

**Scholarly Activities**  
**Department of Physical Medicine and Rehabilitation**  
**Quarter December 2018 – February 2019**

**REGULAR FACULTY**

**Nenad Brkic:** Keynote address “Fatigue After Traumatic Brain Injury”, Brain Injury Association of Illinois-Annual Educational Conference, October 2018

**Andrea Alberto Domenighetti**

Presented “Treatment of Muscle Contractures in Children with Cerebral Palsy: Unlocking the Potential of the Muscle Satellite Cell”, American Society for Cell Biology, December 2018

Abstract/Poster: “Novel Repurposing of a Cytidine Analog to Treat Human Muscle Contractures”, Annual ORS Meeting, February 2019

**Deborah Gaebler**

Chambers C, Sokhey T; **Gaebler-Spira D**, Kording K. The development of Bayesian integration in sensorimotor estimation, *Journal of Vision* November 2018, Vol.18, 8. doi:10.1167/18.12.8

Lopez-Ortiz, C., **Gaebler-Spira, D. J.**, Mckeeman, S. N., Mcnish, R. N., & Green, D. (2018). Dance and rehabilitation in cerebral palsy: a systematic search and review. *Developmental Medicine and Child Neurology*. <https://doi.org/10.1111/dmcn.14064>

Tang R, Kim J, Gaebler-Spira DJ, WuM. *Hum Mov Sci*. 2018 Nov 24; 63:20-33. Doi: 10.1016/j.humov.2019. 11.006 [Epub ahead of print] PMID: 30481722

DevSci Scientific Exchange on Infant Neuromotor Development – Invited Speaker – December 18<sup>th</sup>, 2018 – Shirley Ryan AbilityLab

**Jennifer Goldman**

Zhong Z, Merkitich D, Karaman MM, Zhang J, Sui Y, **Goldman JG**, Zhou XJ. Lateral asymmetry of brainstem structural abnormalities in Parkinson’s disease as revealed by high-resolution Gaussian and non-gaussian diffusion MRI, *Radiology* 2019, accepted

Hoogland J, Boel JA, de Bie RMA, Schmand BA, Geskus RB, Dalrymple-Alford JC, Marras C, Adler CH, Weintraub D, Junque C, Pedersen KF, Mollenhauer B, **Goldman JG**, Troster AI, Burn DJ, Litvan I, Geurtsen GJ; IPMDS Study Group “Validation of Mild Cognitive Impairment in Parkinson Disease.” “Risk of Parkinson’s Disease dementia related to level I MDS PD-MCI.” *Movement Disorders* 2019 [Epub Jan 17]; PMID: 30653248

Purcell NL, **Goldman JG**, Bernard B, O’Keefe JA. The effects of dual-task cognitive interference on balance in Huntington’s disease, *Movement Disorders Clinical Practice*, 2018, online/in press

Bledsoe IO, Stebbins GT, Merkitich D, **Goldman JG**. Diffusion tensor imaging of the corpus callosum and Parkinson's disease cognitive impairment, *Neurology*, 91 (24): 32244-2255, PMID: 30429273

### Levi Hargrove

Earley EJ, Johnson RE, Hargrove LJ, Sensinger JW. "Joint Speed Discrimination and Augmentation for Prosthesis Feedback" *Sci Rep*. 8(1):17752. Dec. 10, 2018. doi: 10.1038/s41598-018-36126-4.

Otseidu K, Jia T, Byrne J, **Hargrove L**, Gu J. "Design and Optimization of Edge Computing Distributed Neural Processor for Biomedical Rehabilitation with Sensor Fusion." Proceedings of the International Conference on Computer-Aided Design, ICCAD'18, November 5-8, 2018, San Diego, CA USA © 2018 Association for Computing Machinery. ACM ISBN 978-1-4503-5950-4/18/11\$15.00 <https://doi.org/10.1145/3240765.3240794>

Whitmore M, **Hargrove LJ**, Perreault EJ. "Altered Neural Control Reduces Shear Forces and Ankle Impedance on a Slippery Surface." *IEEE Transactions in Biomedical Engineering*, Dec. 24, 2018. doi: 10.1109/TBME.2018.2889624. [Epub ahead of print]

Lenzi T, Cempini M, **Hargrove L**, Kuiken T. "Design, Development, and Validation of a Lightweight Non-backdrivable Robotic Ankle Prosthesis" *IEEE Transactions on Mechatronics* (Early Access) doi: 10.1109/TMECH.2019.2892609, January 11, 2019.

