

**Evon S. Ereifej, Ph.D.**[eereifej@gmail.com](mailto:eereifej@gmail.com)

Veteran Affairs Ann Arbor Healthcare System  
Ann Arbor, MI 48105

**EDUCATION**


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<b>Doctor of Philosophy</b> , Biomedical Engineering, Wayne State University, Detroit, MI,	2007-2012
<i>Thesis:</i> Studying the Glial Cell Response to Biomaterials and Surface Topography for Improving the Neural Electrode Interface	
<i>Advisor:</i> Dr. Pamela J. VandeVord	
<b>Master of Science</b> , Biomedical Engineering, Wayne State University, Detroit, MI,	2005-2007
<b>Bachelor of Science</b> , Biological Sciences, Wayne State University, Detroit, MI,	2002-2005

**PROFESSIONAL RESEARCH EXPERIENCE**


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<b>Associate Investigator / Biomedical Engineer</b>	2018-Present
Veteran Affairs Ann Arbor Healthcare System, Ann Arbor, MI	
<b>Associate Investigator / Biomedical Engineer</b>	2014-2018
Louis Stokes Veteran Affairs Medical Center, Advanced Platform Technology Center, Cleveland, OH	
➤ <i>Affiliate of Case Western Reserve University with Principal Investigator Dr. Jeffrey Capadona, Biomedical Engineering/Neural Engineering Center</i>	
<b>Post-Doctoral Scientist</b>	2012-2014
Virginia Tech, Blacksburg, VA	
➤ <i>Biomedical Engineering/Center for Injury Biomechanics: Dr. Pamela J. VandeVord</i>	
<b>Research Assistant</b>	2009-2012
Wayne State University, Detroit, MI	
➤ <i>Biomedical Engineering: Dr. Pamela J. VandeVord</i>	
<b>Research Assistant (non-wage)</b>	2007-2012
John Dingell Veteran Affairs Medical Center, Detroit, MI	

**PROFESSIONAL TEACHING EXPERIENCE**


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<b>Adjunct Assistant Professor</b>	2011 - 2014
Wayne State University, Detroit, MI	
• <i>Biomedical Engineering:</i> Graduate - Introduction to Cell Biology and Physiology for Engineers	
• <i>Biomedical Engineering:</i> Undergraduate – Intro. to Molecular & Cell Biology for Engineers	
<b>Graduate Teaching Assistant (GTA)</b>	2008- 2009
Wayne State University, Detroit, MI	
• <i>College of Engineering:</i> Undergraduate - Materials Science	
• <i>Biomedical Engineering:</i> Graduate - Advanced Biocompatibility	
• <i>Biomedical Engineering:</i> Graduate - Introduction to Cell Biology and Physiology for Engineers	

**Adjunct Assistant Professor**

2007- 2008

Macomb Community College, Warren, MI

- *Biological Sciences*: Undergraduate - Fundamentals of Nutrition
- *Biological Sciences*: Undergraduate - General Biology 1

**PROFESSIONAL MENTORSHIP EXPERIENCE**


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<b>Case Western Reserve University</b> , Cleveland, OH	2014-2018
➤ <i>Graduate (3), Undergraduate (12), High School (3)</i>	
<b>Virginia Tech</b> , Blacksburg, VA	2012-2014
➤ <i>Graduate (2), Undergraduate (9)</i>	
<b>Wayne State University</b> , Detroit, MI	2008-2012
➤ <i>Graduate (2), Undergraduate (2), High School (1)</i>	

**GRANTS / FUNDING****Career Development Award II**

Department of Veteran's Affairs Rehabilitation R&amp;D - Grant # RX002628-01A1

"Mimicking the Architecture and Modulus of Native Brain Tissue onto Neural Implants to Improve Biocompatibility"

*Role*: Principal Investigator (3/2018 – 2/2022)**Clinical and Translational Science Collaborative (CTSC) Core Utilization Application**

National Center for Advancing Translational Sciences and the National Institutes of Health

