

## Curriculum Vitae

*Kevin John Otto*

Professor and Senior Associate Chair  
J. Crayton Pruitt Family Department of Biomedical Engineering  
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### ***Education***

2003-2006	Post-Doctoral Training, University of Michigan, Ann Arbor, MI.
2000-2003	Ph.D., Bioengineering, Arizona State University, Tempe, AZ.
1997-2000	M.S, Bioengineering, Arizona State University, Tempe, AZ.
1993-1997	B.S., Chemical Engineering, <i>cum laude</i> , Colorado State University, Fort Collins, CO.

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### ***Current Academic Faculty Positions***

2021-Present	Affiliate Faculty, Department of Neurology, the University of Florida
2020-Present	Senior Associate Chair, J. Crayton Pruitt Family Department of Biomedical Engineering, the University of Florida
2018-Present	Professor, J. Crayton Pruitt Family Department of Biomedical Engineering, the University of Florida ( <i>with tenure</i> )
2017-Present	Affiliate Faculty, Department of Electrical & Computer Engineering, the University of Florida
2017-Present	Affiliate Faculty, Department of Materials Science and Engineering, the University of Florida
2014-Present	Affiliate Faculty, Department of Neuroscience, the University of Florida

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### ***Highlights***

#### **Research Highlights**

- I am the director of the Neural Prostheses Research Laboratory ([www.nprlab.org](http://www.nprlab.org)). Our research focus is on neural engineering, sensory repair and prostheses, brain-machine interfaces, sensation induced by activation of neural tissue, neural coding and plasticity, autonomic neural engineering.
- Secured ~\$14M in external funds to support my own laboratory:

- Government funding agencies – National Institutes of Health (NIH), Defense Advanced Research Projects Agency (DARPA), Indiana Clinical & Translational Science Institute.
- Private funding agencies - Purdue Research Foundation, Showalter Trust.
- Experience working on large multidisciplinary, multi-investigator research projects:
  - NIH Brain Research through Advancing Innovative Neurotechnologies Program (BRAIN):
    - I lead a team of 4 investigators and 1 company working on a 4 year, \$4.4M program.
  - DARPA Targeted Neuroplasticity Training Program Principal Investigator:
    - I led a team of 6 investigators working on a \$4M program.
  - NIH Human BioMolecular Atlas Program (HuBMAP):
    - I participate on a team of 9 investigators working on a 4 year, \$500k annual program.
  - DARPA Hand Proprioception and Touch Interfaces (HAPTIX) Program:
    - I participated on a team of 6 investigators working on a \$6M program.
  - DARPA Reliable Neural Interface Technologies (RE-NET) Program:
    - I led a team of 2 investigators as the principal investigator working on a \$1.7M program.
    - I participated on a team of 6 investigators working on a \$5M program.
- Published 67 papers in peer-reviewed journals.
- h-index of 32 (Google Scholar).
- Supervised 17 doctoral students to graduation and currently supervising 4 more.
- Supervised 5 post-doctoral scholars.
- Given more than 104 international, national, local research presentations.

### **Service Highlights**

- Program Co-chair, *46<sup>th</sup> annual IEEE Engineering in Medicine and Biology Conference*. Orlando, FL (2024).
- Senior Associate Chair of the J. Crayton Pruitt Family Department of Biomedical Engineering at the University of Florida (2020-present).
- Program Co-chair, *27<sup>th</sup> Annual Meeting of the Biomedical Engineering Society*. Phoenix, AZ (2017).
- Member of the Neural Interfaces Conference Steering Committee (2017-present).
- ClevelandNEW Conference Executive Committee Member (2013-2019).
- Editorial Board Member of 9 journals.
- Study Section Member for 20 different panels at the NIH, VA, NSF, Craig H. Nielsen Foundation.
- Reviewer for 28 different scientific journals.

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### ***Honors and Awards***

#### **Personal**

- 2023 UF Doctoral Dissertation Advisor/Mentoring Award
- 2023 UF Herbert Wertheim College of Engineering Doctoral Dissertation Advisor/Mentoring Award
- 2022 BMES Fellow

- 2020 AIMBE Fellow
- 2020 UF Leadership Network
- 2019 UF Term Professorship
- 2018 IEEE Senior Member
- 2018 J. Crayton Pruitt Family Department of Biomedical Engineering Faculty Service Excellence Award
- 2017 Master Mentor Designation from the UF Mentor Academy
- 2012 Faculty Service Award, Weldon School of Biomedical Engineering
- 2012 Purdue Research Foundation International Travel Grant
- 2011 Seed for Success, Purdue University
- 2009 Outstanding Faculty Award, Weldon School of Biomedical Engineering Graduate Student Association
- 2006 Selected 1 of 100 participants; 4th Annual National Academies Keck Futures Initiative Conference on “Smart Prosthetics: Exploring Assistive Devices for the Body and Mind”; Nov. ’06, Irvine, CA.
- 2006 International Workshop on Neural Interface Technologies and Applications Scholarship
- 2006 Purdue Research Foundation International Travel Grant
- 2005 Neural Interfaces Workshop Student Travel Assistance Program Recipient
- 2005 Individual Post-Doctoral Ruth L. Kirschstein National Research Service Award
- 2004 Kresge Hearing Research Institutional National Research Service Award Fellowship
- 2003 University of Michigan College of Engineering Research Mentor Award
- 2003 Kresge Hearing Research Institutional National Research Service Award Fellowship
- 2003 IEEE-EMBS Neural Engineering Conference Fellowship
- 2001 Graduate Academic Scholarship (Arizona State University)
- 2000 Neurosciences Institute Neural Engineering Traineeship
- 1999 First Place Graduate Student, ASU Biomedical Engineering Society Poster Competition
- 1997 Graduate Academic Scholarship (Arizona State University)
- 1997 Honors degree in Chemical Engineering, *cum laude*
- 1994 Arthur T. Corey Award Recipient
- 1993 University Distinguished Scholars Recipient (Colorado State University)
- 1993 BrushWellman Scholarship Recipient
- 1993 Danforth Award Recipient
- 1993 Robert C. Byrd Scholarship Recipient
- 1993 Runner-up, Mathematics, Sterling Scholars of Central Utah
- 1993 Tandy Technology Scholar Award; Outstanding Mathematics
- 1992 The American Legion Boys’ State Fellow
- 1992 Congressional Scholar (Congressional Youth Leadership Council)
- 1991 Hugh O’Brian Youth Foundation Fellow
- 1990 Eagle Scout Award Recipient

### **Laboratory Members**

- 2020 UF Attributes of a Gator Engineer Leadership Award (awarded to A Brake)
- 2020 UF Presidential Service Award (awarded to A Brake)
- 2019 UF International Student Outstanding Achievement Award (awarded to M Urdaneta)
- 2019 UF J. Crayton Pruitt Family Department of Biomedical Engineering Postdoc Excellence Award (awarded to S Thourson)
- 2019 NIH T32 Neuromuscular Plasticity Training Grant (awarded to J Murbach).
- 2019 NIH T32 BREATHE Grant (awarded to I Malone).

- 2019 NIH T32 Interdisciplinary Graduate Program in Type 1 Diabetes (awarded to E Dirr).
- 2019 William H. Sweet Award from the American Academy of Neurosurgeons for the top abstract in pain research by a neurosurgeon trainee or graduate of the last five years (awarded to Dr. Alex Dru, a neurosurgery resident performing a research rotation in Dr. Otto's lab)
- 2019 Outstanding Undergraduate Project Award, UF BME Undergraduate Research Day (primary author: A Brake)
- 2019 UF Neurosurgery Department Research Award (awarded to Dr. Alex Dru, a neurosurgery resident performing a research rotation in Dr. Otto's lab)
- 2019 Outstanding Undergraduate Poster Presentation, Institute for Neural Engineering, University of Miami (primary author: A Brake)
- 2019 Best Overall Poster, University of Florida Biomaterials Day (primary author: N Veit)
- 2017 Honorable Mention, Pruitt Day Poster Session, Undergraduate Division (primary author: N Hilborn)
- 2015 Second Place in J. Crayton Pruitt Family Department of Biomedical Engineering Photo Contest (primary author: A Woolley)
- 2013 Honorable Mention in Nikon's 2013 Small World Competition (primary author: A Woolley)
- 2013 College of Engineering Dean's Choice Award, Purdue University Undergraduate Poster Competition (primary author: M Youngs)
- 2013 College of Engineering Student's Choice Award, Purdue University Undergraduate Poster Competition (primary author: A Filley)
- 2012 College of Science Dean's Choice Award, Purdue University Undergraduate Poster Competition (primary author: A Filley)
- 2012 2<sup>nd</sup> Place Biological Sciences, Purdue University Undergraduate Poster Competition (primary author: J McGee)
- 2011 College of Science Dean's Choice Award, Purdue University Undergraduate Poster Competition (primary author: LM Lincoln)
- 2011 Engineering Council Choice Award, Purdue University Undergraduate Poster Competition (primary author: TJ Hinton)
- 2010 Student Excellence in Neural Interfacing Award, Neural Interfaces Conference (awarded to Seth Wilks)
- 2010 Intel Excellence in Computer Science Award, Indiana State Science Fair Competition (primary author: A Sankari)
- 2010 First Place in Excellence in Human Health, Biology or Life Sciences, Indiana State Science Fair Competition (primary author: A Sankari)
- 2010 First Place, College of Science, Purdue University Undergraduate Poster Competition (primary author: H Desai)
- 2010 Top Winner/International Fair Delegate, Science and Engineering Fair, Lafayette Regional Science & Engineering Fair (primary author: A Sankari)
- 2010 Honorable Mention, Purdue University Sigma Xi Graduate Poster Competition (primary author: A Koivuniemi)
- 2009 College of Science Peer Award, Purdue University Undergraduate Poster Competition (primary author: LM Lincoln)
- 2008 Second Place, College of Science, Purdue University Undergraduate Poster Competition (primary author: AL Pierce)
- 2007 First Place, College of Science, Purdue University Undergraduate Poster Competition (primary author: AL Pierce)

2007 Dean's Award, College of Engineering, Purdue University Undergraduate Poster Competition (primary author: AL Pierce)

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***Sponsored Research Projects***

**Active**

Allen, K (PI), **Otto, KJ** (CO-I)  
**Active**; NIH-1UC2AR082196-01  
“Innervation of the knee and TMJ”  
09/2022-08/2025  
\$5,878,996 (total costs)

**Otto, KJ** (CO-PI), Orazem, ME (CO-PI)  
**Active**; NIH-1U01NS126052-01  
“Engineering the neuronal response to electrical microstimulation”  
08/2022-07/2026  
\$4,421,314 (total costs)

Zubcevic, J (PI), **Otto, KJ** (CO-I)  
**Active**; NIH-1R01HL152162-01A1  
“Neural mechanisms of host-microbiota interaction in hypertension: a potential for bio-electronic medicine”  
06/2021-05/2026  
\$308,288 (direct costs – faculty’s portion)

Dale, E (PI), **Otto, KJ** (CO-I)  
**Active**; NIH- R01HL153102  
“Cervical Epidural Stimulation and Respiratory Motor Plasticity”  
04/2021-03/2026  
\$63,975 (direct costs – faculty’s portion)

Bizon, J (PI), **Otto, KJ** (CO-I)  
**Active**; NIH- 1RF1AG067429-01A1  
“Mechanisms and therapeutic potential of vagus nerve stimulation in aging and Alzheimer’s disease”  
05/2021-04/2024  
\$23,031 (direct costs – faculty’s portion)

Judy, J (PI), **Otto, KJ** (CO-I)  
**Active**; NIH-1R01NS111518-01  
“The Tissue-Engineered Electronic Nerve Interface (TEENI)”  
04/2019-03/2024  
\$771,105 (direct costs – faculty’s portion)

**Completed**

Atkinson, M (PI), **Otto, KJ** (Investigator)  
**Active**; NIH-U54A1142766-02  
“A 3D tissue map of the human lymphatic system”

09/2018-06/2022

\$80,910 (direct costs – faculty’s portion)

**Otto, KJ (PI)**

**Active;** DARPA # HR0011-17-2-0019

“Cognitive Augmentation through Neuroplasticity”

01/2017-03/2021

\$4,295,453 (total costs)

