

Matthew Anthony Schiefer, Ph.D.

matthew.schiefer@gmail.com

EDUCATION

08/01-05/09	<u>Case Western Reserve University</u> Ph.D., Biomedical Engineering (May 2009) M.S., Biomedical Engineering (May 2003) GPA: 3.83	Cleveland, OH
08/96-05/01	<u>Vanderbilt University</u> B.E., Biomedical Engineering <i>Magna Cum Laude</i> , GPA: 3.65	Nashville, TN
02/99-11/99	<u>Murdoch University</u> Study Abroad Program (Vanderbilt U) GPA: 4.0	Perth, Western Australia

RESEARCH AND PROFESSIONAL EXPERIENCE

08/12-Present	Adjunct Instructor – <u>Case Western Reserve University</u> Dept. of Biomedical Engineering <i>See Teaching Section for more details</i>	Cleveland, OH
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07/12-Present	Career Development Award (CDA) Researcher – <u>Louis Stokes VAMC</u>	Cleveland, OH
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Research – Design & analysis of novel stimuli to restore sensation in upper extremity amputees

- Psychometric sensory perception analysis during median, radial, and ulnar stimulation
 - Multichannel waveform design and stimulator control (xPC Target, Simulink)
 - Design of novel experiments to assess sensory feedback effect on functional performance

Research – Mapping human vagus nerve for selective electrode design

- Acquisition of cadaveric samples
- Histological staining and imaging
- Modeling Neural Response to Electrical Stimulation
 - 3D Finite Element Method (FEM) model development (Matlab, Ansoft Maxwell)
 - Neural simulations (Matlab, Neuron)

Advising – Design & analysis of a sciatic, tibial, and common peroneal nerve neuroprosthesis

Steering Committee – Flat Interface Nerve Electrode (FINE) cuff development team

- Generation 2 (thin wall, high flexibility) design

05/09-06/12	Post-Doctoral Fellow – <u>Case Western Reserve University</u> Dept. of Biomedical Engineering; Dept. of Orthopaedics	Cleveland, OH
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Mentor: Dr. Ronald Triolo

Research – Design & analysis of a sciatic, tibial, and common peroneal nerve neuroprosthesis

- Modeling Neural Response to Electrical Stimulation
 - 3D Finite Element Method (FEM) model development (Matlab, Ansoft Maxwell)
 - Neural simulations (Matlab, Neuron)
 - Biomechanical Modeling (OpenSIM)
- Intraoperative EMG acquisition and analysis during neural stimulation
 - EMG acquisition, analysis, and graphical user interface (GUI) development (Matlab)
 - Stimulator control (xPC Target, Simulink)

Research – Flat Interface Nerve Electrode (FINE) bilateral femoral nerve implant team

- Electrode lead, surgical approach, and experimental design team

Steering Committee – Flat Interface Nerve Electrode (FINE) cuff development team

- Generation 2 (thin wall, high flexibility) design

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12/03-05/09 **Graduate Research Assistant – Case Western Reserve University** **Cleveland, OH**

Mentor: Dr. Dustin Tyler

Dissertation Research – “Optimized design of neural interfaces for clinical neuroprostheses: anatomically-based modeling and intraoperative evaluation”

- 3D FEM model development (AutoCAD, Ansoft Maxwell)
- Neural stimulation computer simulations and analysis (Matlab, Neuron, Excel, S+)
- Distributed quasi-parallel computing (Ohio Supercomputer Center)
- Human biological signal (EMG) acquisition, filtering, and processing (Cambridge Electronics Design (CED) Amplifiers, National Instruments DAQ Boards, Function Generators, Matlab)
- Intraoperative human nerve stimulation with a computer-controlled nerve cuff electrode
- Software development and data acquisition (Matlab)
- Interacting with surgeons, nurses, therapists, engineers and Regulatory Affairs personnel
- Experimental equipment specification, design, implementation, and troubleshooting

Member, Co-author – FINE FDA Investigational Device Exemption (IDE) Application Team

Assisting Researcher – Intraoperative evaluation of a spiral nerve cuff electrode for use in a lower extremity neuroprosthesis

- Assisting with experimental setup, data collection, and analysis
- Interacting with surgeons, nurses, therapists, and engineers

Assisting Researcher – Phase I clinical trial evaluating an implanted neuroprosthesis to reduce aspiration in post-stroke patients