"Investigation of gene expression profiles surrounding intracortical microelectrodes" (3/2016 – 9/2016)

**Career Development Award I**

Department of Veteran's Affairs Rehabilitation R&amp;D – Grant # A1664-M

"Therapeutic and Topographical Approaches for Improved Neural Electrode Biocompatibility"

*Role*: Principal Investigator (5/2015 – 4/2017)**ACCEPTED PUBLICATIONS**

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1. Kim Y, Meade SM, Chen K, Feng H, Rayyan JM, Hess-Dunning A, **Ereifej ES**. Nano-Architectural Approaches for Improved Neural Interface Technologies. *Frontiers in Neuroscience*, 2018 July; 12:456.
  2. Goss M, Shoffstall AJ, Dona KR, McMahon JA, Linder S, **Ereifej ES**, Capadona JR. Rodent Motor Testing to Assess Functional Deficits Caused by Microelectrode Implantation in the Motor Cortex. *JOVE*, accepted March 7, 2018
  3. **Ereifej ES**, Rial GM, Hermann JK, Smith, CS, Meade SM, Rayyan JM, Chen K, Feng H, Capadona JR. Implantation of Neural Probes in the Brain Elicits Oxidative Stress. *Frontiers in Bioengineering and Biotechnology*, 2018; 6:9
  4. Hermann JK, Ravikumar M, Shoffstall AJ, **Ereifej ES**, Kovach K, Chang J, Soffer A, Wong C, Srivastava V, Smith P, Protasiewicz G, Jiang J, Selkirk SM, Miller RH, Taylor D, Capadona JR.

- Inhibition of the innate immune pathway CD14 with IAXO improves chronic microelectrode performance. *Journal of Neural Engineering*, 2017 December
5. Goss M, Dona KR, McMahon JA, Shoffstall AJ, **Ereifej ES**, Linder S, Capadona JR. Microelectrode implantation in motor cortex causes fine motor deficit: Implications on potential considerations to Brain Computer Interfacing and Human Augmentation. *Scientific Reports*. 2017 October.
  6. **Ereifej ES**, Smith CS, Meade SM, Chen K, Feng H, Capadona JR. The Neuroinflammatory Response to Nanopatterning Parallel Grooves into the Surface Structure of Intracortical Microelectrodes. *Advanced Functional Materials*. 2017 September
  7. **Ereifej ES**, Meade S, Smith C, Chen K, Kleinman N, Capadona JR. Status Epilepticus due to Intraperitoneal Injection of Vehicle Containing Propylene Glycol in Sprague Dawley Rats. *Veterinary Medicine International*. 2017 May
  8. VandeVord PJ, Sajja VS, **Ereifej ES**, Hermundstad A, Mao S, Hadden TJ. Chronic hormonal imbalance and adipose re-distribution is associated with hypothalamic dysfunction following blast exposure. *Journal of Neurotrauma*. 2016 Jan 1;33(1):82-8
  9. Sajja VS, **Ereifej ES**, VandeVord PJ. Hippocampal vulnerability and subacute response following varied blast magnitudes. *Neuroscience Letters*. 2014 June 6, 570: 33-7
  10. **Ereifej ES**, Khan S, Newaz G, Zhang J, Auner GW, VandeVord PJ. Comparative Assessment of Iridium Oxide and Platinum Alloy Wires using an in vitro Glial Scar Assay. *Biomedical Microdevices*. 2013
  11. **Ereifej ES**, Matthew HWT, Newaz GW, Mukhopadhyay A, Auner GW, Salakhutdinov I, VandeVord PJ. Nanopatterning Effects on Astrocyte Reactivity. *Journal of Biomedical Materials Research: Part A*. 2013;101(6):1743-57
  12. **Ereifej ES**, Mark MC, Guangzhao M, VandeVord PJ. Examining the Inflammatory Response to Nanopatterned Polydimethylsiloxane using Organotypic Brain Slice Methods. *J Neurosci Methods*. 2013;217(1-2):17-25
  13. **Ereifej ES**, Khan S, Newaz G, Zhang J, Auner GW, VandeVord PJ. Characterization of Astrocyte Reactivity and Gene Expression on Biomaterials for Neural Electrodes. *Journal of Biomedical Materials Research: Part A*. 2011;99(1):141-50
  14. Trivedi V, Doshi A, Kurup GK, **Ereifej ES**, Vandevord PJ, Basu AS. A modular approach for the generation, storage, mixing, and detection of droplet libraries for high throughput screening. *Lab Chip*. 2010;10(18):2433-42.
  15. Trivedi V, **Ereifej ES**, Doshi A, Sehgal P, Vandevord PJ, Basu AS. Microfluidic encapsulation of cells in alginate capsules for high throughput screening. *Conf Proc IEEE Eng Med Biol Soc*. 2009;7037-40
  16. de Guzman R, **Ereifej ES**, Broadrick KM, Rogers RA, VandeVord PJ. Alginate-matrigel microencapsulated Schwann cells for inducible secretion of glial cell line derived neurotrophic factor. *Journal of Microencapsulation*. 2008; 17:1-12