Fuller, D (PI), **Otto, KJ (CO-I)**

**Completed;** NIH-R21NS109571

“Phrenic motoneuron activation using temporal interference”

08/2018-07/2020

\$73,892 (direct costs – faculty’s portion)

Fried, S (PI), **Otto, KJ (CO-I)**

**Completed;** NIH-U01NS099700

“Micro-coil implants for cortical activation”

09/2016-06/2020

\$406,937 (direct costs – faculty’s portion)

Judy, JW (PI), **Otto, KJ (CO-PI)**

**Completed;** DARPA # HR0011516376

“Tissue-Engineered Electronic Nerve Interfaces (TEENI)”

09/2015-03/2019

\$572,042 (direct costs – faculty’s portion)

Campbell-Thompson M (PI), **Otto, KJ (CO-PI)**

**Completed;** NIH-1OT2OD023861-01

“Neuromodulation-based treatment of diabetes: identifying anatomical and physiological pancreatic innervation targets”

09/2016-07/2018

\$9,566 (direct costs – faculty’s portion)

Bashirulla, R (PI), **Otto, KJ (Subcontract PI)**

**Completed;** DARPA # N66001-15-C-4018

“Implantable Multimodal Peripheral Recording and Stimulation System (IMPRESS)”

04/2015-04/2018

\$192,638 (direct costs – faculty’s portion)

Miyamoto, R (PI), **Otto, KJ (Subcontract PI)**

**Completed;** DARPA

“MELD Mind Electromagnetic Localization Device”

01/2017-03/2017

\$52,000 (direct costs – faculty’s portion)

Williams, JC (PI), **Otto, KJ (CO-PI)**

**Completed;** DARPA # N66001-12-C-4025

“Multiscale bidirectional neural interfaces for comprehensive central nervous system interface reliability improvement”

01/2012-02/2016  
\$212,304 (direct costs – faculty’s portion)

**Otto, KJ (PI)**

**Completed;** Indiana Clinical & Translational Science Institute Core Pilot Award

“fMRI of cortical microstimulation for sensory restoration”

01/2015-12/2015

\$9,900 (direct costs)

Roysam, B (PI), **Otto, KJ (CO-I)**

**Completed;** DARPA # N66001-11-1-4015

“Multi-spectral 3-D histology & predictive statistical technologies for identifying the critical combination of factors impacting long-term performance of implanted neuroprosthetics”

05/2012-01/2015

\$135,928 (direct costs)

**Otto, KJ (PI)**

**Completed;** DARPA # N66001-11-1-4013

“Normal and accelerated failure assessment of new quantitative *in vitro* and *in vivo* neural interfaces”

01/2011-01/2015

\$1,729,865 (direct costs)

**Otto, KJ (PI)**

**Completed;** Indiana Clinical & Translational Science Institute

“The safe limits of intracortical microstimulation for sensory prostheses”

07/2011-06/2012

\$36,218 (direct costs)

Garner, J (PI), **Otto, KJ (CO-PI)**

**Completed;** Showalter Trust # 10098191

“A novel rat model of pre-diagnosis cognitive symptoms in Parkinson’s Disease”

07/2010-06/2011

\$62,500 (direct costs)

**Otto, KJ (PI)**

**Completed;** NIH-R03DC009339-02 NIDCD Small Grant Program

“Neural microstimulation parameters and interfacial quality effects”

07/2009-06/2012

\$300,000 (direct costs)

Rickus, JL (PI), **Otto, KJ (CO-PI)**

**Completed;** Indiana Spinal Cord and Brain Injury Fund Research Grant Program #00015115

“Bio-inorganic coatings to reduce tissue reaction in cortical neural prostheses”

01/2009-12/2010

\$102,564 (direct costs)

**Otto, KJ (PI)**

**Completed;** Purdue Research Foundation XR Grant #203103

“Novel peptide-presenting sol-gel coatings for improving biocompatibility of cortical implants”

07/2008-06/2009

\$16,375 (direct costs)

Rao, M (PI), **Otto, KJ** (CO-PI)

**Completed**; Showalter Trust # 00011659

“Development of advanced multifunctional brain-machine interface devices with enhanced reliability for chronic implantation applications”

07/2008-06/2009

\$62,493 (direct costs)

**Otto, KJ** (PI)

**Completed**; NIDCD F32 DC007826-01A1

“Cortical response dynamics to chronic cochlear implants”

10/2005-06/2006

\$34,000 (direct costs)

***Publications: refereed journals, refereed proceedings, reviews***

**Key:** *Underline – senior or principal authors*

*Bold - self*

*Superscript F – Research Fellow*

*Superscript P – Postdoc Researcher*

*Superscript G – Graduate Student*

*Superscript U – Undergraduate Student*

*Superscript R – Medical Resident*

*Superscript M – Medical Student*

*Superscript & – Research Technician*

*Superscript A – Former student / alumni*

**Refereed Journals**

1. Currilin S<sup>GA</sup>, HS Nick, M Jorgensen, JA Nick, MA Brusko, H Hakimian<sup>GA</sup>, J Penaloza-Aponte<sup>GA</sup>, N Rodriguez, M Medina-Serpas, M Yang, R Seifert, I Kusmartseva, TM Brusko, **KJ Otto**, AL Posgai, CH Wasserfall, MA Atkinson. Immune, endothelial and neuronal network map in human lymph node and spleen. *Submitted*.
2. O'Sullivan K, B Philip, J Baker, ME Orazem, **KJ Otto**, C Butson. In vivo and in vitro electrochemical impedance spectroscopy of acute and chronic intracranial electrodes. *Submitted*.
3. Urdaneta ME<sup>GA</sup>, NC Veit<sup>UA</sup>, RG Burke<sup>UA</sup>, IG Malone<sup>GA</sup>, KE Smith, **KJ Otto**. Predicting Longitudinal Performance of Brain-Computer Interfaces through Explainable Machine Learning. *Submitted*.
4. Dirr E<sup>GA</sup>, L Jiracek<sup>&A</sup>, D Baekey, C Martyniuk, **K Otto**, J Zubcevic. Subdiaphragmatic vagal nerve stimulation attenuates the progression of hypertension and alters NTS transcriptional networks in the SHR. *Accepted, Physiological Genomics*.
5. Dewberry LS<sup>G</sup>, M Gravenstine<sup>UA</sup>, K Porche, KD Allen, **KJ Otto**. High Frequency Alternating Current Neurostimulation Decreases Nocifensive Behavior In A Disc



- Herniation Model Of Lumbar Radiculopathy. *Bioelectronic Medicine*, doi: 10.1186/s42234-023-00119-0. 2023.
6. Dirr E<sup>GA</sup>, Y Patel, RD Johnson, **KJ Otto**. The Effects of Targeted Vagus Nerve Stimulation on Glucose Homeostasis in STZ- Induced Diabetic Rodents. *Frontiers in Neuroscience*, 17:1179276. doi: 10.3389/fnins.2023.1179276. 2023.
  7. Urdaneta ME<sup>GA</sup>, NG Kunigk<sup>UA</sup>, JD Peñaloza-Aponte<sup>GA</sup>, S Currllin<sup>G</sup>, SI Fried, **KJ Otto**. Layer-dependent stability of intracortical recordings and neuronal cell loss. *Frontiers in Neuroscience*, 17:1096097. doi: 10.3389/fnins.2023.1096097. 2023.
  8. Cruz, CJ, L Dewberry<sup>G</sup>, **KJ Otto**, **KD Allen**. Neuromodulation as a Potential Disease-Modifying Therapy for Osteoarthritis. *Current Rheumatology Reports*, 25 (1), 1-11. 2023.
  9. Atkinson E<sup>GA</sup>, CA Kuliasha, M Kasper M, AS Lim<sup>G</sup>, LG Jiracek-Sapieha<sup>&A</sup>, AM Brake<sup>UA</sup>, A Gormaley<sup>UA</sup>, VG Rivera-Llabres, I Singh, BS Spearman, CM Rinaldi-Ramos, CE Schmidt, JW Judy, **KJ Otto**. Examining the in vivo Functionality of the Magnetically Aligned Regenerative Tissue-Engineered Electronic Nerve Interface (MARTEENI). *Journal of Neural Engineering*, 19 (5), 056010. 2022.
  10. Kunigk NG<sup>UA</sup>, Urdaneta ME<sup>GA</sup>, **KJ Otto**. Reducing behavioral detection thresholds per electrode via synchronous, spatially-dependent intracortical microstimulation. *Frontiers in Neuroscience*. Jun 17;16:876142. doi: 10.3389/fnins.2022.876142. PMID: 35784835; PMCID: PMC9247280. 2022.
  11. Urdaneta ME<sup>GA</sup>, NG Kunigk<sup>UA</sup>, S Currllin<sup>G</sup>, F Delgado<sup>PA</sup>, SI Fried, **KJ Otto**. The long-term stability of intracortical microstimulation and the foreign body response are layer dependent. *Frontiers in Neuroscience*. 13 June, 2022, 16:908858; DOI: 10.3389/fnins.2022.908858. 2022.
  12. Malone I<sup>G</sup>, M Kelly, R Nosacka, M Nash, S Yue, W Xue, **KJ Otto**, **E Dale**. Closed-loop cervical epidural stimulation elicits respiratory neuroplasticity after spinal cord injury in freely behaving rats. *eNeuro*. 20 January 2022, 9 (1) ENEURO.0426-21.2021; DOI: 10.1523/ENEURO.0426-21.2021. 2022.
  13. Kasper M, B Ellenbogen, R Hardy, M Cydis, J Mojica-Santiago, A Afridi, BS Spearman, I Singh, CA Kuliasha, E Atkinson<sup>GA</sup>, **KJ Otto**, JW Judy, C Rinaldi, **CE Schmidt**. Development of a magnetically aligned regenerative tissue-engineered electronic nerve interface for peripheral nerve applications. *Biomaterials*. 279, 121212, 2021.
  14. Saldanha, RL<sup>UA</sup>, ME Urdaneta<sup>GA</sup>, **KJ Otto**. The role of electrode-site placement in the long-term stability of intracortical microstimulation. *Frontiers in Neuroscience*. Aug 1;126(2):607-626. doi: 10.1152/jn.00625.2020. Epub 2021 Jul 7. PMID: 34232771; PMCID: PMC8409953. 2021.
  15. Olczak K<sup>GA</sup>, **KJ Otto**. The role of ascorbic acid oxidation during neural stimulation. *Journal of The Electrochemical Society*. 168 (8), 085501. 2021.