Batzianoulis I, Simon AM, **Hargrove L**, Billard A. "Reach-to-grasp motions: Towards a dynamic classification approach for upper-limb prosthesis." *9th International IEEE/EMBS Conference on Neural Engineering (NER)*, San Francisco, CA, March 2019.

Batzianoulis I, Krausz NE, Simon AM, **Hargrove LJ**, Billard A. Decoding the grasping intention from electromyography during reaching motions. *J Neuroeng Rehabil*, 15(1):57, 2018.

Woodward RB, **Hargrove LJ**. "Adapting Myoelectric Control in Real-time Using a Virtual Environment." *Journal of NeuroEngineering and Rehabilitation* 16(11). January 16, 2019.

### Allen Heinemann

#### **Peer-Reviewed Publications**

Deutsch A, **Heinemann AW**, Cook KF, Foster L, Miskovic A, Goldsmith A, Cella D. Inpatient Rehabilitation Quality of Care From the Patient's Perspective: Effect of Data Collection Timing and Patient Characteristics. *Arch Phys Med Rehabil*. 2018 Nov 23. pii: S0003-9993(18)31473-4. doi: 10.1016/j.apmr.2018.10.019. [Epub ahead of print] PubMed PMID: 30476488.

Xie G, Chen L, Yang S, Tao J, Chan CCH, **Heinemann AW**, Cella D, Lai JS, Correia H, Wong AWK. Simplified Chinese translation of 13 adult item banks from the Quality of Life in Neurological Disorders (Neuro-QoL). *BMC Health Serv Res*. 2018 Oct 30;18(1):825. doi: 10.1186/s12913-018-3631-7. PubMed PMID: 30376828; PubMed Central PMCID: PMC6208024.

Pinto D, Bockenholt U, Lee J, Chang RW, Sharma L, Finn DJ, **Heinemann AW**, Holl JL, Hansen P. Preferences for physical activity: a conjoint analysis involving people with chronic knee pain. *Osteoarthritis Cartilage*. 2018 Oct 15. pii:S1063-4584(18)31500-0. doi: 10.1016/j.joca.2018.10.002. [Epub ahead of print] PubMed PMID: 30336210.

### ***Proposals under Review***

NIDCD: Defining Trajectories of Linguistic, Cognitive-Communicative and Quality of Life Outcomes in Aphasia R01 DC017174-01A1 with Leora Cherney (co-PIs), awaiting Council decision

CDC: Injury Control Research Center

AHRQ: Co-PI with Scott Dresden (Emergency Medicine), A Randomized Controlled Trial of Geriatric Emergency Department Innovations R01- HS026489, undergoing administrative review.

### ***Service Activities***

Member, Consensus Committee on Functional Assessment for Adults with Disabilities, National Academies of Sciences, Engineering, and Medicine's, 2017 – 2019

Member, Standing Committee of Medical and Vocational Experts for the Social Security Administration's Disability Programs, 2019 - present

Member, Advisory Board, National Center for Medical Rehabilitation Research, 2016-2019.

Member, NINDS Stroke CDE v2.0 Working Group, 2018-present.

Advisory Board, Craig H. Neilsen Award, Larry Vogel, PI. Shriners' Hospital, Chicago, IL, 2018-2021

Member, NINDS Stroke v2.0 Outcomes and Endpoints Subgroup, 2018 – present

## **Arun Jayaraman**

### ***Papers Published***

Lonini L, Dai A, Shawen N, Simuni T, Poon C, Shimanovich L, Daeschler M, Ghaffari R, Rogers JA, **Jayaraman A**. "Wearable sensors for Parkinson's disease: which data are worth collecting for training symptom detection models." *npj Digital Medicine* (2018) 1:64; doi:10.1038/s41746-018-0071-z November 23, 2018.