## **PUBLICATIONS UNDER REVIEW OR IN PREPARATION**

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1. **Ereifej ES**, Li Y, Goss M, Kim Y, Meade SM, Chen K, Rayyan JM, Feng H, Kim Y, Smith C, Taylor DM, Sun J, Capadona JR, A Comprehensive Approach to Analyzing Microelectrode Performance: Correlating Recording Metrics with Behavior and Histology. (under review).

2. **Ereifej ES**, Shell C, Schofield J, Cuberovic I, Dorval C, Zariffa J, Charkhkar H, Kozai TK, Welle C, Widge A, Graczyk E, Peterson E, Otto K, Moritz C, Bourbeau D, Marasco P. Realizing the Therapeutic Potential of Neural Engineering. *Journal of Neural Engineering* (accepted abstract).
3. **Ereifej ES**, Hermann J, Bedell H, Chen K, Meade S, Rayyan J, Feng H, Smith CS, Kim Y, Taylor DM, Capadona JR. Evaluation Of Electrophysiology From Implanted Intracortical Microelectrodes in Rat and Mouse Models. (in preparation).
4. Bedell H, Capadona JR, **Ereifej ES**. Optimization of Methods to Quantify Gene and Protein Expression Directly Around Intracortical Microelectrode Implant Site. (in preparation)
5. Bedell H, Capadona JR, **Ereifej ES**. Temporal Investigation of Neuroinflammatory Molecular Pathways following Neural Probe Implantation. (in preparation)
6. **Ereifej ES**, Kim Y, Meade SM, Chen K, Feng H, Rayyan JM, Capadona JR. Localized Resveratrol Delivery Improves Recording Quality from Intracortical Microelectrodes. (in preparation)