16. Altidor, LK-P, MM Bruner, JF Deslauriers, TS Garman, SRamirez, DG Lamb, EW Dirr<sup>GA</sup>, KP Olczak<sup>GA</sup>, AP Maurer, **KJ Otto**, SN Burke, AV Bumanglag, B Setlow, JL Bizon. Acute vagus nerve stimulation enhances reversal learning in rats. *Neurobiology of Learning and Memory*. 185, 107498. 2021.
17. Malone I<sup>G</sup>, R Nosacka, **KJ Otto**, E Dale. Electrical epidural stimulation: Implications for spinal respiratory plasticity after spinal cord injury. *Journal of Neurophysiology*. Aug 1;126(2):607-626. doi: 10.1152/jn.00625.2020. Epub 2021 Jul 7. PMID: 34232771; PMCID: PMC8409953. 2021.
18. Abuid, NJ, ME Urdaneta<sup>GA</sup>, KM Gattas-Asfura, C Zientek, CI Silgo, JA Torres, **KJ Otto**, CL Stabler. Engineering the multienzymatic activity of cerium oxide nanoparticle coatings for the antioxidant protection of implants. *Advanced NanoBiomed Research*. 2100016; 1-16. 2021. <https://onlinelibrary.wiley.com/doi/pdf/10.1002/anbr.202100016>
19. Vedam-Mai V, K Deisseroth, JJ Giordano, G Lazaro-Munoz, W Chiong, N Suthana, J-P Langevin, J Gill, W Goodman, NR Provenza, CH Halpern, RS Shivacharan, TN Cunningham, SA Sheth, N Pouratian, KW Scangos, HS Mayberg, A Horn, KA Johnson, C Butson, R Gilron, C de Hemptinne, R Wilt, M Yaroshinsky, S Little, P Starr, G Worrell, P Shirvalkar, E Chang, J Volkmann, M Muthuraman, S Groppa, AA Kühn, L Li, W Hu, MD Johnson, **KJ Otto**, R Raike, SM Goetz, C Wu, P Silburn, B Cheeran, Y Pathak, M Malekmohammadi, A Gunduz, JK Wong, S Cernera, AW Shukla, A Ramirez-Zamora, W Deeb, KD Foote, A Patterson, MS Okun. Proceedings of the Eighth Annual Deep Brain Stimulation Think Tank: Advances in optogenetics, ethical issues affecting DBS research, neuromodulatory approaches for depression, adaptive neurostimulation, emerging DBS technologies. *Frontiers in Human Neuroscience*. 15 169, 2021. <https://doi.org/10.3389/fnhum.2021.644593>
20. Urdaneta, ME<sup>GA</sup>, NG Kunigk<sup>UA</sup>, F Delgado<sup>PA</sup>, SI Fried, **KJ Otto**. Layer-specific parameters of intracortical microstimulation of the somatosensory cortex. *Journal of Neural Engineering*. 18 055007. 2021. <https://iopscience.iop.org/article/10.1088/1741-2552/abedde>
21. Kundu A, A Fahmy, R Madler, **K Otto**, E Patrick, J Principe, N Maghari, R Bashirullah. A multi-channel peripheral nerve stimulator with integrate-and-fire encoding. *Journal of Medical Engineering & Technology*. 45(3); 187-196. 2021. DOI: 10.1080/03091902.2021.1891311.
22. Dewberry, LS<sup>G</sup>, AB Dru, M Gravenstine<sup>UA</sup>, B Nguyen<sup>UA</sup>, J Anderson, S Vaziri, DJ Hoh, KD Allen, **KJ Otto**. Partial high frequency nerve block decreases neuropathic signaling following chronic sciatic nerve constriction injury. *Journal of Neural Engineering*. 18, 026009. 2021. <https://iopscience.iop.org/article/10.1088/1741-2552/abf03>
23. Sunshine MD, AM Cassarà, E Neufeld, N Grossman, TH Mareci, **KJ Otto**, ES Boyden, DD Fuller. Restoration of breathing after opioid overdose and spinal cord injury using temporal interference stimulation. *Communications Biology*. 4(1); 1-15. 2021. <https://www.nature.com/articles/s42003-020-01604-x>

24. Lester LE<sup>U</sup>, EW Dirr<sup>GA</sup>, **KJ Otto**. Design of pulse oximeter solution for conscious rodents. *UF Journal of Undergraduate Research*. Vol 22. 2020.  
<https://doi.org/10.32473/ufjur.v22i0.121740>
25. Esquibel, CR, KD Wendt, HC Lee<sup>GA</sup>, J Gaire<sup>GA</sup>, A Shoffstall, ME Urdaneta<sup>GA</sup>, JV Chacko, SK Brodnick, **KJ Otto**, JR Capadona, JC Williams, KW Eliceiri. Second harmonic generation imaging of collagen in chronically implantable electrodes in brain tissue. *Frontiers in Neuroscience*. 14:95. 2020.
26. **Otto, KJ** and CE Schmidt. Neuron-targeted electrical modulation. *Science*. 367 (6484): 1303-1304. 2020.
27. Olczak, KP<sup>GA</sup>, M McDermott<sup>GA</sup>, **KJ Otto**. Electrochemical Evaluation of Layer-by-Layer Drug Delivery Coating for Neural Interfaces. *ACS Applied Bio Materials*. 2 (12), 5597-5607. 2019.
28. Ereifej E, C Shell, J Schofield, H Charkhkar, I Cuberovic, A Dorval, E Graczyk, T Kozai, **K Otto**, D Tyler, C Welle, A Widge, J Zariffa, C Moritz, D Bourbeau, P Marasco. Neural engineering: the process, applications, its role in the future of medicine. *Journal of Neural Engineering*. 16 (6), 063002. 2019.
29. Verplancke R, M Cauwe, D Schaubroeck, D Cuypers, B Vandecasteele, L Mader, C Vanhaverbeke, M Ballini, J O'Callaghan, E Goikoetxea, D Braeken, A Kundu, E Patrick, N Maghari, **KJ Otto**, R Bashirullah, M Op de Beeck. Development of an active high-density transverse intrafascicular micro-electrode (hd-TIME) probe. *Journal of Micromechanics and Microengineering*. 30 (1), 015010, 2019.
30. Snyder MP, S Lin, A Posgai, M Atkinson, A Regev, J Rood, O Rozenblatt-Rosen, L Gaffney, A Hupalowska, R Satija, N Gehlenborg, J Shendure, J Laskin, P Harbury, NA Nystrom, JC Silverstein, Z Bar-Joseph, K Zhang, K Börner, Y Lin, R Conroy, D Procaccini, AL Roy, A Pillai, M Brown, ZS Galis, L Cai, C Trapnell, D Jackson, G Nolan, WJ Greenleaf, S Plevritis, S Ahadi, SA Nevins, H Lee, C M Schuerch, S Black, VG Venkataramanan, E Esplin, A Horning, A Bahmani, X Sun, S Jain, J Hagood, G Pryhuber, P Kharchenko, B Bodenmiller, T Brusko, M Clare-Salzler, H Nick, **K Otto**, C Wasserfall, M Jorgensen, M Brusko, S Maffioletti, RM Caprioli, JM Spraggins, D Gutierrez, NH Patterson, EK Neumann, R Harris, M deCaestecker, AB Fogo, R van de Plas, K Lau, G-C Yuan, Q Zhu, R Dries, P Yin, SK Saka, JY Kishi, Y Wang, I Goldaracena, D Ye, KE Burnum-Johnson, PD Piehowski, C Ansong, Y Zhu, T Desai, J Mulye, P Chou, M Nagendran. The human body at cellular resolution: the NIH Human Biomolecular Atlas Program. *Nature*. 574 (7777), 187, 2019.
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124. Regele O<sup>UA</sup>, JH Brenner<sup>UA</sup>, AS Koivuniemi<sup>GA</sup>, **KJ Otto**. The role of Pulse Rate and Stimulation Depth in Lowering Detection Thresholds for Auditory Cortex Prostheses. *Undergraduate Research Poster Symposium*, Purdue University. West Lafayette, IN. 2012.
125. Brenner J<sup>UA</sup>, AS Koivuniemi<sup>GA</sup>, **KJ Otto**. The Role of Interphase Delay in Detection of Brain Microstimulation. *Undergraduate Research Poster Symposium*, Purdue University. West Lafayette, IN. 2012.
126. Desai H<sup>UA</sup>, AJ Woolley<sup>PA</sup>, MA Steckbeck<sup>UA</sup>, N Patel<sup>UA</sup>, **KJ Otto**. Investigating the oligodendrocyte response to implanted microelectrode arrays. *Society for Neuroscience Abstracts*. Washington DC. 2011.

127. Woolley AJ<sup>PA</sup>, Desai H<sup>UA</sup>, **KJ Otto**. *In vivo* assessment of tissue surrounding brain-implanted microelectrodes using a cranial window. *Society for Neuroscience Abstracts*. Washington DC. 2011.
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129. Regele OB<sup>GA</sup>, AS Koivuniemi<sup>GA</sup>, **KJ Otto**. The role of pulse rate and waveform shape in lowering detection thresholds for auditory cortex prostheses. *Proceedings of the 22<sup>nd</sup> annual Biomedical Engineering Society*. Hartford, CT. 2011.
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132. Koivuniemi AS<sup>GA</sup>, JH Brenner<sup>UA</sup>, OB Regele<sup>UA</sup>, **KJ Otto**. Effects of stimulus waveform and electrode depth on detection of cortical microstimulation. *Joint meeting of the American Society for Clinical Investigators and Association of American Physicians*. Chicago, IL. 2011.
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134. Clark JV<sup>UA</sup>, AS Koivuniemi<sup>GA</sup>, **KJ Otto**. Modeling of cortical pyramidal cells for behavior prediction. *Undergraduate Research Poster Symposium*, Purdue University. West Lafayette, IN. 2011.
135. Desai HA<sup>UA</sup>, AJ Woolley<sup>GA</sup>, MA Steckbeck<sup>UA</sup>, NK Patel<sup>UA</sup>, **KJ Otto**. Characterizing the brain tissue response to implanted microelectrodes using a novel technique. *Undergraduate Research Poster Symposium*, Purdue University. West Lafayette, IN. 2011.
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142. Koivuniemi AS<sup>GA</sup>, SJ Wilks<sup>GA</sup>, **KJ Otto**. Evaluation of auditory cortical microstimulation in behaving rats. *Society for Neuroscience Abstracts*. San Diego, CA. 2010.
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147. Wilks SJ<sup>GA</sup>, AS Koivuniemi<sup>GA</sup>, **KJ Otto**. Microelectrode coating performance of PEDOT versus IrOx for chronic neural stimulation. *Neural Interfaces Conference*. Long Beach, CA. 2010.
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149. Desai H<sup>UA</sup>, AJ Woolley<sup>GA</sup>, MA Steckbeck<sup>UA</sup>, N Patel<sup>UA</sup>, **KJ Otto**. Investigating the glial cell response around microelectrodes in brain tissue. *Undergraduate Research Poster Symposium, Purdue University*. West Lafayette, IN. 2010.



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165. **Otto KJ**, RD Muir<sup>GA</sup>, NI Onunkwo<sup>GA</sup>, SJ Wilks<sup>GA</sup>, JM Colby<sup>&A</sup>. Electrode-tissue interface estimation and manipulation for a cortical prosthesis. *Society for Neuroscience Abstracts*. San Diego, CA. 2007.
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**Publications: Ph.D. Dissertation (Daryl R. Kipke, advisor)**

1. Intracortical microstimulation for sensory inputs in brain-machine interfaces: Arizona State University Department of Bioengineering. 2003

**Publications: books and chapters in books**

1. Olczak KP<sup>GA</sup> and **KJ Otto** (2020). Coatings for Microneural Implants: Electrical Considerations. In N. v Thakor (Ed.), *Handbook of Neuroengineering* (pp. 1–34). Springer Singapore. [https://doi.org/10.1007/978-981-15-2848-4\\_7-1](https://doi.org/10.1007/978-981-15-2848-4_7-1)
2. Olczak KP<sup>GA</sup> and **KJ Otto** (2020) Coatings for Microneural Implants: Biological and Mechanical Considerations. In N. v Thakor (Ed.), *Handbook of Neuroengineering* (pp. 1–38). Springer, Singapore. [https://doi.org/10.1007/978-981-15-2848-4\\_132-1](https://doi.org/10.1007/978-981-15-2848-4_132-1)
3. Koivuniemi AS<sup>GA</sup>, **KJ Otto**. (2017). Central nervous system stimulation. In K. Horch and D.R. Kipke (Eds.), *Neuroprosthetics: Theory and Practice* (pp. 348-376). ISBN: 978-9813207141. World Scientific Publishing Company; 2 edition, USA.
4. Camarillo IG, F Xiao, S Madhivanan, T Salameh, M Nichols, LM Resse, JF Leary, **K Otto**, A Natarajan, A Ramesh, **R Sundararajan**. (2014). Low and high voltage electrochemotherapy for breast cancer: an *in vitro* model study. In R Sundararajan (Ed.), *Electroporation-based therapies for cancer: From basics to clinical applications* (pp. 55-99). ISBN: 978-1-907568-15-2. Woodhead Publishing, USA.
5. **Otto KJ**, KA Ludwig, **DR Kipke**. (2012). Acquiring Brain Signals from Within the Brain. In J Wolpaw and EW Wolpaw (Eds.), *Brain-Computer Interfaces: Principles and Practice* (pp. 81-105). ISBN-13: 978-0195388855. Oxford University Press, USA.

**Publications: editorials**

1. Orazem, ME and **KJ Otto**. Electrochemistry in Action - Engineering the Neuronal Response to Electrical Microstimulation. *Electrochemical Society Interface* 32 (40), 2023.
2. **Otto KJ** and **CE Schmidt**. Neuron-targeted electrical modulation. *Science*, 367 (6484), 1303-1304. 2020.
3. **Otto KJ** and **JC Williams**. Normal and accelerated failure assessment of novel in vitro and in vivo neural interfaces. *IEEE Pulse*, 3 (1), 27. 2012.