McGibbon CA, Sexton A, **Jayaraman A**, Deems-Dluhy S, Gryfe P, Novak A, Dutta T, Fabara E, Adans-Dester C, Bonato P. "Evaluation of the Keeogo exoskeleton for assisting ambulatory activities in people with multiple sclerosis: an open-label, randomized cross-over trial." *Journal of NeuroEngineering and Rehabilitation* 15:117, December 12, 2018.

**Jayaraman A**, O'Brien MK, Madhavan S, Mumidisetty CK, Roth HR, Hohl K, Tapp A, Brennan K, Kocherginsky M, Williams, KJ, Takahashi H, Rymer W. "Stride management assist exoskeleton vs functional gait training in stroke: A randomized trial." *Neurology*, 10.1212/WNL.0000000000006782; December 19, 2018.  
DOI:10.1212/WNL.0000000000006782

**Conference presentation**

Dewald J Field-Fote, E, Hohl K, **Jayaraman A**, Land C. "Why we Love AND Hate Our Robots" Implications for Everyday Clinical Practice. Academy of Neurologic Physical Therapy (APTA) Conference, January 25, 2019.

**Jayaraman A. Invited Speaker:** Rehabilitation robotics: An Overview. Salesforce HQ, Chicago, January 2019.

**Jayaraman A. Invited Speaker.** Honda's 5<sup>th</sup> Walking Rehabilitation Workshop. Tokyo, Japan. January 2019.

**Grants Submitted**

NSF-SCH (Subcontract with University of Notre Dame) "SCH: Crowdsourced Sensing of Physical and Emotional Stressors of Stroke Survivors" submitted December 11, 2018.

**Todd Kuiken**

**Papers Published**

Lenzi T, Cempini M, Hargrove L, **Kuiken T**. "Design, Development, and Validation of a Lightweight Non-backdrivable Robotic Ankle Prosthesis" *IEEE Transactions on Mechatronics* (Early Access) doi: 10.1109/TMECH.2019.2892609, January 11, 2019.

**Grants Submitted**

NIDILRR Field-initiated Projects: Submitted February 5, 2019.

*"Development and Initial Testing of a Pediatric Standing Wheelchair"*

*"Design, Development and Clinical Testing of a Manual Muscle Strength Quantification System and an Associated Teaching Program"*

*"Development of a Low-cost Lower Limb Prosthetic Socket"*

**Christina Marciniak**

**Publications: Articles**

**Marciniak, C.**, Munin, M.C., Brashear, A., Rubin, B.S., Patel, A.T., Slawek, J., Hanschmann, A., Hiersemenzel, R. and Elovic, E.P., 2018. IncobotulinumtoxinA Efficacy and Safety in Adults with Upper-Limb Spasticity Following Stroke: Results from the Open-Label Extension Period of a Phase 3 Study. *Advances in therapy*, pp.1-13.

Pradines M, Ghedira M, Portero R, Masson I, **Marciniak C**, Hicklin D, Hutin E, Portero P, Gracies JM, Bayle N. Ultrasound structural changes in triceps surae after a one-year daily

self-stretch program: a prospective randomized controlled trial in chronic hemiparesis.  
*Accepted for Publication: Neurorehabilitation and Neural Repair January 2019.*

Pradines, M., Baude, M., **Marciniak, C.**, Francisco, G., Gracies, J.M., Hutin, E. and Bayle, N. Effect on Passive Range of Motion and Functional Correlates After a Long-Term Lower Limb Self-Stretch Program in Patients With Chronic Spastic Paresis. *PM&R* 2018, 10:1021-1031.

<https://doi.org/10.1016/j.pmrj.2018.02.013>

#### **Abstracts:**

**Marciniak, C.**, Munin, M.C., Brashear, A., Rubin, B.S., Patel, A.T., Slawek, J., Hanschmann, A., Hiersemenzel, R. and Elovic, E.P., 2018. Efficacy of incobotulinumtoxinA in upper-limb spasticity following stroke: results from the open-label extension period of pure. *TOXICON-OXFORD-*, 156(1), pp.S73-S74.

Kaňovský, P., Elovic, E.P., Munin, M.C., Hanschmann, A., Pulte, I., Althaus, M., Hiersemenzel, R. and **Marciniak, C.**, 2018. Sustained efficacy of incobotulinumtoxinA in upper-limb poststroke spasticity: Pooled analysis of 2 phase 3 trials. *TOXICON-OXFORD-*, 156(1), pp.S57-S57.