- Assisting with experimental setup and data collection
- Interacting with patients, clinicians, nurses, therapists, and engineers

Tutor – Individual and small group help sessions

- 3D Finite Element Method (FEM) model development (Ansoft Maxwell)
- Neural stimulation computer simulations and analysis (Matlab, Neuron)

Network Administrator – LNNIS network developer and administrator

- Secure wiki and Network Accessible Storage (NAS) (HTML, JavaScript, CSS, WAMP, PM Wiki)
- Real time network computer usage (Windows NetMon, VBScript)
- Computer specification, design, building, and maintenance

08/01-11/04 **Graduate Research Assistant – Case Western Reserve University** **Cleveland, OH**

Mentor: Dr. Warren Grill

Masters Research – “A model of excitation of retinal ganglion cells during extracellular epiretinal stimulation”

- Neural Stimulation Computer Simulations and Analysis (Matlab, Neuron, Excel, Minitab)

05/00-05/01 **Undergraduate Research – Vanderbilt University** **Nashville, TN**

Mentor: Dr. Duco Jansen

Senior Design – “Computerized targeting of an ablative laser beam for brain tumor resection”

- Data processing (Matlab)
- Free Electron Laser (FEL) beam control (LabView)

07/99-11/99 **Undergraduate Research – Murdoch University** **Perth, Western Australia**

Independent Researcher – “Electron microscopic examination of drug effects on protozoa”

- Sterile cell culture and drug dosing
- Cell fixing and staining
- Ultra-thin sample preparation
- Transmission electron microscopy and photography

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CERTIFICATIONS AND TRAINING

- Engineer In Training/Fundamental of Engineering Certified (EIT/FE)
- Lab Safety (OSHA)
- Blood-Borne Pathogen (OSHA)
- Information Security Awareness (VAMC)
- Privacy Awareness (VAMC)
- Environment of Care (EOC) Safety (VAMC)
- Human Research (VAMC)
- Research Safety (VAMC)
- Human Subjects Protection and Good Clinical Practices (VAMC)

PROFESSIONAL SOCIETIES: The Institute of Electrical and Electronics Engineers (IEEE), Engineering in Medicine and Biology Society (IEEE – EMBS), The Biomedical Engineering Society (BMES), Tau Beta Pi (Engineering Honor Society), The Order of the Engineer

GRANTS AND FUNDING

- Department of Veterans Affairs Career Development Award Level 1 (CDA-1), “Neural Interface and Control Design to Restore Sensation in Amputees”
- Department of Veterans Affairs equipment grant to procure and develop a multi-investigator, mobile neurophysiology suite
- NIH-Funded Training Grant in Musculoskeletal Research, Department of Orthopaedics, University Hospitals Medical Center, 2010-2012.
- Ohio 3rd Frontier Innovation Incentives in Technology (IIT) Graduate Student Fellowship 2006-2008
- The Department of Education Graduate Assistance in Areas of National Need (GAANN) Fellowship, 2001-2005

AWARDS AND HONORS

- ClevelandNew, a by-invitation-only neural engineering un-conference (2013, 2011)
- Musculoskeletal Research Day: Best Postdoctoral Presentation (2012)
- SciFoo, a by-invitation only un-conference sponsored by Google, Nature, and O’Reilly Media (2011, 2010)
- Admitted to the Biomedical Engineering Entrepreneurship Academy at the University of California – Davis (2011)
- Selected for the Journal of Neural Engineering’s 2010 Highlights (Top 10 Articles of 2010, #4)
- Intramural Summer Racquetball Tournament: 1st Place (2010, 2007), 2nd Place (2006)
- Organization for Computational Neurosciences (ONCS) 19th Annual International Conference Travel Award (2010)
- Research ShowCase: 3rd Place (2009), Poster Award (2008), Honorable Mention (2007)
- American Association for the Advancement of Science (AAAS) –Program for Excellence in Science Award (2008)
- Biomedical Graduate Student Symposium: Best Oral Presentation (2008), Best Poster Presentation (2005)
- Cover Article, IEEE Trans Neur Sys Rehab Eng, 16(2), April 2008.
- Neural Engineering and Rehabilitation Day Conference: 1st Place (2007), 2nd Place (2006 2005), 3rd Place (2003)
- Nominated for the Lenore Kola Award for exemplary service to the graduate student community (2007)
- Case Western Reserve Univ. Graduate Studies Endowment-Sponsored Mentorship Award (2003)
- Biomedical Engineering Society Student Travel Award (2003)
- The Rita Schaffer Biomedical Engineering Society Award (2001)
- The Engineering Dean’s Award for Outstanding Service (2001)
- The Thomas G. Arnold Prize for Best Senior Biomedical Engineering Design (2001)
- The John T. and Lizzie Allen McGill Award, awarded to an upperclassman who is academically accomplished, has demonstrated qualities of leadership, and whose efforts have led to an increased understanding of other student’s needs and a more civil campus atmosphere (2001)
- Dean’s List (1996-2001)