**SELECT CONFERENCE PRESENTATIONS: (my mentees are underlined)**

1. Chen K, **Ereifej ES**, Hermann J, Bedell H, Meade S, Rayyan J, Capadona JR. Evaluation Of Electrophysiology From Implanted Intracortical Microelectrodes in Rat and Mouse Models. Biomedical Engineering Society, October 2017, Phoenix, Arizona. (Poster).
2. Rayyan J, **Ereifej ES**, Rial GM, Smith C, Meade S, Chen K, Fang H, Capadona JR. Oxidative Stress Following Intracortical Microelectrode Implantation. Biomedical Engineering Society. October 2017, Phoenix, Arizona. (Poster)
3. Meade S, Smith C, Chen K, Feng H, Capadona JR, **Ereifej ES**. The Effect Of Nanopatterned Surfaces On Intracortical Microelectrode Biocompatibility. Biomedical Engineering Society. October 2017, Phoenix, Arizona. (Poster).
4. **Ereifej ES**, Smith C, Meade S, Chen K, Feng H, Capadona JR. The Effect of Nanopatterned Surface Structure on the Neuroinflammatory Response to Intracortical Microelectrodes. Gordon Conference: Biomaterials and Tissue Engineering, July 2017, Holderness, NH. (poster)
5. Haley RM, Zuckerman ST, **Ereifej ES**, Shoffstall AJ, Capadona JR, von Recum HA, Affinity-Based Resveratrol Delivery to Reduce Inflammation at the Site of Intracortical Electrode Implantation. Gordon Conference: Biomaterials and Tissue Engineering, July 2017, Holderness, NH. (poster)
6. **Ereifej ES**, Smith C, Meade S, Chen K, Capadona JR. Architectural Surface Modifications of Intracortical Microelectrode for Reduced Foreign Body Response. Materials Research Society National Conference. April 2017, Phoenix, AZ, (Poster).
7. Hermann JK, **Ereifej ES**, Chang J, Taylor DM, Capadona JR., Therapeutic Inhibition of Innate Immunity to Improve Intracortical Microelectrode Longevity, Materials Research Society, April, 2017, Phoenix, AZ, (poster).
8. Smith C, Meade S, Chen K, Capadona JR, **Ereifej ES**. The Effect of Nanopatterned Surface on Intracortical Microelectrode Biocompatibility. Biomedical Engineering Society National Conference, October 2016, Minneapolis, MN, (Poster).
9. Dona K, Goss M, McMahon J, **Ereifej ES**, Capadona JR. Effect On Rat Motor Behavior Of Chronic Intracortical Microelectrodes Implanted In The Motor Cortex. Biomedical Engineering Society National Conference, October 2016, Minneapolis, MN, (Poster).

10. **Ereifej ES\***, Smith C, Meade S, Chen K, Capadona JR. Topographical Approaches for Improved Neural Electrode Biocompatibility. Neural Interfaces Conference, June 2016, Baltimore, Maryland, (Poster).
11. Srail TW, **Ereifej ES**, Potter-Baker KA, Capadona JR. Complexing blood proteins and resveratrol to increase reactive oxygen species scavenging for intracortical electrode use. Biomedical Engineering Society, October 2014, San Antonio, TX, (Poster).
12. Bailey Z, Sajja VS, Hubbard WB, **Ereifej ES**, VandeVord PJ. Blast induced neurotrauma leads to changes in the epigenome. Biomedical Engineering Society, October 2014, San Antonio, TX, (Podium).
13. **Ereifej ES**, Hampton CE, Thorpe CN, Rzigalinski BA, VandeVord PJ. Cellular Mechanisms of Shock Wave Generated Blast Neurotrauma. Biomedical Engineering Society, September 2013, Seattle, WA, (Poster).
14. Hubbard WB, Sajja VS, **Ereifej ES**, VandeVord PJ. Oxidative stress and glial response could lead to anxiety following varied levels of blast overpressure. Biomedical Engineering Society, September 2013, Seattle, WA, (Poster).
15. Lemieux L, **Ereifej ES**, Hampton CE, Leonardi A, VandeVord PJ. Effects of Shock Wave Pressures on Astrocyte Reactivity Over Time. Biomedical Engineering Society National Conference, October 2012, Atlanta, GA, (Poster).
16. **Ereifej ES**, Yang J, Cheng MC, VandeVord PJ. Astrocyte Reactivity to Neural Implant with Porous Silicon Backbone Support. Society for Biomaterials, April 2011, Orlando, FL, (Poster)

## **PATENTS and APPLICATIONS**

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ES Ereifej, PJ VandeVord, JR Capadona, "Surface Modifications on Medical Implants/Devices."

Provisional Patent Number: 62/507,493

Filing Date: May 2017

## **SERVICE**

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**Scientific Reviewer:** *Acta Biomaterialia, Journal of Neural Engineering, Annals of Biomedical Engineering, Tissue Engineering Part C - Methods, Materials Research Express, Micromachines, ACS Biomaterials Science & Engineering, BMES Abstracts*

**Session Chair:** Biomedical Engineering Society (BMES) national conference; "*Implantable Devices II: Device Technologies and Biomedical Robotics*", Atlanta, GA, October 2018