Rafferty, M., MacDonald, J., Sloan, L., Byskosh, A.Z., Toledo, S. and **Marciniak, C.**, 2018. Physical Therapy for People With Newly Diagnosed Parkinson's Disease: A Knowledge Translation Research Approach. *Archives of Physical Medicine and Rehabilitation*, 99(10), p.e62.DOI: <https://doi.org/10.1016/j.apmr.2018.07.216>

#### **Awards**

Northwestern/Feinberg Medical School Award for: Excellence in Teaching - Area of Scholarly Concentration

**Laura Miller:** Proposal OPERF Small Grant Program: "A Pilot Investigation to Determine if Pathogens are Present on Gel Liners Worn by Amputees." Submitted January 15, 2019.

#### **Diane Dudas Sheehan**

##### ***Teaching:***

Completed fall session-small group tutor for Ethics in Action Class – M2 medical students, NU

Begins week of 2/25 - small group tutor for Ethics in Action Class – M1 medical students, NU

Continue repeating lecture- PM&R residents / students during Pediatric rotation at SRAL "Neuromuscular Scoliosis Evaluation and Management" on 12/6/18

"Comprehensive Evaluation and Practical Treatment of Children with Wounds" on 12/27/18

##### ***Publication***

Schmitt, M., Burgess, J., Larson, J.E., **Sheehan, DD** Janicki, J.A. (2018) Late Presentation of Developmental Hip Dislocation: A Case Report. *JBJS Case Connector*. 2018: 8(4):e88-e88.

## RESEARCH FACULTY

### Anne Deutsch

#### Peer-reviewed publications

**Deutsch A** Heinemann AW, Cook KF, Foster L, Miskovic A, Goldsmith A, Cella D. Inpatient Rehabilitation Quality of Care from the patient's Perspective: Impact of Data Collection Timing and patient Characteristics. *Archives of Phys Medicine and Rehabilitation*. In Press.

#### *Presentations Educational Sessions*

**Deutsch A**, Functional Abilities and Goals and Active Diagnoses. Webinar presentation for the Centers for Medicare and Medicaid Services' Skilled Nursing Facility Quality Reporting Program Training; Sept 12, 2018.

**Deutsch A**. Functional Abilities and Goals. Presentation at the Centers for Medicare and Medicaid Services' Home Health Quality Reporting Program Training, Baltimore, MD; November 6, 2018.

**Deutsch A**. Healthcare Research. Presentation to high school students about careers in health care research. Course: Introduction to Health Occupations, Naperville Central High School, Naperville, IL; November 16, 2018.

#### *Presentations: Conference*

**Deutsch A**, Palmer L, Vaughan M, Marino M, McMullen T, Levitt A, Mandl S. Association of Functional Status and Discharge Destination for Patients Discharged from Inpatient Rehabilitation. *Innovation in Aging*. 2018 Nov 16;2(suppl\_1):894-5

Li Q, **Deutsch A**, Seibert J, Barch D, Livingstone I, McMullen T, Mandl SR. National Data on The First Set of Assessment-Based Quality Measures Publicly Reported In SNF QRP. *Innovation in Aging*. 2018 Nov;2(Suppl 1):27.

Ptaszek A, **Deutsch A**, Li Q, Cool A, Smith L, McMullen T, Pratt M. Policy and Quality: The IMPACT Act of 2014 And Development Of The Skilled Nursing Facility Quality Reporting Program. *Innovation in Aging*. 2018 Nov;2(Suppl 1):26.

Barch D, Seibert J, Kandilov A, Bernacot A, **Deutsch A**, McMullen T, Mandl S, Smith L. Evaluation of Risk-Adjustment Models for a Pressure Ulcer Quality Measure. *Innovation in Aging*. 2018 Nov;2(Suppl 1):196.

**Deutsch A**. Academic Salon: CARE and the Policy of Integrated People-centered Health Services. Hefei University of Technology. Hefei, China. December 10, 2018.

**Deutsch A**. Post-Acute Care and Rehabilitation in the United States. Geriatric Care and Health Informatics Branch of the Chinese Aging Well Association. Beijing International Conference Center, Beijing, China. December 12, 2018.