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### **Technology Transfer**

#### **Patent Granted**

Stimulating Spinal Cord Motor Neurons Using Electrical Signals, DD Fuller, **KJ Otto**, MD Sunshine, 11/08/2022. US011491325B2.

Tissue-Engineered Electronic Peripheral Nerve Interface, J Judy, CE Schmidt, **KJ Otto**, C Rinaldi, CA Kuliasha, 07/05/2022. US11376005B2.

MK2 Inhibitor Compositions and Methods to Enhance Neurite Outgrowth, Neuroprotection, Nerve Regeneration, A Panitch, **KJ Otto**, N Onunkwo<sup>GA</sup>, AJ Woolley<sup>GA</sup>, 02/13/2018. US20110052658A1.

#### **Patent Pending**

Peripheral Nerve Modulator and Methods Relating to Peripheral Nerve Modulation. A Dru, KD Allen, K Otto, LS Dewberry, 09/06/2019.

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### **Invited presentations – 108 total**

1. “Neuroengineering approaches for enhanced bioelectronic medicine and neuroprostheses.” Feinsein Visiting Professor Lecture Series, The Feinsein Institutes for Medical Research. Manhasset, NY, 2024.
2. “Neuroengineering at the interface of implantable devices and clinically practical performance.” Engineering Minds Invited Speaker, Rice University Neuroengineering Initiative. Houston, TX, 2024.
3. “How can neuroengineering approaches provide for enhanced central and peripheral neural system neuromodulation?” Bioengineering Elevated Talk, University of Utah Department of Bioengineering Seminar Series. Salt Lake City, UT, 2024.
4. “Influence of Mass Transfer for the Transient Response of Ultra-Microelectrodes to Potential and Current Transients.” 2023 American Institute of Chemical Engineers Annual Meeting Abstracts. Orlando, FL, 2023. Presented by CC Ezeh.
5. “Ultra-microelectrodes for Enhanced Biocompatibility: Leveraging Electrochemical Impedance Spectroscopy.” UF Biomaterials Day, Gainesville, FL, 2023. Presented by A Vela<sup>G</sup>.

6. “Pancreatic Neuromodulation to Treat Diabetes.” Bioelectronic Medicine Summit, Long Island, NY, 2022.
7. “Engineering the neuronal response to electrical microstimulation.” University of Florida Local Chapter of the Biomedical Engineering Society General Body Meeting, Virtual, 2022.
8. “Electrochemical Characterization of MARTEENI Devices Integrating Sputtered Iridium Oxide.” Biomedical Engineering Society Annual Meeting, Virtual, 2021. Presented by AS Lim<sup>G</sup>.
9. “Contact resistance to characterize PEDOT:PSS interface for neural microelectrodes.” Biomedical Engineering Society Annual Meeting, Virtual, 2021. Presented by E San Antonio<sup>U</sup>.
10. “Neuroprosthetic Device Design, Assessment, Manipulation.” Department of Biomedical Engineering Graduate Seminar Series, New Jersey Institute of Technology, Virtual, 2021.
11. “Implantable Neuroprostheses: Upgrade your Brain!” Academy for Mathematics, Science, Engineering, Morris Hills High School, Rockaway NJ, Virtual, 2021.
12. “Engineering the neuronal response to electrical microstimulation.” Department of Biomedical Engineering Graduate Seminar Series, University of Arizona, Virtual, 2021.
13. “UF-GAINS Gainesville Academic Integration through Science.” Leaders in Action, Disrupting Inequity, University of Florida Leadership Network, Virtual 2020.
14. “Electrical microstimulation via micro- and ultra-microelectrodes.” NeuroNexus Technologies Symposium for Neurotechnologies, Virtual, 2020.
15. “Is neural microstimulation via ultra-microelectrode arrays possible?” University of Miami 4<sup>th</sup> Annual Neural Engineering Symposium, Virtual, 2020.
16. “Engineering the neuronal response to electrical microstimulation.” DBS “Virtual” Think Tank VIII, Virtual, 2020.
17. “*DeepHisto*: A Technique to Assess the Foreign Body Response of Chronically Implanted Microelectrodes across Cortical Depth.” Biomedical Engineering Society Annual Meeting, Virtual, 2020. Presented by ME Urdaneta<sup>GA</sup>.
18. “An Invisible Electromechanical Layer of PSS Polymer Surrounds PEDOT:PSS Microwires.” Biomedical Engineering Society Annual Meeting, Virtual, 2020. Presented by K Yang<sup>U</sup>.
19. “Neuroprosthesis Development for Injuries, Diseases, Bioelectronic Medicine.” Center for Respiratory Research and Rehabilitation, University of Florida, Gainesville, FL, 2020.

20. “The Design, Assessment, Manipulation of Microscale Neuroprosthetic Devices.” Biomedical Engineering Seminar Series, University of Florida, Gainesville, FL, 2019.
21. “*In situ*” Electrodeposition of P(EDOT-acid) in Rat Sciatic Nerve for Selective Stimulation. Biomedical Engineering Society Annual Meeting, Philadelphia, PA. 2019. Presented by J Murbach<sup>GA</sup>.
22. “Neuroprosthetic Interface Design, Assessment, Manipulation.” Dept. of Physiology of Cognitive Processes Seminar Series, Max Planck Institute for Biological Cybernetics, Tuebingen, Germany. 2019.
23. “Targeted Vagus Nerve Stimulation Does Not Disrupt Cardiac Function in the Diabetic Rat.” 41st Annual IEEE EMBS International Conference, Berlin, Germany. 2019. Presented by E Dirr<sup>GA</sup>.
24. “Somatosensory Cortex Microstimulation: Behavioral Effects of Phase Duration and Asymmetric Waveforms.” 41st Annual IEEE EMBS International Conference. Berlin, Germany, 2019. Presented by M Urdaneta<sup>GA</sup>.
25. “Engineering an End to Type 1 Diabetes.” Herbert Wertheim College of Engineering Birthday Celebration. Gainesville, FL. 2019.
26. “Novel Kilohertz Frequency Neuromodulation for Fiber Selective Blockade of Sciatic Pain in a Rat Model.” American Association of Neurological Surgeons Annual Meeting. San Diego, CA, 2019. Presented by A Dru.
27. “Explore the effect of Sharklet® and Channels Microtopographies to Control Cellular Responses on Peripheral Nerve Interface.” Tissue Engineering & Regenerative Medicine International Society, Rhodes, Greece, 2019. Presented by S Mobini.
28. “Neuroprosthetic Devices: Design, Assessment, Manipulation.” NeuroNexus Research Presentation, Society for Neuroscience Annual Meeting, San Diego, CA. 2019
29. “Design, Assessment, Manipulation of Neuroprosthetic Devices.” Translational Tissue Engineering and Regenerative Medicine Lecture Series. University of Pennsylvania, Philadelphia, PA. 2019.
30. “Chronic Pancreatic Neuromodulation for the Control of Blood Glucose.” Biomedical Engineering Society Annual Meeting, Atlanta, GA. 2018. Presented by E Dirr<sup>GA</sup>.
31. “Design and assessment of stimulation parameters for a novel peripheral nerve interface.” 40th Annual IEEE EMBS International Conference, Honolulu, HI. 2018.
32. “Effect of Asymmetric, Charge Balanced Stimuli on Elicited Compound Neural Action Potentials.” 40th Annual IEEE EMBS International Conference, Honolulu, HI. 2018.

33. “The need for subcellular neural interfaces for neuromodulation and recording.” 40th Annual IEEE EMBS International Conference, Honolulu, HI. 2018.
34. “Pancreatic Neuromodulation in a Diabetic Rat Model.” 40th Annual IEEE EMBS International Conference, Honolulu, HI. 2018.
35. “Neuroprosthetic Devices: Design, Assessment, Manipulation.” Biomedical Engineering Seminar Series. University of Miami, Miami, FL, 2018.
36. “Electrical Evaluation Of Micro-Electrode Arrays Coated With Thin Films For Minocycline Release.” Biomedical Engineering Society Annual Meeting. Phoenix, AZ. 2017. Presented by KP Olczak<sup>GA</sup>.
37. “Investigating the Role of Inflammation in the Functionality of Intracortical Devices.” Biomedical Engineering Society Annual Meeting. Phoenix, AZ. 2017. Presented by J Gaire<sup>GA</sup>.
38. “In Vivo Validation of a flexible CMOS-compatible Neural Interface.” Biomedical Engineering Society Annual Meeting. Phoenix, AZ. 2017. Presented by A Kundu.
39. “Understanding Fiber Recruitment of Peripheral Nerves During Intrafascicular Stimulation via Computational Modeling.” Biomedical Engineering Society Annual Meeting. Phoenix, AZ. 2017. Presented by E Patrick.
40. “Neural Engineering.” Student Science Training Program, University of Florida, Gainesville, FL, 2017.
41. “Neural Prostheses and You!” Engineering Week, University of Florida, Gainesville, FL. 2017.
42. “Quadruple labelled mouse to study tissue response to brain implanted devices.” Biomedical Engineering Society Annual Meeting. Minneapolis, MN. 2016. Presented by J Gaire<sup>GA</sup>.
43. “What’s Right and What’s Wrong with Micro-neural Interfaces?” School of Biological & Physical Sciences Seminar Series, Daytona State College, Daytona Beach, FL. 2016.
44. “Towards Reliable Neural-Interface Technology Using Penetrating Micro-devices.” 13<sup>th</sup> Annual World Congress of the Society for Brain Mapping & Therapeutics. Miami, FL. 2016.
45. “Neuroengineering the interface of micro-devices with the brain.” Invited Keynote Presentation, International Biomedical Engineering Conference. Gyeongju, Korea, 2015.
46. “Inflammation and Neural Implants.” Neurotech Dinners, University of Florida. Gainesville, FL, 2015.



47. “Systemic assessment of markers of inflammation to intracortical microelectrodes.” Biomedical Engineering Society Annual Meeting. Tampa, FL. 2015. Presented by J Gaire<sup>GA</sup>.
48. “The cellular role of cortical neuroprosthetic failure.” Department of Neuroscience Seminar Series, University of Florida. Gainesville, FL, 2014.
49. “NeuroProstheses in Biomedical Engineering and Regenerative Medicine.” First International Congress on Biomedical Engineering & Mathematical Modeling in Biosciences, Quito, Ecuador, 2014.
50. “*In Vitro* and *In Vivo* Evaluation of Neural Interfaces.” Tissue Response to Active Medical Devices Conference, Herndon, VA, 2014.
51. “Controlled Protein Release via Thin Film Tetramethyl Orthosilicate Sol-Gel for Mitigation of the Reactive Tissue Response to Chronically Implanted Central Nervous System Devices.” The 7<sup>th</sup> International Symposium on Intelligent Drug Delivery Systems, Seoul, South Korea, 2014.
52. “Micro-neural Interfaces.” Biomedical Engineering Seminar Series, University of Texas at Dallas, Richardson, TX, 2014.
53. “On the Performance Dependence of the Neural Microdevice-Tissue Interface” Center of Neural Engineering and Computation Research Seminar Series, Columbia University, New York City, NY, 2014.
54. “Neuroengineering the Interface of Micro-devices with the Brain.” Biomedical Engineering Seminar Series, University of Florida, Gainesville, FL, 2014.
55. “Normal and Accelerated Failure Assessment of New Quantitative *In Vitro* and *In Vivo* Neural Interfaces.” DARPA RE-NET PI Review Meeting, Phoenix, AZ 2014.
56. “Microstimulation of Sensory Cortices and Mitigation of Degradation in Neural-Tissue Interfacial Quality.” Affinity Research Collaborative Seminar Series, Beth Israel Deaconess Medical Center, Harvard Medical School, 2013.
57. “Chronic Microstimulation and Neural-Tissue Interfacial Quality.” JAX-Purdue Engineers Symposium, The Jackson Laboratory, Bar Harbor, Maine, 2013.
58. “Chronic Microstimulation and Neural-Tissue Interfacial Quality.” Biomedical Engineering Seminar Series, University of Delaware, 2013.
59. “On the Relationship of Chronic Microstimulation and Neural-Tissue Interfacial Quality.” Seminars in Hearing Research, Purdue University. West Lafayette, IN, 2013.
60. “Electrical Waveform Parameters for ICMS of the Brain.” Center for Sensorimotor Neural Engineering Technical Workshop: Microelectrode Technology. Seattle, WA, 2013.