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PATENTS

- W. M. Grill and **M. A. Schiefer**, “System and Method for Selective Retinal Stimulation,” USPTO Application #: 20070244523, Class: 607054000, Provisional Application No. 60/744,749. October 2007.

TEACHING

- EBME 359: Biomedical Computer Simulation Lab: Using Matlab to model and analyze biomedical systems, S’13
- EBME 358: Biomedical Signals and Systems Lab: Using Matlab to analyze biomedical signals and systems, F’12-F’13
- “Introduction to Simulink Modeling Methods,” EBME 359: Biomedical Computer Simulation Laboratory, S’10 (*Guest Lecture*).
- “Fundamentals of Finite Element Method (FEM) Modeling & a Crash-Course in Ansoft,” EBME 401: Bioelectric Phenomena, F’09 (*Guest Lecture*).

MENTORSHIP

- 07/09-Present** Max Freeberg, MD/PhD Student under Dr. Ronald Triolo, Developing efficient intraoperative data collection systems
- 01/10-09/10** Sheeba Joseph, MD/MS Student under Dr. Kenneth Gustafson, Fascicular mapping of the human sciatic nerve
- 01/08-05/09** Natalie Brill, MS/PhD Student under Dr. Dustin Tyler, 3D FEM neural modeling
- 01/07-05/08** Yanna Grinberg, BS/MS Student under Dr. Kenneth Gustafson, Computer modeling of fascicular effects on 3D electrical potential

PROFESSIONAL SERVICE

- Invited Manuscript Reviewer, *IEEE Transactions on Neural Systems and Rehabilitation Engineering*, 2013
- Invited Manuscript Reviewer, *Clinical Neurophysiology*, 2013
- Invited Manuscript Reviewer, *Local and Regional Anesthesia*, 2013
- Invited Manuscript Reviewer, *Journal of Neural Engineering*, 2013
- Invited Manuscript Reviewer, *IEEE Transactions on Neural Systems and Rehabilitation Engineering*, 2012
- Invited Manuscript Reviewer, *Clinical Neurophysiology*, 2012
- Invited Manuscript Reviewer, *Disability and Rehabilitation: Assistive Technology*, 2012
- Invited Manuscript Reviewer, *IEEE Transactions on Neural Systems and Rehabilitation Engineering*, 2012.
- Invited Manuscript Reviewer, *Annals of Biomedical Engineering*, 2012
- Judge, Solon Middle School Science Fair, 2011
- Invited Manuscript Reviewer, *Disability and Rehabilitation: Assistive Technology*, 2011
- Invited Manuscript Reviewer, (2x), *IEEE Transactions on Neural Systems and Rehabilitation Engineering*, 2011.
- Invited Manuscript Reviewer, *Local and Regional Anesthesia*, 2010
- Invited Manuscript Reviewer, *Journal of Neural Engineering*, 2009
- Invited Manuscript Reviewer, *Transactions on Biomedical Engineering*, 2008

PEER-REVIEWED PUBLICATIONS (AWCR: 17.18; AW-index: 4.14)