**Deutsch A**. Development and Implementation of the CARE Function Data Elements in the United States. Geriatric Care and Health Informatics Branch of the Chinese Aging Well Association. Beijing International Conference Center, Beijing, China. December 13, 2018.

### **Linda Ehrlich-Jones**

#### ***Proposals in Development***

PCORI resubmission on EnhanceFitness vs. Walk with Ease: Finding the Best Fit for Older Adults with Chronic Knee Symptoms with Rowland Chang, MD, MPH.

#### ***Service Activities***

American College of Rheumatology Collaborative Initiatives Work Group

American College of Rheumatology The Training Rheum Work Group

### **Jessica Pedersen**

#### ***Peer-Reviewed Publications***

Presperin Pedersen, J (2109) Protecting the Wheelchair on a Commercial Flight: How Professionals from the Wheelchair Industry Can Help. *Directions Magazine*. NRRTS Vol 1

#### ***Proposals Submitted***

Submitted LOI- NIDILLR SWITZLER- Pediatric powered mobility

Submitted LOI- Neilsen CO&I Air Travel Education

Submit NIDILLR – SWITZER Therapeutic Intervention Using Dedicated Pediatric Powered Mobility Devices in Infants and Toddlers- \$70,000

## **Sherri LaVela**

### ***Publications (published; in press, revised):***

Radonovich LJ, Wizner K, **LaVela SL**, Lee ML, Findley K, Yorio P. A tolerability assessment of new respiratory protective devices developed for health care personnel: a randomized simulated clinical study. *PLoS ONE*. 2019;14(1): e0209559.

<https://doi.org/10.1371/journal.pone.0209559> .

**LaVela SL**, Balbale SN, Hill JN. Experience and utility of using the participatory method, Photovoice, in individuals with spinal cord injury. *Topics in SCI Rehabilitation*. 2018;24(4):295-305.

Etingen B, Locatelli SM, Miskevics S, **LaVela SL**. Examining the relationship between post-traumatic stress disorder and social participation among Veterans with spinal cord injuries and disorders. *Disabil Rehabil*. 2018;40(22):2637-2643.

**LaVela SL**, Etingen BE, Miskevics S, Cella D. Use of PROMIS-29® in US Veterans: diagnostic concordance and domain comparisons with the general population. *JGIM*. Revised 12//2018.

Heinemann AW, Deutsch A, Fatone S, Soltys N, McPherson V, Spraggins J, Peterson M, Slater BCS, **LaVela SL**. Patient and clinician perspectives on indicators of quality-of-care topics for users of custom ankle-foot orthoses. *Prosthetics and Orthotics International*. Revised

Heinemann AW, Fatone S, **LaVela SL**, Slater BCS, Deutsch A, Peterson M, Soltys N, MacPherson V. Orthotists' and Physical Therapists' Perspectives on Quality of Care Indicators for Persons with Custom Ankle-Foot Orthoses. *Disabil Rehabil Assistive Technology*. Revised. January 2019.

Weaver FM; Binns-Calvey A; Gonzalez B; Kostovich C; **LaVela SL**; Stroupe K; Kelly B; Ashley N; Miskevics S; Gerber B; Burkhart E; Schwartz A. Alerting doctors about patient life challenges: A randomized control trial of a pre-visit inventory of contextual factors. *Medical Decision-Making Policy & Practice*. Revised 12/11/18

## **Ann Simon**

Batzianoulis I, **Simon AM**, Hargrove L, Billard A. "Reach-to-grasp motions: Towards a dynamic classification approach for upper-limb prosthesis." *9th International IEEE/EMBS Conference on Neural Engineering (NER)*, San Francisco, CA, March 2019.

Batzianoulis I, Krausz NE, **Simon AM**, Hargrove LJ, Billard A. Decoding the grasping intention from electromyography during reaching motions. *J Neuroeng Rehabil*, 15(1):57, 2018.



**Mary Ellen Stoykov**

***Manuscripts***

Ghassemi M, Triandafilou K, Barry A, **Stoykov ME**, Roth E, Mussa-Ivaldi, FA, Kamper DG & Rajiv, R. Development of an EMG-controlled Serious Game for Rehabilitation. (in press) *Transactions in Neural Systems and Rehabilitation Engineering*.