61. “Multiscale bidirectional neural interfaces for comprehensive central nervous system interface reliability improvement.” DARPA RE-NET PI Review Meeting, New Orleans, LA, 2012.
62. “Normal and Accelerated Failure Assessment of New Quantitative *In Vitro* and *In Vivo* Neural Interfaces.” DARPA RE-NET PI Review Meeting, New Orleans, LA, 2012.
63. “Optimal Depth, Waveform, Rate for Electrical Stimulation of Auditory Cortex.” The 23<sup>rd</sup> Annual Meeting of the Biomedical Engineering Society. Atlanta, GA, 2012.
64. “Towards Optimal Parametric Identification for Electrical Microstimulation of the Auditory Cortex.” The Annual Conference of the International Functional Electrical Stimulation Society. Banff, Canada, 2012.
65. “The Depth, Waveform and Pulse Rate for Electrical Microstimulation of the Auditory Cortex.” IEEE International Conference of the Engineering in Medicine & Biological Science. San Diego, CA, 2012.
66. “*In vivo* Imaging of Microelectrode Arrays Implanted in the Cortex: A Novel Preparation to Investigate Longitudinal Reliability.” IEEE International Conference of the Engineering in Medicine & Biological Science. San Diego, CA, 2012.
67. “Normal and Accelerated Failure Assessment of New Quantitative *In Vitro* and *In Vivo* Neural Interfaces.” 40<sup>th</sup> Neural Interfaces Conference. Salt Lake City, Utah, 2012.
68. “Parameters of Cortical Microstimulation for Brain-Machine Interface Feedback.” The 22<sup>nd</sup> Annual Conference of the Society for the Neural Control of Movement. Venice, Italy, 2012.
69. “Reliable Neural Interfacing with Micro-Devices.” The 6<sup>th</sup> International Symposium on Intelligent Drug Delivery Systems, Seoul, South Korea, 2012.
70. “Waveform and pulse rate affect behavioral detection threshold of intracortical microstimulation.” The 36<sup>th</sup> Annual Midwinter Meeting of the Association for Research in Otolaryngology, San Diego, CA, 2012. Presented by A Koivuniemi<sup>GA</sup>.
71. “Normal and Accelerated Failure Assessment of New Quantitative *In Vitro* and *In Vivo* Neural Interfaces.” DARPA RE-NET PI Review Meeting, Austin, TX, 2011.
72. “On the Reliability of Longitudinal Cortical Microstimulation.” The 22<sup>nd</sup> Annual Meeting of the Biomedical Engineering Society. Hartford, CT, 2011.
73. “Reliable Chronic Neural Interfacing Via Micro-Devices.” Biological Sciences Departmental Seminar Series, Purdue University, West Lafayette, IN, 2011.
74. “Normal and Accelerated Failure Assessment of New Quantitative *In Vitro* and *In Vivo* Neural Interfaces.” DARPA Neural Engineering, Science, Technology Forum, San Diego, CA, 2010.

75. "Neural-Tissue Interfacial Quality Effects on the Efficacy of Chronic Microstimulation." Biomedical Engineering Seminar Series, University of Wisconsin, 2010.
76. "The Effect of Interfacial Quality on Chronic Neural Microstimulation." Biomedical Engineering Seminar Series, University of Iowa, 2010.
77. "Chronic Neural Microstimulation: the Effect of Interfacial Quality." Chemical and Biological Engineering Seminar Series, Colorado State University, 2010.
78. "Reliable Chronic Neural Stimulation via Micro-devices." Brain Machine Interfaces: Implications for Science, Clinical Practice and Society, Ystad Saltsjöbad, Sweden, 2010.
79. "Strategies for Improving Chronic Neural Microelectrode Interfaces." The Weldon School of Biomedical Engineering Seminar Series, Purdue University, West Lafayette, IN, 2010.
80. "Micro-Electrocorticographic Electrodes for Stimulation Neuroprostheses." The 20th Annual Meeting of the Biomedical Engineering Society. Pittsburgh, PA, 2009. Presented by S Wilks<sup>GA</sup>.
81. "The Application of Bias Potentials for Manipulation of the Neural Electrode-Tissue Interface." The 20th Annual Meeting of the Biomedical Engineering Society. Pittsburgh, PA, 2009.
82. "Neural Microdevices." Alpha Eta Mu Beta Engineering Devices and Research Session, the 20th Annual Meeting of the Biomedical Engineering Society. Pittsburgh, PA, 2009.
83. "Strategies for Improving Chronic Neural Interfaces with Microelectrodes." The Bioengineering Department Seminar Series, University of Illinois at Chicago, Chicago, IL, 2009.
84. "Evaluation of Micro-Electrocorticographic Electrodes for Electrostimulation." The 31st Annual IEEE EMBS International Conference. Minneapolis, MN, 2009. Presented by S Wilks<sup>GA</sup>.
85. "*In Vitro* and *In Vivo* Investigations of AC Waveforms for Manipulation of Chronic Neural Interfaces." The 19<sup>th</sup> Annual Meeting of the Biomedical Engineering Society, St. Louis, MO, 2008.
86. "Measurement, Manipulation and Imaging of Chronic Neural Interfaces with Microelectrodes." Advanced Imaging Group Seminar Series, University of Wisconsin, 2008.
87. "Cortical Microstimulation for Neural Prostheses." Summer Undergraduate Research Seminar Series, Purdue University, 2008.

88. "Measurement and Manipulation of Chronic Neural Interfaces with Microelectrodes." Auditory Research Group Seminar Series, Southern Illinois University School of Medicine, 2008.
89. "Stimulating Sensory Neuroprostheses." Center for Neural Communication Technology Summit Meeting, University of Michigan, 2007.
90. "Microstimulation and the Reactive Tissue Response with Chronically Implanted Neuroprosthetic Devices." The Wadsworth Center, Albany, NY, 2007.
91. "Microstimulation and the Reactive Tissue Response." Workshop on Brain Machine Interfaces, International Joint Conference on Neural Networks, Orlando, FL, 2007.
92. "Electrode-Tissue Interface Estimation and Manipulation for a Cortical Prosthesis." Indiana University-Purdue University Indianapolis, 2007.
93. "Neuroprostheses: Helping People Hear." Local Biomedical Engineering Society Meeting, Purdue University, 2007.
94. "Intracortical Neuroprostheses: Playing Well With Others." PULSe Seminar Series, Purdue University, 2007.
95. "The Optimal Stimulation Depth for an Auditory Cortical Prosthesis." The 36<sup>th</sup> Annual Meeting of the Society for Neuroscience, Atlanta, GA, 2006.
96. "The Function of the Electrode-Tissue Interface for an Auditory Cortical Prosthesis." The 17<sup>th</sup> Annual Meeting of the Biomedical Engineering Society, Chicago, IL, 2006.
97. "Auditory Cortex Implants." Purdue Acoustics Research Community Workshop, Purdue University, 2006.
98. "Rejuvenation and Neural Interface Improvement in Bidirectional Neural Prostheses." NeuroengineeringNow Conference, University of Texas at Dallas, 2006.
99. "Toward an Auditory Cortical Prosthesis." The Department of Speech, Language and Hearing Sciences Brown Bag Lunch Seminar Series, Purdue University, West Lafayette, IN, 2006.
100. "Cortical Microstimulation and Brain-Machine Interfaces for Neuroprosthesis Applications." Department of Biological Sciences Invited Speaker, Purdue University, 2005.
101. "Auditory Prostheses." Special Lectures in Neuroscience Series, Purdue University, 2005.

102. “Microstimulation in Auditory Cortex Provides a Substrate for Detailed Behaviors.” Hearing, Balance and Chemical Senses Seminar Series Invited Speaker, Kresge Hearing Research Institute, University of Michigan, 2004.
103. “Brain-Machine Interfaces in Rat Motor Cortex: Implications of Adaptive Decoding Algorithms.” IEEE-EMBS 1<sup>st</sup> Annual Neural Engineering Conference, Capri, Italy, 2003.
104. “The Benefits of Modular Brain-Machine Interface System Design.” The 25<sup>th</sup> Annual International Conference of the IEEE Engineering in Medicine and Biology Society, Cancun, Mexico, 2003.
105. “Introduction to Brain-Machine Communication Strategies.” Brain-Machine Interface Symposium, University of Michigan, 2002.
106. “Brain-Machine Interface Strategies and Implications.” DARPA Bio:Info:Micro 2<sup>nd</sup> Annual Principal Investigator’s Meeting Invited Talk, Washington DC, 2002.
107. “Cortical Control: History and Implications.” Biomedical Instrumentation and Design Course, University of Michigan, 2004.
108. “Investigating Neural Coding and Plasticity in Auditory Cortex using Real-Time Feedback from Ensemble Neural Recordings.” Computational Neuroscience Annual Meeting, Santa Barbara, CA, 1999.

### **Teaching**

#### **Teaching: Undergraduate Courses**

1. BME 4883 – Senior Design, Professionalism, Ethics II (University of Florida, Spring 2022)
2. BME 4931 – *Developed* – Bioelectronic Medicine (University of Florida, Spring 2020)
3. BME 4931 – Neural Engineering (University of Florida, Spring 2017, 2020)
4. BME 4509 – Quantitative Physiology (University of Florida, Fall 2016, 2017, 2018, 2019, 2020, 2021, Spring 2019, 2021 (co-taught))
5. BME 4931/6938 – *Developed* – Neural Instrumentation (University of Florida, Spring 2016)
6. BME 4503/BME 550 – Biomedical Instrumentation (University of Florida, Fall 2015)
7. BME 1008 – Introduction to Biomedical Engineering (University of Florida, Spring 2015)
8. BME 595-006 – *Developed* – Quantitative Physiology Seminar (Purdue University, Fall 2008, 2009)
9. BIOL 455 – *Developed* – Quantitative Physiology (Purdue University, Spring 2007)

#### **Teaching: Graduate Courses**

1. BME 6938 – *Developed* – Bioelectronic Medicine (University of Florida, Spring 2020)
2. BME 4931/6938 – *Developed* – Neural Instrumentation (University of Florida, Spring 2016)

3. BME 4503/5500 – Biomedical Instrumentation (University of Florida, Fall 2015)
4. BME 6936 – Biomedical Engineering Seminar (University of Florida, Spring 2015, 2021, Fall 2020)
5. BME 528/ECE 528 – Measurement & Stimulation of the Nervous System (Purdue University Spring 2013, 2014)
6. BIOL 695/PSY 633 – Special Lectures in Neuroscience: “Neural Stimulation for Neural Engineering”, (Purdue University, Fall 2010)
7. BME 695 – *Developed* – Neural Prostheses (Purdue University, Spring 2009, Fall 2009, Fall 2012)
8. BIOL 599 – Quantitative Physiology (Purdue University, Spring 2009 – 2014)
9. BIOL 595I – *Developed* – Quantitative Physiology (Purdue University, Spring 2008)
10. BIOL 696N/BME 595 – *Developed* – Neural Engineering and Neuroprostheses (Purdue University, Fall 2006)
11. BiomedE 599 – *Co-Developed* – Neural Engineering (University of Michigan, Fall, 2006)

### **Teaching: Panel Participant**

1. Preparing Future Faculty Panel (University of Florida, Fall 2022). As a panel of 4 faculty with academic administration responsibilities, we contributed to a discussion about “Faculty interview and hiring.” The goal was for participants to learn what the expectations are from different levels (example: department chair, Dean, Assoc. Dean).
2. BME 3012 – Clinically-Inspired Engineering Design (University of Florida, Spring 2020). As a panel of 5 clinicians and scientists we discussed a user friendly artificial pancreas. We talked about diabetes technology including what we used ourselves (3 of the 5 panelists were type 1 diabetics).

