers by Colin K. Drummond. Yale University Press. 2018.

Research Proposal Reviews**National Science Foundation**

Disability and Rehabilitation Engineering (DARE) Panel Reviewer.
2023.

National Institutes of Health

Musculoskeletal, Oral & Skin Sciences Small Business Innovation Research and Small Business Technology Transfer Study Section.
2017 – 2021.

National Institutes of Health

Musculoskeletal, Oral and Skin Sciences Special Emphasis Panel Study Section.
ZRG1 F10B-B(20) (Fellowship) and ZRG1 MOSS-B(82)A (R15)
2020.

Orthopaedic Research and Education Foundation

Resident Research Grant Review Committee Member.
2018 - 2021.

National Association for Community Living

National Institute on Disability, Independent Living and Rehabilitation Research Small Business Innovation Research and Small Business Technology Transfer Study Section.
2019, 2020, 2022, 2024.

National Institutes of Health

Musculoskeletal, Oral and Skin Sciences Special Emphasis Panel Study Section.
2016.

Musculoskeletal Transplant Foundation

Established Investigator Grant Reviewer.
2015 - 2021.

National Science Foundation

Graduate Research Fellowship Program Reviewer.
2013-2014.

National Research Foundation of South Africa

Grant Reviewer.
2011 - 2021.

National Institutes of Health

*Musculoskeletal, Oral & Skin Sciences Small Business Innovation Research and Small Business
Technology Transfer Study Section.*
2010 – 2013.