Thielbar, Triandafilou, Barry, Yuan, Nishimoto, Johnson, **Stoykov**, Tsoupikova, & Kamper. Home-based upper extremity stroke therapy using a multi-user virtual reality environment, submitted to *Neural Rehabilitation and Neural Repair*

***Grants Submitted:***

Stoykov ME & Goldman JG (Co-PIs) Guided strategy training as cognitive rehabilitation in Parkinson's Disease. Submitted to Coleman Foundation, Shirley Ryan Abilitylab.

***Professional Activities***

American Occupational Therapy Foundation, Committee member, Awards and Honors Committee

**NU PROSTHETICS AND ORTHOTICS CENTER**

***Publications:***

Brown SE, Russell Esposito E, Ikeda AJ, Wilken JM, **Fatone S** (2018) Evaluation of NU-FlexSIV Socket Performance for Military Service Members with Transfemoral Amputation. US Army Medical Department Journal (2-18):38-47.

**Major MJ**. Fall prevalence and contributors to the likelihood of falling in persons with upper limb loss. *Physical Therapy*, 2018 Dec 18 [ePub].

***Presentations:***

**Matty Major, PhD, and Stefania Fatone, PhD, BPO** presented the webinar "Predict the Medicare Functional Classification Level (K-level) using the Amputee Mobility Predictor in people with unilateral transfemoral and transtibial amputation" for the American Academy of Orthotists and Prosthetists, February 6, 2019.

***Awards:***

**Jorian Ordway** (MPO 2019) was selected to receive an OPERF Student Award for Academic Achievement. Ms. Ordway won the award in recognition of her outstanding academic achievement in the NUPOC MPO degree program in the class of 2019.

**Kristin Barth, Maureen Connelly and Abbey Senczyszyn (MPO 2019)** are recipients of the 2018 [Tamarack Awards](#). Since 2014, the generosity of J. Martin Carlson, CPO, FAAOP, owner

and chief engineer of Tamarack Habilitation Technologies (Blaine, MN), enables NUPOC to confer a Tamarack Award on three NUPOC MPO students who demonstrate excellence in orthotics.

***Meetings:***

**Steven A. Gard, PhD**, was invited to attend the fourth O&P Leadership Conference hosted by the AOPA in Scottsdale, AZ on January 4 through 6. The conference speakers and attendees were recognized leaders in healthcare delivery and P&O. Attendance was by invitation only. The conference theme was "Reimbursement for Value in an Evidence-Based World."

**Stefania Fatone, PhD, BPO (Hons)**, participated as a reviewer in the VA Merit Review Panel held on February 27, 2019, in Washington DC.

**Stefania Fatone, PhD, BPO (Hons)**, participated as a reviewer of abstracts for the International Society for Prosthetics and Orthotics World Congress to be held on October 5-8, 2019, in Kobe, Japan.

***Laboratory Visits/Events:***

**Stefania Fatone, PhD, BPO (Hons)**, and **Ryan Caldwell, CP**, taught the 2 day hands-on NU-FlexSIV Socket Course to:

- 20 prosthetists at Kobe College of Medical Welfare in Sanda, Japan on January 18-20, 2019.
- 16 prosthetists at Ossur Americas in Orlando, Florida on February 8-9, 2019.

***Recent Appointments:***

**J. Chad Duncan, PhD, CRC, CPO**, is the incoming Director at the Northwestern University Prosthetics-Orthotics Center (NUPOC), Department of Physical Medicine and Rehabilitation, Northwestern University Feinberg School of Medicine, and formally assumed his leadership role on January 1, 2019.

**Stefania Fatone, PhD, BPO (Hons)** was one of a team of four people appointed co-Editors-in-Chief of Prosthetics and Orthotics International beginning on January 1, 2019.

***Grant Awards:***

**Matthew J. Major, PhD**, and his research project, "Characterizing the Gait Biomechanics of Women with Leg Amputation for Improving Evidence-Based Rehabilitation Practice" have been selected for funding by the 2019 Shaw Family Pioneer Awards.