### **Teaching: Guest Lecturer**

1. PSYC 352, Neuroscience Methods Course, Augustana College, 2022, 2023.
2. “Creating and maintaining a system for managing an academic research laboratory.” NIH T32 Training Program in Neuromuscular Plasticity, University of Florida, 2020.
3. GMS 6029, Brain Journal Club, University of Florida, 2018.
4. GMS 7729, Neuroscience Seminar, University of Florida, 2018.
5. BME 1008, Introduction to Biomedical Engineering, University of Florida, 2015, 2016, 2018, 2019, 2020, 2021.
6. BME 5580, Microfluidics and BioMEMS, University of Florida, 2017
7. PHT 6935, Translational Approaches for Neurostimulation, University of Florida, 2015.

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## ***Mentoring***

### **Mentoring: Post-Doctoral Mentoring**

1. Scott Thourson, University of Florida – (2018 – 2020). Presently a Teaching Faculty I at Florida State University.
2. Frank Delgado, University of Florida – (2016 – 2018). Presently a Lead Reviewer and General Engineer at the Food and Drug Administration.

3. Hugh Lee, University of Florida – (2017 – 2017). Presently Assistant Professor at Washington University in St. Louis.
4. James Graham, University of Florida – (2016 – 2017). Presently a faculty member at Vanguard High School, Ocala, FL.
5. Andrew Woolley, Purdue University – (2011 – 2012). Presently a Principal Scientist at Bristol Myers Squibb, San Francisco, CA.

### **Mentoring: Doctoral Research – Major Professor**

1. Kelsey Sinclair, Biomedical Engineering, University of Florida (2023 – Present).
2. Elizabeth Olivo, Biomedical Engineering, University of Florida (2022 – Present).
3. Robert Claar Jr, Biomedical Engineering, University of Florida (2020 – Present).
4. Alexander Lim, Biomedical Engineering, University of Florida (2019 – Present).
5. David Hall, Biomedical Engineering, University of Florida (2019 – Present).
6. Lauren Savannah Dewberry, Biomedical Engineering, University of Florida (2017 – 2023). Presently a Post-Doctoral Fellow at Duke University, Durham, NC.
7. Hunter Hakimian, Biomedical Engineering, University of Florida (2018 – 2022). Presently an Assistant Scientist at Emory University, Atlanta, GA.
8. Ian Malone, Electrical & Computer Engineering, University of Florida (2017 – 2022). Presently a Data Scientist II at Meta Platforms Inc., Seattle, WA.
9. Seth Currin, Neuroscience, University of Florida (2015 – 2021). Currently a post-doctoral fellow Department of Pathology, Immunology and Laboratory Medicine, at the University of Florida, Gainesville, FL.
10. Eric Atkinson, Neuroscience, University of Florida (2015 – 2021). Presently a Scientific Program Analyst at the National Institutes of Health.
11. Elliott Dirr, Biomedical Engineering, University of Florida (2016 – 2021). Presently a post-doctoral fellow at the University of Cincinnati, Cincinnati, OH.
12. Jamie Murbach, Materials Science & Engineering, University of Florida (2016 – 2021). Presently a Senior Product Development Engineer at Amend Surgical, Inc., Gainesville, FL.
13. Kaitlynn Olczak, Biomedical Engineering, University of Florida (2015 – 2021). Presently a Senior Biomedical Engineer at PercuSense, Santa Clarita, CA.
14. Morgan Urdaneta, Neuroscience, University of Florida (2016 – 2020). Presently a Data Scientist at AvMed, Gainesville, FL.
15. Janak Gaire, Neuroscience, University of Florida (2012 – 08/2018). Presently a Research Assistant Scientist at the J. Crayton Pruitt Family Department of Biomedical Engineering, University of Florida, Gainesville, FL.
16. Matt McDermott, Biomedical Sciences Doctoral Track, Purdue University (2010 – 06/2017). Presently a Formulation Scientist at Spectrum Brands, Inc., Lakeland, FL.
17. Hugh Lee, Biomedical Engineering, Weldon School of Biomedical Engineering, Purdue University (2012 – 12/2016). Presently Assistant Professor, Department of Radiation Oncology at Washington University in St. Louis, School of Medicine, St. Louis, MO.
18. Salah Sommakia, Weldon School of Biomedical Engineering, Purdue University (Co-Chairman with Jenna Rickus, 2007 – 12/2013). Presently a Senior Lead Scientist at Sumitomo Dainippon Pharma Oncology, Lehi, UT.

19. Andrew Koivuniemi, Weldon School of Biomedical Engineering, Purdue University (2009 – 07/2013). Presently a Neurological Surgery Physician, St. Francis Hospital, Lafayette, IN.
20. Seth Wilks, Weldon School of Biomedical Engineering, Purdue University (2007 – 05/2011). Presently Director of Clinical Science, CVRx, Minneapolis, MN.
21. Andrew Woolley, Purdue University Life Sciences Program, Purdue University – (2006 – 05/2011). Presently a Principal Scientist at Bristol Myers Squibb, Redwood City, CA.
22. Nnadozie Onunkwo, Weldon School of Biomedical Engineering, Purdue University – (2006 – 12/2010). Presently a Senior Medical Science Liaison at Parmacosmos Therapeutics Inc., Miami, FL.

#### **Mentoring: Doctoral Research – Co-Chair**

1. David Hall, Biomedical Engineering, University of Florida – (Jon Dobson, co-chair; 2019 – 2024).
2. Ladan Jiracek, Electrical and Computer Engineering, University of Florida – (Jack Judy, co-chair; 2022-2026)

#### **Mentoring: Doctoral Research – Committee Member**

1. Cynthia Ezech, Chemical Engineering, University of Florida – (Mark Orazem, Charman; 2022 – 2025).
2. Carlos Cruz, Biomedical Engineering, University of Florida – (Kyle Allen, co-chair; 2019 – 2024).
3. Samuel Jacobs, Chemical Engineering, University of Florida – (Mark Orazem, Charman; 2019 – 2022).
4. Taylor Yeater, Biomedical Engineering, University of Florida – (Kyle Allen, Chairman; 2018 – 2021).
5. Seyed Hashemi, Electrical and Computer Engineering, University of Florida – (Karim Oweiss, Chairman; 2017 – 2021).
6. Ming Gao, Chemical Engineering, University of Florida – (Mark Orazem, Chairman; 2017 – 2021).
7. Brandon Parks, Biomedical Engineering, University of Florida – (Karim Oweiss, Chairman; 2017 – 2021).
8. Benjamin Goolsby, Biomedical Engineering, University of Florida – (Karim Oweiss, Chairman; 2017 – 2021).
9. Michael Sunshine, Rehabilitation Sciences, University of Florida – (David Fuller, Chairman; 2017 – 2021).
10. Jackson Cagle, Biomedical Engineering, University of Florida – (Ayse Gunduz, Chairman; 2017 – 2021).
11. Jose Alcantara, Biomedical Engineering, University of Florida – (Ayse Gunduz, Chairman; 2017 – 2021).
12. Stephanie Cernera, Biomedical Engineering, University of Florida – (Ayse Gunduz, Chairman; 2017 – 2021).
13. May Mansy, Biomedical Engineering, University of Florida – (Karim Oweiss, Chairman; 2016 – 2019).



14. Enrico Opri, Biomedical Engineering, University of Florida – (Ayse Gunduz, Chairman; 2016 – 2020).
15. Jinzheng Cai, Biomedical Engineering, University of Florida – (Lin Yang, Chairman; 2015 – 2019).
16. Benjamin Spearman, Biomedical Engineering, University of Florida – (Christine Schmidt, Chairman; 2015 – 2019).
17. Rene Molina, Electrical and Computer Engineering, University of Florida – (Ayse Gunduz, Chairman; 2015 – 2018).
18. Manish Sapkota, Biomedical Engineering, University of Florida – (Lin Yang, Chairman; 2015 – 2018).
19. Jonathan Shute, Biomedical Engineering, University of Florida – (Ayse Gunduz, Chairman; 2015 – 2016).
20. Cynthia Overstreet, Bioengineering, Arizona State University – (Steve Helms-Tillery, Chairman; 2012 – 2014).
21. Melissa Tully, Biomedical Engineering, Purdue University – (Riyi Shi, Chairman; 2011 – 2014).
22. Henry Mei, Biomedical Engineering, Purdue University – (Pedro Irazoqui, Chairman; 2011 – 2014).
23. Jonghyuck Park, Biomedical Sciences, Purdue University – (Riyi Shi, Chairman; 2011 – 2014).
24. Paul Miller, Biomedical Engineering, Purdue University – (David Stocum, Chairman; 2010 – 2016).
25. Meghan Robinson, Biomedical Engineering, Purdue University – (Tom Talavage, Chairman; 2008 – 2012).
26. Jesse Wheeler, Biomedical Engineering, Washington University – (Dan Moran, Chairman; 2010 – 2018).
27. Matthew Ward, Biomedical Engineering, Purdue University – (Pedro Irazoqui, Chairman; 2008 – 2012).
28. Josephat Asiago, Medicinal Chemistry, Purdue University – (Chris Rochet, Chairman; 2009 – 2012).
29. Shaoyu Qiao, Biomedical Engineering, Purdue University – (Ken Yoshida, Chairman; 2009 – 2014).
30. Benjamin Richardson, Pharmacology, Southern Illinois University – (Don Caspary, Chairman; 2007 – 2012).
31. Aravindakshan Parthasarathy, Psychology, Purdue University – (Ed Bartlett, Chairman; 2008 – 2012).
32. Yamini Venkatamaran, Biomedical Engineering, Purdue University – (Ed Bartlett, Chairman; 2008 – 2012).
33. Pinghung Wei, Electrical and Computer Engineering, Purdue University – (Babak Ziaie, Chairman; 2008 – 2011).
34. Cal Rabang, Biomedical Engineering, Purdue University – (Ed Bartlett, Chairman; 2007 – 2011).
35. Patrick McCarthy, Mechanical Engineering, Purdue University – (Masa Rao, Chairman; 2007 – 2009).

36. Hananeh Esmailbeigi, Bioengineering, University of Illinois, Chicago – (Patrick Rousche, Chairman; 2008 – 2009).

**Mentoring: Master’s Research – Major Professor**

1. Angelique Vela, Electrical & Computer Engineering, University of Florida (2022 – Present).
2. Lili Shi, Biomedical Engineering, University of Florida – (2021 – Present).
3. Haoran Tao, Biomedical Engineering, University of Florida – (2020 – 2021).
4. Matthew Sanchez, Biomedical Engineering, University of Florida – (2020 – 2021).
5. Jasmine Singh, Biomedical Engineering, University of Florida – (2020 – 2021).
6. Yibing Yang, Biomedical Engineering, University of Florida – (2020 – 2021).
7. Felicia Sedwick, Biomedical Engineering, University of Florida – (2019 – 2020).
8. Anastasia Valimaki, Biomedical Engineering, University of Florida – (2019 – 2020).
9. Adebayo Oluwatobi, Biomedical Engineering, University of Florida – (2018 – 2020).
10. Michael Brodsky, Biomedical Engineering, University of Florida – (2018 – 2019).
11. Abhijit Pattanshetti, Biomedical Engineering, University of Florida – (2018 – 2019).
12. Jesus Peñaloza, Biomedical Engineering, University of Florida – (2017 – 2019).
13. Valdimir Talley III, Biomedical Engineering, University of Florida – (2017 – 2019).
14. Minhal Yusufali, Biomedical Engineering, University of Florida – (2017 – 2019).
15. Alec Simon, Biomedical Engineering, University of Florida – (2016 – 2018).
16. Elliott Dirr, Biomedical Engineering, University of Florida – (2015 – 2017).
17. Jake Rieke, Biomedical Engineering, University of Florida – (2015 – 2016).
18. Ishan Kulkarni, Biomedical Engineering, University of Florida – (2015 – 2016).
19. Karthick Nalladevan, Biomedical Engineering, University of Florida – (2015 – 2015).
20. Ishani Thakkar, Biomedical Engineering, University of Florida – (2015 – 2015).
21. Albert Sueiras, Biomedical Engineering, University of Florida – (2015 – 2015).
22. Ashley Eidsmore, Electrical Engineering, Purdue University – (2013 – 2015).
23. Andrew Ready, Biomedical Engineering, Purdue University – (2012 – 2014).
24. Oliver Regele, Biomedical Engineering, Purdue University – (2012 – 2013).
25. Andrew Pierce, Biomedical Engineering, Purdue University – (2008 – 2009).
26. Ryan Muir, Electrical Engineering & Technology, Purdue University – (2006 – 2008).