1. D. Tan, **M. A. Schiefer**, M. Keith, J. R. Anderson, J. Tyler, D. J. Tyler, “Higher-order Modulation of Human Peripheral Nerve Stimulation for Multi-modal, Natural Sensory Perception,” *Science Trans Med*, Submitted.
2. **M. A. Schiefer**, M. Freeberg, G. J. C. Pinault, J. Anderson, H. Hoyen, D. J. Tyler, R. J. Triolo, “Selective Activation of the Human Tibial and Common Peroneal Nerves with a Flat Interface Nerve Electrode,” *J Neur Eng*, 10(5):056006, 1-13; Impact Factor: 3.282.
3. **M. A. Schiefer**, “Peripheral Nerve Models” in *Encyclopedia of Computational Neuroscience*, eds. D. Jaeger and R. Jung, Springer Reference, 2013.
4. **M. A. Schiefer**, D. J. Tyler, R. J. Triolo, “Probabilistic Modeling of Selective Stimulation of the Human Sciatic Nerve with a Flat Interface Nerve Electrode,” *J Comp Neurosci*, 31(3):179-190, 2012; Impact Factor: 2.325
5. **M. A. Schiefer**, K. H. Polasek, G. C. J. Pinault, R. J. Triolo, D. J. Tyler, “Selective stimulation of the common human femoral nerve with a Flat Interface Nerve Electrode,” *J Neur Eng*, 7(2): 26006, 1-9, 2010; Impact Factor: 3.7
6. K. H. Polasek, **M. A. Schiefer**, G. C. J. Pinault, R. J. Triolo, D. J. Tyler, “Intraoperative evaluation of the spiral nerve cuff electrode on the femoral nerve trunk,” *J Neur Eng*, 6(6): 66005, 1-6, 2009; Impact Factor: 3.7

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7. Y. Grinberg, **M. A. Schiefer**, D. J. Tyler, K. J. Gustafson, "Fascicular perineurium thickness, size, and position affect model predictions of neural excitation," *IEEE Trans Neur Sys Rehab Eng*, 16: 572-581, 2008; Impact Factor: 2.4
8. **M. A. Schiefer**, R. J. Triolo, D. J. Tyler, "A model of selective activation of the femoral nerve with a flat interface nerve electrode for a lower extremity neuroprosthesis," *IEEE Trans Neur Sys Rehab Eng*, 16: 195-204, 2008; Impact Factor: 2.4
9. **M. A. Schiefer**, W. M. Grill, "Sites of neuronal excitation by epiretinal electrical stimulation," *IEEE Trans Neur Sys Rehab Eng*, 14: 5-13, 2006; Impact Factor: 2.4
10. D. C. Lee, A. L. Jensen, **M. A. Schiefer**, C. W. Morgan, W. M. Grill, "Structural mechanisms to produce differential dendritic gains," *Brain Research*, 1033: 117-127, 2005; Impact Factor: 2.5

INVITED PRESENTATIONS

1. "An Overview of Biomedical Engineering" (2013) Hiram College.
2. "An Overview of Neural Engineering" (2013) Hiram College.
3. **M. A. Schiefer**, D. J. Tyler, R. J. Triolo (2010) "Design of Lower Extremity Neural Interfaces: Anatomically-Based, Model-Driven Design and Intraoperative Evaluation," *OCNS 19th Annual International Conference (Platform)*