***Grant Submissions:***

**Stefania Fatone, PhD, BPO (Hons)** was a co-investigator on an NIH R01 submission titled "The influence of 3D printed prostheses on neural activation patterns of the primary motor cortex in children with unilateral congenital upper-limb reductions" (PI Jorge Zuniga, University of Nebraska) submitted on February 5 2019.

**Steven Gard, PhD**, was PI on an application entitled, “Development and Evaluation of a Shock Absorbing Prosthetic Ankle Mechanism” that was submitted to the Field Initiated Projects Program (Development) of the National Institute on Disability, Independent Living and Rehabilitation Research (NIDILRR) on February 5, 2019.

**Steven Gard, PhD**, was PI on an application entitled, “Optimal Selection of Prosthetic Knee and Foot Combination for Improving Walking and Standing Performance in Transfemoral Prosthesis Users” that was submitted to the Department of Veterans Affairs, Rehabilitation Research & Development Service, on December 10, 2018.

**Steven Gard, PhD**, was PI on an application entitled, “Evaluation of a Hydraulic Prosthetic Foot/Ankle Component to Increase Swing Phase Toe Clearance in Persons with Transfemoral Amputation” that was submitted to the Department of Veterans Affairs, Rehabilitation Research & Development Service, on December 10, 2018.

**Matty Major, PhD**, was PI on a VA Merit Review submission titled “Hybrid Electrical-Mechanical Pump for Vacuum Suspension of Prosthetic Sockets” (co-investigators **Stefania Fatone, PhD, BPO (Hons) and Ryan Caldwell, CP**) submitted on December 15 2019.

**Matty Major, PhD, and Martin Bucker, CPO**, are Co-Investigators on a proposal titled “Personalized prosthesis stiffness to maximize comfort and mobility using human-in-the-loop optimization” submitted on January 15<sup>th</sup> to The Orthotic and Prosthetic Education and Research Foundation (OPERF) Small Grant Program.

**Matty Major, PhD, and Chad Duncan, PhD, CRC, CPO**, are Co-Investigators on a proposal titled “Validating the fear of falling avoidance behavior questionnaire in users of lower limb prostheses” submitted on January 15<sup>th</sup> to The Orthotic and Prosthetic Education and Research Foundation (OPERF) Small Grant Program.

**Matty Major, PhD, and Martin Bucker, CPO**, are Co-Investigators on a proposal titled “Personalized prosthesis stiffness to maximize comfort and mobility using human-in-the-loop optimization” submitted on February 16<sup>th</sup> to the NIH R21 Exploratory/ Developmental Bioengineering Research Grant.

**Matty Major, PhD**, is a Co-Investigator on a proposal titled “Validation of a Computational Model for Controlling Center-of-Pressure in Bipedal Locomotion” submitted on February 16<sup>th</sup> to the NIH R21 Exploratory/ Developmental Bioengineering Research Grant.

**Matty Major, PhD**, is a Co-Investigator on a DoD Phase I SBIR proposal titled submitted on February 6<sup>th</sup> in response to the solicitation “Automated Framework for the Design of Passive Prosthetic & Orthotic Interfaces”.

***Grant LOI Submissions:***

**Matty Major, PhD, Rebecca Stine, MS, Paul Hammond, MS, Keith Gordon, PhD, and Steven Gard, PhD**, submitted a letter of intent for a Small Project in Rehabilitation Research (SPiRE)

proposal entitled, “Locomotor Response of Persons with Upper Limb Loss to Treadmill Perturbations” to the Department of Veterans Affairs, Rehabilitation Research & Development Service, on February 1, 2019.

**Rebecca Stine, MS, Steven Gard, PhD, and Matty Major, PhD**, submitted a letter of intent for a Small Project in Rehabilitation Research (SPiRE) proposal entitled, “Are Women at Increased Risk of Developing Secondary Physical Conditions Associated with Lower-Limb Amputation and Long-Term Prosthesis Use?” to the Department of Veterans Affairs, Rehabilitation Research & Development Service, on February 1, 2019.

#### **OTHER FACULTY**

**Linda Rice:** P.I. National Institute on Aging study: “Therapeutic Effects of Exercise in Adults with Amnesic Mild Cognitive Impairment.