**Mentoring: Master’s Research – Committee Member**

1. Kai Tianhua Fu, Biomedical Engineering, University of Florida – (2019 – present).
2. Nicole Bohmann, Biomedical Engineering, University of Florida – (2019 – present).
3. Joseph Canzano, Medical Sciences, University of Florida – (2018 – present).
4. Daniela Changkuon, Biomedical Engineering, Purdue University – (2013 – 2014).
5. Puja Tanwani, Biomedical Engineering, Purdue University – (2013 – 2014).
6. Stephen Chabot, Biomedical Engineering, Purdue University – (2011 – 2013).
7. Henry Zhang, Biomedical Engineering, Purdue University – (2011 – 2012).

8. Ian Dryg, Biomedical Engineering, Purdue University – (2011 – 2012)
9. Emily Cook, Biomedical Engineering, Purdue University – (2011 – 2012).
10. Arjun Jaitli, Biomedical Engineering, Purdue University – (2011 – 2012).
11. Sonal Sadaria, Biomedical Engineering, Purdue University – (2010 – 2011).
12. Jenna Sullivan, Biomedical Engineering, Purdue University – (Evan Morris, Co-Chairman; 2008 – 2009).
13. Patrick McCarthy, Mechanical Engineering, Purdue University – (2008 – 2009).
14. Mike Pargett, Biomedical Engineering, Purdue University – (2007 – 2009).
15. Nick Geirut, Biomedical Engineering, Purdue University – (2006 – 2008).

### **Mentoring: Undergraduate Research**

I have mentored approximately 115 students who have later attended graduate school, medical school, entered the industrial sector, volunteered in the peace corps, many other outstanding career pathways. Many of these have been funded by programs such as the Howard Hughes Medical Institute, Purdue University and UF Summer Undergraduate Research Fellowships, the UF Summer Neuroscience Internship Program, the UF Center for Undergraduate Research.

### **Mentoring: Pre-collegiate Research**

1. Medical Innovation Competition team from the Academy for Mathematics, Science, Engineering, Morris Hills High School – (2021).
2. Alexxi Spillers, Jefferson High School – (2013 – 2014).
3. Claire Cassa-Santa, Jefferson High School – (2011 – 2012).
4. Ashley Sankari, Jefferson High School – (2009 – 2010).
5. Fuhe Xu, Harrison High School – (2006).
6. Lynlee Ferguson, West Lafayette High School – (2009).
7. Elizabeth Villafuerte, Jefferson High School – (2008 – 2009).

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## ***Engagement***

### **Engagement: Appearances in media interviews and other coverage**

1. Westley, M. TheSugarScience Scientists to Watch Podcast  
<https://thesugarscience.podbean.com/e/episode-18-kevin-otto-phd-professor-at-university-of-florida/>  
*-Interviewed for work on pancreatic neuromodulation.*
2. Mullin, E. The Next Brain Implant is a Real Live Wire  
<https://neo.life/2018/10/the-next-brain-implant-is-a-real-live-wire/>  
*-Quoted as an expert on neural interfaces.*
3. Levesque, B. Pioneering Research  
<https://post.health.ufl.edu/2018/12/03/pioneering-research/>  
*-Coverage of NIH 3D Map of the Human Lymphatic System.*
4. Jiracek, L. Neural Implant Podcast

<http://neuralimplantpodcast.com/dr-kevin-otto-talks-about-how-to-prevent-devices-from-failing-and-mapping-peripheral-neurons>

*-Interviewed as an expert on neural interfaces.*

5. Reddit Ask Me Anything  
[https://www.reddit.com/r/science/comments/6ajjkh/science\\_ama\\_series\\_were\\_karim\\_ow\\_eiss\\_kevin\\_otto/](https://www.reddit.com/r/science/comments/6ajjkh/science_ama_series_were_karim_ow_eiss_kevin_otto/)  
*-Coverage of DARPA TNT program funding announcement.*
6. Swetlitz, I. Can zapping your neck help you quickly learn a foreign language?  
<https://www.statnews.com/2017/04/28/vagus-nerve-brain-learning-darpa/>  
*-Media coverage of DARPA TNT program funding announcement.*
7. Jaffee, M. UF Receives up to \$8.4 million from DoD to study brain training using electric stimulation. <https://ufhealth.org/news/2017/uf-receives-84-million-dod-study-brain-training-using-electric-stimulation>  
*-Media coverage of DARPA TNT program funding announcement.*
8. UF Herbert Wertheim College of Engineering, Engineering the Brain. Neuroscience at Gator Engineering. <https://www.eng.ufl.edu/research/strategic-priorities/health/#engineering-brain>  
*-Quoted as an expert in Engineering the Brain.*
9. Shen, H. Artificial arms get closer to the real thing. *Nature | News*, 10/8/2014.  
<http://www.nature.com/news/artificial-arms-get-closer-to-the-real-thing-1.16111>  
*-Quoted as an expert on neuroprostheses.*
10. Cossins, D. A Brain-to-Brain Interface for Rats. *The Scientist*, 02/28/2013.  
<https://www.the-scientist.com/daily-news/a-brain-to-brain-interface-for-rats-39712>  
*-Quoted as expert on brain-machine interfaces.*
11. Leggett, H. The next hacking frontier: your brain? *Wired Science*, 07/9/2009.  
<http://www.wired.com/wiredscience/2009/07/neurosecurity/>.  
*-Quoted as expert on brain-machine interfaces.*
12. Green, RA. Brain-Twitter project offers hope to paralyzed patients. *CNN*, 04/23/2009.  
<http://edition.cnn.com/2009/HEALTH/04/22/twitter.locked.in/index.html>.  
*-Quoted as expert on brain-machine interfaces.*
13. Keim, B. Twitter telepathy: researchers turn thoughts into tweets. *Wired Science*, 04/20/2009. <http://blog.wired.com/wiredscience/2009/04/braintweet.html>.  
*-Quoted as expert on brain-machine interfaces.*
14. Boyd, D. Professor develops stretchable electrodes to help study cardiac cells. *The Exponent*, 02/02/2009.  
[http://www.purdueexponent.org/?module=article&story\\_id=14640](http://www.purdueexponent.org/?module=article&story_id=14640).  
*-Quoted as expert on bio-electrode technologies.*

15. Zielinska, E. Of cells and wires. *The Scientist*, 23(1):32-37. 2009.  
 -Quoted as expert on implantable brain-machine interfaces.

**Engagement: Public lectures**

1. “Societal Benefits from Neural Engineering.” Science on Tap Series, Lafayette Brewing Company, Lafayette, IN, 2011.

**Engagement: Panel Participation**

1. I participated as a panelist for Project ECHO. The panel consisted of adults with type 1 diabetes providing a tele-clinic from the patient perspective about living with diabetes. Project ECHO is a tele-medicine program for primary care physicians to learn about diabetes care from specialists at the University of Florida. Each week primary care providers attend the tele-clinic to learn about different diabetes related topics. Gainesville, FL, 2019.

**Advocacy**

**Fostering a Diverse Research Group**

I work to engage a diverse research environment in the laboratory to foster a culture of inclusion. I try to diversify across rank, including: post-doctoral fellows, graduate students, undergraduate students, interns from high schools and other higher education institutions. In addition to this diversity of rank, I aim to recruit laboratory members from diverse scientific programs, including: biomedical engineering, electrical engineering, materials science and engineering, computer engineering, electrical engineering technology, neuroscience, biological sciences, chemistry. I encourage international diversity in my research group by actively recruiting international students. As such, our laboratory group has included graduate students from the following foreign countries: Nepal, Korea, Venezuela, India. Our undergraduate population has included even more international diversity. I seek to include both female and male members in the research group. Of the approximately 150 research group members in the lab historically, approximately 48% have been female and 52% have been male. I have also actively recruited under-represented minorities at all ranks to do research in the laboratory, including the first student to receive the PhD under my mentorship, Dr. Nnadozie Onunkwo. My typical group size fluctuates between 20 and 25 individuals actively engaged in research projects.

**Career Advocacy and Promotion**

I have provided a significant amount of career advising, outside of the classroom, for undergraduate students, graduate students, post-doctoral fellows seeking professional advancement or education. For example, over the past 18 years, I have provided 1462 letters of reference (approximately 81 letters/yr) for undergraduate students, graduate students, post-doctoral fellows, junior faculty whom I have had the opportunity to personally become acquainted with through teaching and research mentoring. These letters have helped obtain entry into medical schools, graduate schools, their first positions in industry or academia, obtain tenure or promotion, or obtain green cards for citizenship.

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**Professional affiliations**

Alpha Eta Mu Beta Bioengineering Honor Society  
 American Diabetes Association  
 American Association for the Advancement of Science  
 Auditory Cognitive Neuroscience Society  
 Biomedical Engineering Society  
 Golden Key National Honor Society  
 Institute of Electrical and Electronics Engineers  
 Omega Chi Epsilon Chemical Engineering Honor Society  
 Sigma Xi  
 Society for Neuroscience  
 Tau Beta Pi Engineering Honor Society

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**Licenses and Certifications**

2021 Managing at UF  
 2023 United States of America Drug Enforcement Administration License

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**Service**
**Service: University Governance and Service - University Activities**

Research Integrity Investigation, *UF*. (2021-2023).

Research Opportunity Seed Fund Reviewer, *UF*. (2021)

Career Accelerator Reviewer, *McKnight Brain Institute, UF*. (2020)

Multicultural Mentor Program, *UF*. (2020-2022).

Study Section Member, *UF Opportunity Seed Fund*. (2019).

Executive Committee Member, *UF McKnight Brain Institute*. (2018-present).

Research Outreach and Education Committee Member, *UF McKnight Brain Institute*. (2017-2018).

Preeminent Faculty Search Committee, *UF College of Veterinary Medicine*. (2016-2018).

Recruitment Committee Chair, *Purdue Undergraduate Life Sciences Program Integrative Sciences Training Group*. (2011-2014).

Recruitment Committee Member, *Purdue University Interdisciplinary Life Sciences Program*. (2010-2014).

Retreat Chair, *Purdue University Integrative Neuroscience Program*. (2009).

Retreat Co-Chair, *Purdue University Integrative Neuroscience Program*. (2008).

Judge, *Purdue University Undergraduate Research and Poster Symposium*. (2007-2010).

**Service: University Governance and Service - College Activities**

Lead student marshal for graduation, *UF Herbert Wertheim College of Engineering*. 2022.

Graduate Program Admissions Committee Member, *UF College of Medicine*. (2016).

Awards Committee Member, *UF Herbert Wertheim College of Engineering*. (2016-2020).

Safety Steering Committee Member, *UF College of Engineering*. (2014-2015).

Awards Committee Member, *Purdue University College of Engineering*. (2011-2014).

Presenter, *Purdue University Women in Engineering Recruiting Presentation for Seniors Exploring Engineering*. (2010).

Volunteer Mentor, *University of Michigan College of Engineering Mentorship Workshop*. (April, 2004).

**Service: University Governance and Service - Department Activities**

Executive Committee Chair, *UF J. Crayton Pruitt Family Department of Biomedical Engineering*. (2015-2018).

Awards Committee Chair, *UF J. Crayton Pruitt Family Department of Biomedical Engineering* (2015-2020).

Executive Committee Member, *UF J. Crayton Pruitt Family Department of Biomedical Engineering*. (2015-2018).

Faculty Search Committee Member, *UF J. Crayton Pruitt Family Department of Biomedical Engineering*. (2015-2017).

Tenure & Promotion Committee Member, *UF J. Crayton Pruitt Family Department of Biomedical Engineering*. (2014-Present).

Research Committee Member, *UF J. Crayton Pruitt Family Department of Biomedical Engineering*. (2014-2015).

Awards Committee Member, *UF J. Crayton Pruitt Family Department of Biomedical Engineering*. (2014-2015).

Graduate Program Committee Member, *UF J. Crayton Pruitt Family Department of Biomedical Engineering*. (2014-2015).

Awards Committee Chair, *Purdue University Weldon School of Biomedical Engineering*. (2011-2014).

Panel Member/Poster Judge, *Purdue University Biomedical Engineering Graduate Student Association Research Symposium*. (2010).

Graduate Committee Member, *Purdue University Weldon School of Biomedical Engineering*. (2009-2011).