PEER-REVIEWED ABSTRACTS AND PUBLIC PRESENTATIONS

1. **M. A. Schiefer**, D. W. Tan, R. Anderson, M. Keith, M. Schmitt, J. Tyler, D. J. Tyler (2013) "Restoring sensation in amputees with nerve cuff electrodes," *BMES Annual Conference (Platform)*
2. D. W. Tan, **M. A. Schiefer**, M. Keith, R. Anderson, D. J. Tyler (2013) "Chronic stability of implanted cuff electrodes in amputees" *BMES Annual Conference* (Poster)
3. **M. A. Schiefer**, D. W. Tan, R. Anderson, M. Keith, M. Schmitt, J. Tyler, D. J. Tyler (2013) "Sensory Restoration Through Electrical Nerve Stimulation Improves Prosthetic Hand Function," *Research ShowCASE* (Poster)
4. **M. A. Schiefer**, D. J. Tyler, R. J. Triolo (2012) "Design of Nerve Cuff Electrodes for the Sciatic, Tibial, and Common Peroneal Nerves Using Probabilistic Models," *Neural Interfaces Conference 2012* (Poster)
5. **M. A. Schiefer**, D. J. Tyler, R. J. Triolo (2012) "Comparing Probabilistic Models of Electrical Stimulation of the Sciatic, Tibial, and Common Peroneal Nerves," *Musculoskeletal Research Day* (Poster)
6. **M. A. Schiefer**, D. J. Tyler, R. J. Triolo (2012) "Comparing Probabilistic Models of Electrical Stimulation of the Sciatic, Tibial, and Common Peroneal Nerves," *Musculoskeletal Research Day (Platform)*
7. **M. A. Schiefer**, D. J. Tyler, R. J. Triolo (2011) "Probabilistic Modeling of Selective Stimulation of the Human Sciatic Nerve with a Flat Interface Nerve Electrode," *33rd Annual International IEEE EMBS Conference* (Poster)
8. M. Freeberg, **M. A. Schiefer**, R. J. Triolo (2011) "Efficient Search and Fit Methods to Find Nerve Stimulation Parameters for Multi-Contact Electrodes," *33rd Annual International IEEE EMBS Conference* (Poster)
9. E. Peterson, N. Brill, **M. A. Schiefer**, D. J. Tyler (2009) "Advancement of a Computationally Efficient Method to Predict Neural Activation with Nerve Cuff Stimulation," *Department of Biomedical Engineering 40th Anniversary* (Poster)
10. **M. A. Schiefer**, K. H. Polasek, R. J. Triolo, G. C. Pinault, D. J. Tyler (2009) "Optimized Design of Neural Interfaces for Femoral Nerve Clinical Neuroprostheses: Anatomically-Based Modeling and Intraoperative Evaluation," *31st Annual International IEEE EMBS Conference* (Poster)
11. **M. A. Schiefer**, K. H. Polasek, R. J. Triolo, G. C. Pinault, D. J. Tyler (2009) "Optimized Design of Neural Interfaces for Femoral Nerve Clinical Neuroprostheses: Anatomically-Based Modeling and Intraoperative Evaluation," *Research ShowCASE* (Poster)
12. **M. A. Schiefer** (2009) "Optimized Design of neural Interfaces for Femoral Nerve Clinical Neuroprostheses: Anatomically-Based Modeling and Intraoperative Evaluation," *Dissertation Defense*, March 16, 2009.
13. **M. A. Schiefer**, K. H. Polasek, G. C. Pinault, R. J. Triolo, D. J. Tyler (2008) "Intraoperative Evaluation of the Flat Interface Nerve Electrode for Selective Recruitment of Anterior Thigh Muscles in Humans," *38th Annual NIH Neural Interfaces Conference* (Poster)
14. Y. Grinberg, **M. A. Schiefer**, D. J. Tyler, K. J. Gustafson (2008) "Physiologic Fascicle Size and Perineurial Thickness Affect Predictions of Stimulation Selectivity," *38th Annual NIH Neural Prosthesis Workshop* (Poster)
15. **M. A. Schiefer**, K. H. Polasek, G. C. Pinault, R. J. Triolo, D. J. Tyler (2008) "Intraoperative Evaluation of the Flat Interface Nerve Electrode for Selective Recruitment of Anterior Thigh Muscles in Humans," *31st Annual Biomedical Graduate Student Symposium (Platform)*

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16. **M. A. Schiefer**, K. H. Polasek, G. C. Pinault, R. J. Triolo, D. J. Tyler (2008) "Intraoperative Evaluation of the Flat Interface Nerve Electrode for Selective Recruitment of Anterior Thigh Muscles in Humans," *Ohio State University Workshop on Restoration of Movement Via Peripheral Nerve Stimulation* (Poster)
17. Y. Grinberg, **M. A. Schiefer**, D. J. Tyler, K. J. Gustafson (2008) "Physiologic Fascicle Size and Perineurial Thickness Affect Predictions of Stimulation Selectivity," *Ohio State University Workshop on Restoration of Movement Via Peripheral Nerve Stimulation* (Poster)
18. **M. A. Schiefer**, K. H. Polasek, G. C. Pinault, R. J. Triolo, D. J. Tyler (2008) "Intraoperative Evaluation of the Flat Interface Nerve Electrode for Selective Recruitment of Anterior Thigh Muscles in Humans," *Research ShowCASE* (Poster)
19. Y. Grinberg, **M. A. Schiefer**, D. J. Tyler, K. J. Gustafson (2008) "Physiologic Fascicle Size and Perineurial Thickness Affect Predictions of Stimulation Selectivity," *Research ShowCASE* (Poster)
20. Y. Grinberg, **M. A. Schiefer**, D. J. Tyler, K. J. Gustafson (2007) "Physiologic Fascicle Size and Perineurial Thickness Affect Stimulation Selectivity," *BMES Annual Conference* (Poster)
21. **M. A. Schiefer**, K. H. Polasek, G. C. Pinault, R. J. Triolo, D. J. Tyler (2007) "Models of Selective Stimulation with and Intraoperative Testing of a Flat Interface Nerve Electrode," *Neural Engineering and Rehabilitation Lectures* (Poster)
22. Y. Grinberg, **M. A. Schiefer**, D. J. Tyler, K. J. Gustafson (2007) "Effects of Fascicle Size and Perineurial Thickness on Stimulation Selectivity," *Neural Engineering and Rehabilitation Lectures* (Poster)
23. K. H. Polasek, **M. A. Schiefer**, G. C. Pinault, R. J. Triolo, D. J. Tyler (2007) "Intraoperative Evaluation of the Spiral Nerve Cuff Electrode for a Standing Neuroprosthesis," *Neural Engineering and Rehabilitation Lectures* (Poster)
24. **M. A. Schiefer**, K. H. Polasek, G. C. Pinault, R. J. Triolo, D. J. Tyler (2007) "Intraoperative Evaluation of the First Flat Interface Nerve Electrode for a Standing Neuroprosthesis: A Case Report," *3rd International IEEE/EMBS Conference on Neural Engineering* (Platform)
25. K. H. Polasek, **M. A. Schiefer**, G. C. Pinault, R. J. Triolo, D. J. Tyler (2007) "Intraoperative Evaluation of the Spiral Nerve Cuff Electrode for a Standing Neuroprosthesis," *3rd International IEEE/EMBS Conference on Neural Engineering* (Poster)
26. **M. A. Schiefer**, R. J. Triolo, G. C. Pinault, D. J. Tyler (2007) "Models of Selective Stimulation with and Intraoperative Testing of a Flat Interface Nerve Electrode," *Research ShowCASE* (Poster)
27. K. H. Polasek, **M. A. Schiefer**, G. C. Pinault, R. J. Triolo, D. J. Tyler (2007) "Intraoperative Evaluation of the Spiral Nerve Cuff Electrode for a Standing Neuroprosthesis," *Research ShowCASE* (Poster)
28. **M. A. Schiefer**, R. J. Triolo, D. J. Tyler (2006) "Models of Selective Stimulation with a Flat Interface Nerve Electrode for Standing Neuroprosthetic Systems," *28th International IEEE/EMBS Conference* (Platform)
29. **M. A. Schiefer**, R. J. Triolo, D. J. Tyler (2006) "Selectively Stimulating the Human Femoral Nerve with a Flat Interface Nerve Electrode," *37th Annual NIH Neural Prosthesis Workshop* (Poster)
30. **M. A. Schiefer**, R. J. Triolo, D. J. Tyler (2006) "Models of Selective Stimulation with a Flat Interface Nerve Electrode for Standing Neuroprosthetic Systems," *Neural Engineering and Rehabilitation Lectures* (Poster)
31. **M. A. Schiefer**, R. J. Triolo, D. J. Tyler (2006) "Models of Selective Stimulation with a Flat Interface Nerve Electrode for Standing Neuroprosthetic Systems," *29th Annual Biomedical Graduate Student Symposium* (Poster)
32. **M. A. Schiefer**, R. J. Triolo, D. J. Tyler (2006) "Models of Selective Stimulation with a Flat Interface Nerve Electrode for Standing Neuroprosthetic Systems," *Research ShowCASE* (Poster)
33. **M. A. Schiefer**, K. J. Gustafson, R. J. Triolo, D.M. Durand, D. J. Tyler (2005) "Modeling Selective Stimulation with a FINE for Standing Neuroprosthetics," *BME Research ShowCASE* (Poster)
34. **M. A. Schiefer**, R. J. Triolo, D.M. Durand, D. J. Tyler (2005) "Modeling Selective Stimulation with a FINE for Standing Neuroprosthetics," *BMES Annual Conference* (Poster)
35. **M. A. Schiefer**, R. J. Triolo, D.M. Durand, D. J. Tyler (2005) "Modeling Selective Stimulation with a FINE for Standing Neuroprosthetics," *Neural Engineering and Rehabilitation Day* (Poster)
36. **M. A. Schiefer**, R. J. Triolo, D.M. Durand, D. J. Tyler (2005) "Modeling Selective Stimulation with a FINE for Standing Neuroprosthetics," *10th Annual Conference of the International Functional Electrical Stimulation Society* (Poster)
37. **M. A. Schiefer**, K. J. Gustafson, R. J. Triolo, D.M. Durand, D. J. Tyler (2005) "Models of Selective Stimulation with a Flat Interface Nerve Electrode for Standing Neuroprosthetic Systems," *28th Annual Biomedical Graduate Student Symposium* (Poster)
38. **M. A. Schiefer**, R. J. Triolo, D.M. Durand, D. J. Tyler (2005) "Models of Selective Stimulation with a Flat Interface Nerve Electrode for Standing Neuroprosthetic Systems," *ShowCASE* (Poster)