Graduate Admissions Committee Member, *Purdue University Department of Biological Sciences*. (2009-2014).

CLA Subcommittee Member, *Purdue University Weldon School of Biomedical Engineering*. (2009).

Intern Mentor, *Purdue University Weldon School of Biomedical Engineering*. (2008-2009).

PRF Research Proposal Evaluator, *Purdue University Department of Biological Sciences*. (2006).

Animal Care Committee Faculty Representative, *Purdue University Weldon School of Biomedical Engineering*. (2005-2011).

Graduate Admissions Committee Member, *Purdue University Weldon School of Biomedical Engineering*. (2005-2009).

Student Luncheon Coordinator, *Hearing, Balance and Chemical Senses Seminar Series, Kresge Hearing Research Institute, University of Michigan*. (Fall, 2004).

Admissions Committee Member, *Hearing, Balance and Chemical Senses Training Program, Kresge Hearing Research Institute, University of Michigan*. (February, 2004).

**Service: Editorial Advisory Boards**

Editorial Board Member, *Bioengineering*. (2023-Present).

Review Editor, *Bioelectronic Medicine*. (2022-Present).

Review Editor, *Frontiers in Electronics*. (2021-present).

Member of the Editorial Board, *AIMS Bioengineering*. (2018-present).

Editorial Board Member, *Techniques in Neurosurgery & Neurology*. (2017-present).

Review Editor, *Neuroprosthetics, a specialty of Frontiers in Neuroscience*. (2017-present).

Editorial Board Member, *Bioelectronics in Medicine*, (2016-2021).



Member of the Editorial Board, *International Journal of Computational & Neural Engineering*. (2016-present).

Review Editor, *Neural Technology, a specialty of Frontiers in Neuroscience*. (2015-present).

**Service: Reviewer for Scholarly Journals**

ACS Applied Materials & Interfaces  
Acta Biomaterialia  
Advanced Biosystems  
Advanced Functional Materials  
Advanced Materials Technologies  
Behavioural Brain Research  
Biochemical Sciences  
Biomaterials  
Biomedical Microdevices  
Brain Stimulation  
Cell Reports  
Colloids and Surfaces B: Biointerfaces  
Current Opinion in Biotechnology  
Current Opinion in Solid State & Materials Science  
eNeuro  
European Journal of Neuroscience  
Frontiers in Neuroscience  
Frontiers in Systems Neuroscience  
IEEE Transactions on Biomedical Engineering  
IEEE Transactions on Neural Systems and Rehabilitation Engineering  
Journal of Biomaterials Applications  
Journal of Neural Engineering  
Journal of Neuroscience Methods  
Nature  
Nature Communications  
Neuroscience  
PLOS One  
Proceedings of the National Academies of Sciences  
Progress in Brain Research  
Scientific Reports  
Sensors and Actuators: B  
Small

**Service: Activities in the Profession - International**

Program Co-chair, *46<sup>th</sup> annual IEEE Engineering in Medicine and Biology Conference*.  
Orlando, FL. (2024).

Webinar and Annual Meeting Content Sub-Committee Chair, *Biomedical Engineering Society*.  
(2022 – present).

Education Committee Member, *Biomedical Engineering Society*. (2022 – present).

Session chair, 31<sup>st</sup> *Annual Biomedical Engineering Society Meeting*. Orlando, FL. (2021).

Session Organizer and Chair, *NeuroNexus Technologies Symposium for Neurotechnologies*. Virtual. (2020).

Session Organizer and Chair, *DBS “Virtual” Think Tank VIII*. Virtual. (2020).

Session co-chair, 40<sup>th</sup> *Annual IEEE EMBS International Conference*. Honolulu, HI. (2018).

Session Chair, 28<sup>th</sup> *Annual Biomedical Engineering Society Meeting*. Atlanta, GA. (2018).

Mini-symposium Organizer and Co-chair, 40<sup>th</sup> *Annual IEEE EMBS International Conference*. Honolulu, HI. (2018).

Steering Committee Member, *Neural Interfaces Conference*. (2017-present).

National Meetings Committee Member, *Biomedical Engineering Society Meeting*. (2016-2019).

Program Co-chair, 27<sup>th</sup> *annual Biomedical Engineering Society Meeting*. Phoenix, AZ. (2017).

Conference Session Organizer, 42<sup>nd</sup> *Neural Interfaces Conference*. (2016).

Neural Engineering Track Co-chair, 25<sup>th</sup> *Annual Biomedical Engineering Society Meeting*. San Antonio, TX. (2014).

Session Organizer, 41<sup>st</sup> *Neural Interfaces Conference*. (2014).

Executive Committee Member, *ClevelandNEW Conference*. (2013-2019).

Contributed Paper Reviewer, *IEEE-EMBS*. (2012-2014).

Session Chair, 23<sup>rd</sup> *Annual Biomedical Engineering Society Meeting*. Atlanta, GA. (2012).

Panel Discussion Moderator, 40<sup>th</sup> *Neural Interfaces Conference*. (2012).

Session chair, 20<sup>th</sup> *Annual Biomedical Engineering Society Meeting*. Pittsburgh, PA. (2009).

Session chair, 31<sup>st</sup> *Annual IEEE EMBS International Conference*. Minneapolis, MN. (2009).

Abstract Reviewer, *Annual Biomedical Engineering Society Meeting*, (2008, 2009, 2011, 2014, 2015, 2016, 2018, 2019, 2020, 2021, 2022)

Session Chair, 19<sup>th</sup> *Annual Biomedical Engineering Society Meeting*. St. Louis, MO. (2008).

Instructor, *Center for Neural Communications Technology “Implantable Neuroprosthetics: Technologies and Techniques” Course*. (2007-2010).

Session Organizer, *Satellite Session on Advanced Microelectrode Implant Technology, 2nd International Brain-Computer Interface Workshop, Rensselaerville Institute*. Rensselaerville, New York. (June, 2002).

**Service: Activities in the Profession - National**

Study Section Reviewer, *NIH ZNS-I SRB-O(20) BRAIN*. (2022).

Study Section Reviewer, *NIH ZNS1 SRB-A(02) BRAIN*. (2022).

Study Section Reviewer, *NIH NSD-C*. (2022).

Study Section Reviewer, *NIH ZNS1 SRB-S(10) 1 BRAIN*. (2022).

Strategic Research Agreement Reviewer, *JDRF*, (2022).

Study Section Reviewer, *Traumatic Brain Injury and Psychological Health Research Program (TBIPHRP) Neurostimulation (NS)*, *CDMRP*. (2021).

Study Section Reviewer, *MPMC BAA Military Operational Medicine Program*. (2021).

Study Section Reviewer, *NIH NSD-C BRAIN*. (2021).

NIH U01NS113279-01, X Cui (PI), *Scientific Steering Group*. (2020-present)

Ad Hoc Study Section Member, *Craig H. Nielsen Foundation*. (2019).

Study Section Reviewer, *NIH ZNS1 SRB E BRAIN*. (2018).

Study Section Reviewer, *NIH ZNS1 SRB G BRAIN*. (2017).

Ad Hoc Study Section Member, *VA RRD5*. (2017, 2018, 2019).

Ad Hoc Study Section Member, *NIH R13/U13*. (2017).

Ad Hoc Study Section Member, *NIH BNVT*. (2017, 2018, 2019).

Study Section Reviewer, *NIH ZDC1 SRB-K(16)*. (2014).

Study Section Member, *NIH ETTN*. (2013-2016).

Study Section Reviewer, *NSF BRIGE*. (2008).

Professional Advisory Board Member, *Colorado State University Department of Chemical and Biological Engineering*. (2005-Present).

**Service: Activities in the Profession - Regional**

Scientific Committee Member, *Southeastern Biomedical Engineering Conference*. Shreveport, LA. (2016).

**Service: Activities in the Profession - State**

Pre-doctoral Traineeship Research Proposal Evaluator, *Indiana Clinical and Translational Sciences Institute*. (2012-2014).

**Service: Activities in the Profession - Local**

Chapter Treasurer, *IEEE EMBS Gainesville*. (2017-2018).

Vice-President, *Sigma Xi Purdue Chapter*. (2012-2014).

Distinguished Lecturer Committee Chair, *Sigma Xi Purdue Chapter*. (2012-2014).

Executive Committee Member, *Sigma Xi Purdue Chapter*. (2012-2014).

Advisor, *Purdue Society of Business Engineers/National Organization of Business Engineers*. (2010-2013).

Faculty Advisor, *Purdue University BMES Student Association*. (2008-2012).

Faculty Advisor, *Purdue University Biomedical Engineering Graduate Student Association*. (2007-2014).

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***Additional Academic Affiliations***

2023-Present	Member, AI <sup>2</sup> Center, the University of Florida
2021-Present	Member, Center for Brain Injury, Rehabilitation, Neuroresilience (BRAIN) Center, the University of Florida
2019-Present	Member, The Pain Research and Intervention Center of Excellence, the University of Florida
2019-Present	Member, Fixel Center for Neurological Diseases, the University of Florida
2018-Present	Member, Diabetes Institute, the University of Florida
2017-Present	Member, Breathing Research and Therapeutics (BREATHE) Center, the University of Florida
2016-Present	Member, Hearing Research Center, the University of Florida
2016-2019	Member, The Center for Movement Disorders, the University of Florida
2014-Present	Member, Evelyn F. & William L. McKnight Brain Institute, the University of Florida
2014-Present	Member, Nanoscale Institute for Medical and Engineering Technology, University of Florida

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***Previous Academic Positions***

2014-2018	Associate Professor, J. Crayton Pruitt Family Department of Biomedical Engineering, the University of Florida ( <i>with tenure</i> )
2014-2016	Adjunct Professor, the Weldon School of Biomedical Engineering, Purdue University

2012-2014	Associate Professor, the Department of Biological Sciences and the Weldon School of Biomedical Engineering, Purdue University ( <i>with tenure</i> )
2006-2012	Assistant Professor, the Department of Biological Sciences and the Weldon School of Biomedical Engineering, Purdue University
2003-2006	Post-Doctoral Fellow, Program in Hearing, Balance and Chemical Senses, Kresge Hearing Research Institute, University of Michigan
2001-2003	Research Staff, Neural Engineering Laboratory, Biomedical Engineering Department, University of Michigan
1998-2001	Research Assistant, Neural Computation Laboratory, Bioengineering Department, Arizona State University
Spring 1998	Teaching Assistant, Surgical Techniques, Arizona State University
Spring 1998	Teaching Assistant, Heat and Mass Transfer, Arizona State University
Fall 1997	Teaching Assistant, Introduction to Bioengineering, Arizona State University

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**Collaborators (selected)**

- Jen Bizon, Ph.D., University of Florida
- Sara Burke, Ph.D., University of Florida
- Martha Campbell-Thompson, Ph.D., D.V.M., University of Florida
- Stuart Cogan, Ph.D., University of Texas at Dallas
- Shelley Fried, Ph.D., Massachusettes General Hospital
- Warren Grill, Ph.D., Duke University
- Rick Johnson, Ph.D., University of Florida
- Jack Judy, Ph.D., University of Florida
- Damon Lamb, Ph.D., University of Florida
- Dave Martin, Ph.D., University of Delaware
- Mark Orazem, Ph.D., University of Florida
- Christine Schmidt, Ph.D., University of Florida
- Barry Setlow, Ph.D., University of Florida
- Justin Williams, Ph.D., University of Wisconsin

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**References**
**Dr. Christine E. Schmidt**

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Gainesville, FL 32611 ph: 352-392-6000

**Dr. John Middlebrooks**

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*Post-doctoral advisor*  
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University of California, Irvine ph: 949-824-0119  
Irvine, CA 92697-5310 fax: 949-824-0118

**Dr. Daryl Kipke**

Executive Director, NeuroNexus Technologies  
*Ph.D. and post-doctoral advisor*  
655 Fairfield Ct, Ste. 100 [dkipke@neuronexus.com](mailto:dkipke@neuronexus.com)  
Ann Arbor, MI 48108 ph: 734-730-9164

**Dr. Andrew Schwartz**

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Room 245.09 [abs21@pitt.edu](mailto:abs21@pitt.edu)  
McGowan Center ph: 412-383-7021  
Pittsburgh, PA 15261 fax: 412-648-1441