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39. **M. A. Schiefer**, R. J. Triolo, D.M. Durand, D. J. Tyler (2005) "Modeling Selective Stimulation with a Flat Interface Nerve Electrode for Standing Neuroprosthetic Systems," *2nd International IEEE/EMBS Conference on Neural Engineering (Platform)*
40. **M. A. Schiefer**, R. J. Triolo, D.M. Durand, D. J. Tyler (2004) "Optimized Contact Location on a Flat Interface Nerve-Cuff Electrode for Use in Standing Neuroprosthetic Systems," *35th Annual NIH Neural Prosthesis Workshop* (Poster)
41. **M. A. Schiefer**, R. J. Triolo, K. J. Gustafson, D. J. Tyler (2004) "Optimized Contact Location on a Flat Interface Nerve-Cuff Electrode for Use in Standing Neuroprosthetic Systems," *Neural Engineering and Rehabilitation Day* (Poster)
42. **M. A. Schiefer**, W.M. Grill (2003) "A model of Excitation Sites During Epiretinal Electrical Stimulation," *34th Annual NIH Neural Prosthesis Workshop* (Poster)
43. **M. A. Schiefer**, W.M. Grill (2003) "Modeling Excitation Sites of Retinal Ganglion Cells During Epiretinal Electrical Stimulation," *BMES Annual Conference. (Platform)*
44. **M. A. Schiefer**, W.M. Grill (2003) "A model of Excitation Sites During Epiretinal Electrical Stimulation," *Neural Engineering and Rehabilitation Day* (Poster)
45. **M. A. Schiefer**, W.M. Grill (2002) "Modeling Excitation Sites During Epiretinal Electrical Stimulation," *33rd Annual NIH Neural Prosthesis Workshop* (Poster)
46. **M. A. Schiefer**, W.M. Grill (2002) "Modeling Excitation Sites During Epiretinal Electrical Stimulation," *Applied Neural Control Research Day* (Poster)

POPULAR MEDIA

1. Discovery Channel Canada's "Dailey Planet," Air Date: TBD, 2013.
2. M. Campbell, "Paralysed limbs revived by hacking into nerves," *New Scientist*, 2754: 16-17, 2010.

INTERNAL PRESENTATIONS

1. "Restoring Natural Sensation to Amputees," APT Center Investigator Meeting, May 2013.
2. "Comparison of Sciatic, Tibial, and Common Peroneal Probabilistic Models of Electrical Nerve Stimulation," VA Motion Studies Laboratory Weekly Meeting, Jan 2012.
3. "Comparison of Sciatic, Tibial, and Common Peroneal Probabilistic Models of Electrical Nerve Stimulation," Department of Orthopaedics Musculoskeletal Training Grant Project Report, Dec 2011.
4. "Modeling and Evaluation of Lower Extremity Nerve Stimulation," Department of Orthopaedics Musculoskeletal Training Grant Project Report, May 2011.
5. "Modeling and Evaluation of Lower Extremity Nerve Stimulation," Department of Orthopaedics Musculoskeletal Training Grant Project Report, Feb 2011.
6. "Modeling and Evaluation of Lower Extremity Nerve Stimulation," VA Motion Studies Laboratory Weekly Meeting, Feb 2011.
7. "Update on Sciatic Nerve Modeling & Intraoperative Results from the August 2010 Bilateral Spiral Nerve Cuff Electrode Implants," VA Motion Studies Laboratory Weekly meeting, Nov. 2010.
8. "Reviewing Kesar's 2009 Paper on a Dual Dorsiflexion/Plantarflexion FES System," Department of Orthopaedics Musculoskeletal Training Grant Journal Club, Oct. 2010.
9. "Design and Evaluation of a Sciatic Nerve Interface," VA Motion Studies Laboratory Weekly Meeting, July 2010.
10. "Design of Lower Extremity Neural Interfaces: Anatomically-Based, Model-Driven Design and Intraoperative Evaluation," Department of Orthopaedics Musculoskeletal Training Grant Project Report, June 2010.
11. "Developing an Optimized Lower Extremity Interface for a Neural Prosthesis," VA Motion Studies Laboratory Weekly Meeting, Dec. 2009.
12. "Optimized Design of Neural Interfaces for Femoral Nerve Clinical Neuroprostheses: Intraoperative Evaluation of an Anatomically-Based Model-Driven Design," MetroHealth Functional Electrical Stimulation Weekly Meeting, Apr. 2009.
13. "Modeling and Intraoperative Evaluation of the Flat Interface Nerve Electrode (FINE) for Selective Recruitment of Anterior Thigh Muscles in Humans," Neural Engineering Center Weekly Meeting, Aug. 2008.
14. "Selectively Stimulating the Femoral Nerve with a Flat Interface Nerve Electrode: Modeling & Intraoperative Evaluation," VA Motion Studies Laboratory Weekly Meeting, Feb. 2008.

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15. "Models of Selective Stimulation with and Intraoperative Testing of a Flat Interface Nerve Electrode," Neural Engineering Center Weekly Meeting, June 2007.
16. "Models of Selective Stimulation with a Flat Interface Nerve Electrode (FINE) for Standing Neuroprosthetic Systems," Department of Biomedical Engineering Weekly Meeting, Sept. 2006.
17. "Models of Selective Stimulation with a Flat Interface Nerve Electrode (FINE) for Standing Neuroprosthetic Systems," VA Motion Studies Laboratory Weekly Meeting, Sept. 2006.
18. "Models of Selective Stimulation with a Flat Interface Nerve Electrode for Standing Neuroprosthetic Systems," Laboratory for Neuromimetic and Neural Integrated Systems Meeting, Mar. 2006.
19. "Development of an Optimized Nerve Cuff Electrode for Selective Activation of Fascicles of the Human Femoral Nerve," MetroHealth Functional Electrical Stimulation Weekly Meeting, Mar. 2006.
20. "Development of an Optimized Nerve Cuff Electrode for Selective Activation of Fascicles of the Human Femoral Nerve," Neural Engineering Center Weekly Meeting, Feb. 2006.
21. "Models of Selective Stimulation with a Flat Interface Nerve Electrode for Standing Neuroprosthetic Systems," VA Motion Studies Laboratory Weekly Meeting, Oct. 2005.
22. "Modeling Selective Stimulation with a FINE for Standing Neuroprosthetics," Neural Engineering Center Weekly Meeting, Apr. 2005.
23. "Modeling Selective Stimulation with a FINE for Standing Neuroprosthetics," MetroHealth Functional Electrical Stimulation Weekly Meeting, Jan. 2005.

LEADERSHIP

Case Western Reserve University

Cleveland, OH

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|-------------|---|
| 12/11-04/12 | Musculoskeletal Research Day Conference Organizing Committee – Member |
| 09/11-04/12 | Faculty Senate Committee on Information and Communication Technology – Member |
| 04/07-05/07 | President's Taskforce on Security and Safety – Member |
| 08/06-05/07 | Board of Trustees' Academic Affairs and Student Life Committee – Member |
| 08/06-05/07 | Provost's Graduate and Professional Student Experience Committee – Member |
| 05/05-05/07 | Graduate Student Grievance & Academic Integrity Boards – Board Member and Juror |
| 08/05-05/07 | Faculty Senate – Member (voting), Member of the Committee on Information Resources, Member of the Committee on Graduate Studies |
| 05/04-06/08 | Graduate Student Senate (GSS) – President, Biomedical Engineering Senator, School of Engineering Representative, Corresponding Secretary, Organizations and Allocations Committee Chair, Diekhoff Award Committee Chair, Vfund Award Committee Chair, Preparing Future Faculty/Professionals (PFF/PFP) Committee Chair, At-Large Executive Officer |
| 04/02-05/07 | Biomedical Engineering Graduate Student Association (GSA) – President, Vice President, Committee Chair, Senator |

Vanderbilt University

Nashville, TN

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|-------------|---|
| 05/01-05/09 | Engineering Alumni Council (EAC) – Young Alumni Class Representative, Member |
| 04/00-04/01 | Engineering Council – Committee Chair |
| 08/98-05/01 | V-Squared Engineering Mentoring Program – President, Mentor |

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References available upon request.