# Curriculum Vitae - Daniel S. Peterson, PhD

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My work aims to improve our understanding of why people with neurological conditions fall, and ways to reduce the frequency of future falls. To achieve this goal, we conduct human-subject research to 1) characterize balance deficits, 2) understand neural control of balance, and 3) develop & assess fall-prevention rehabilitation interventions. We engage an interdisciplinary team of engineers, neuroscientists, neuropsychologists, & clinicians to ensure our work is guided by a theoretical framework and remains translatable to the clinical community. Our goals of reducing falls and improving quality of life support the mission of the College of Health Solutions at ASU to "make meaningful contributions to the health and well-being of society".

## EMPLOYMENT & EDUCATION

### *Employment*

#### ***Current positions***

**Associate Professor**: Arizona State University — 2022 – Present
College of Health Solutions
Director: Gait and Balance Disorders Laboratory

**Assistant Professor:** Arizona State University — 2016 – 2022
College of Health Solutions

**Affiliate Faculty:** Arizona State University — 2016 – Present
School of Biological and Health Systems Engineering

**Associate Faculty:** Arizona State University — 2022 – Present
Biodesign Institute and the ASU-Banner Neurodegenerative Research Center

**Adjunct Instructor:** University of Utah — 2015 – Present
Program in Physical Therapy

#### ***Previous positions***

**Health Science Specialist**; Phoenix VA Health Care System — 2018 – 2023
Research Division

**Postdoctoral Researcher:** Oregon Health & Science University — 2013 – 2016
Department of Neurology

**Health Science Specialist:** Salt Lake City & Portland VA Medical Centers — 2014 – 2016
Research Division

**Research Fellow:** Steadman Philipon Research Foundation — 2008 – 2009
Biomechanics Laboratory

### *Education*

**Doctor of Philosophy – Movement Science** — 2009 – 2013
Washington University in St. Louis

**Master of Science – Clinical Investigation** — 2011 – 2013
Washington University in St. Louis

**Master of Science – Kinesiology (Biomechanics)** — 2006 – 2008
Pennsylvania State University

**Bachelor of Science – Exercise and Sport Sciences** — 2002 – 2006
University of Florida

# FUNDING

## *Current Funding*

1) **Funding Source / Grant #:** National Institutes of Health / R01AG086533
   **Mechanism:** R01
   **Role: PI**
   **Total Cost:** $3,362,930
   **Title:** Identifying Targets for Fall-prevention Rehabilitation in People with Parkinson's Disease
   **Purpose:** Establish the clinically targetable aspects of balance that predict falls in people with PD
   **Award Dates:** 2024-2029

2) **Funding Source / Grant #:** Michael J Fox Foundation MJFF- 024692
   **Mechanism:** Investigator Initiated Award
   **Role:** Co-I (PI- Mancini)
   **Total Cost:** $1,136,851
   **Sub Award to ASU:** $365,577
   **Title:** TURN-IT:A novel intervention program to improve turning in people with PD and freezing of gait
   **Purpose:** To assess the effectiveness of turning rehabilitation on freezing in people with PD
   **Award Dates:** 2024-2027

3) **Funding Source / Grant #**: ASU-Mayo Seed Grant / N/A
   **Mechanism:** Investigator Initiated Award
   **Role**: PI (Co-PI: Mehta)
   **Total Cost**: $100,000
   **Title**: Quantitative Gait Analysis as a novel diagnostic tool and clinical biomarker for Atypical Parkinsonian Syndromes
   **Purpose**: Utilize machine learning to identify gait biomarkers for typical and atypical Parkinson's disease
   **Dates of Award**: 2023-2025

## *Completed Funding*

1) **Funding Source / Grant #:** U.S. Dept. of Veterans Affairs / RX002341
   **Mechanism:** Career Development Award (CDA-2)
   **Role:** PI
   **Total Direct Cost:** $721,117
   **Title:** "Protective Step Training in People with Multiple Sclerosis"
   **Purpose:** Understand the whether long-term protective step training can improve protective stepping in people with MS; identify predictors of responsiveness to perturbation training.
   **Dates of Award:** 10/2018 – 10/2024

2) **Funding Source / Grant #**: National Institutes of Health / N/A
   **Mechanism:** a2collective Pilot Award
   **Role:** Co-PI (Co-PI-Denney; Tufts University)
   **Total Subaward (ASU) Cost:** $73,777
   **Title:** Novel pressure-sensing insoles to better predict and treat falls in home and clinical settings
   **Purpose:** Serves to validate novel insoles for identifying metrics for balance and fall prevention
   **Dates of Award:** 2022-2023

3) **Funding Source / Grant #**: Center for Innovation in Healthy and Resilient Aging / N/A
   **Mechanism:** Investigator Initiated Award
   **Role:** PI (Co-PI: Lee)
   **Total Cost:** $45,000
   **Title:** Assessment and Rehabilitation of Upright Standing Balance to Avoid Falls in people with PD
   **Purpose:** Assess the relationship between balance outcomes and prospectively-collected falls in PD
   **Dates of Award:** 2022-2023

4) **Funding Source**: Michael J Fox Foundation
**Role:** PI
**Total Cost:** $409,013
**Title:** Protective Step Training in People with PD and Postural Disturbances
**Purpose:** Understand the impact of perturbation training on people with PD who are at risk for falls.
**Dates of Award:** 1/2019 – 10/2021

5) **Funding Source / Grant #**: Northern Arizona University / N/A
**Mechanism:** Seed Grant Program
**Role:** Co-PI (PI: Denney, Ivy)
**Total Cost:** $2,000
**Title:** Assessing the use of laser shoes for freezing of gait in people with Parkinson's disease
**Purpose:** Characterize the impact of a new technology to improve walking in people with PD
**Dates of Award:** 2019-2021

6) **Funding Source / Grant #**: College of Health Solutions, ASU / N/A
**Mechanism:** Jumpstart Seed Grant
**Role:** PI
**Total Cost:** $18,000*
**Title:** The Impact of Dopamine on Attention in Parkinson's Disease
**Purpose:** Characterize how attentional control varies across dopaminergic states in people with PD
**Dates of Award:** 2019-2022

7) **Funding Source / Grant #:** National Multiple Sclerosis Society / N/A
**Mechanism:** Investigator-Initiated Pilot Award
**Role:** Co-PI (PI of ASU subcontract; Co-PI: Fling; Colorado State University)
**Total Cost:** $40,000
**Subaward Cost to ASU / DSP:** $13,607 / $13,607
**Title:** Interhemispheric communication in people with MS: Implications for balance and mobility
**Purpose:** Investigate how interhemispheric communication is altered in people with MS, and how this may impact motor performance and learning.
**Dates of Award:** 03/2018 – 02/2019

8) **Funding Source / Grant #:** National Multiple Sclerosis Society (NMSS) / RG-1701-26763
**Mechanism:** Investigator Initiated Research Grant
**Role:** Co-I (PI of ASU subcontract; Project PI: Dibble; University of Utah)
**Total Cost: $**458,000
**Subaward Cost to ASU / DSP:** $32,880 / $32,880
**Title:** Gaze and postural stability in persons with MS at risk for falls: Characterizing deficits and response to treatment.
**Purpose:** The purpose of this RCT is to characterize the impact of task specific gaze and postural stability training on balance, dizziness, and vestibular function in people with MS.
**Dates of Award:** 10/2017-10/2020

9) **Funding Source / Grant #**: Lundbeck LLtC / N/A
**Mechanism:** Investigator Initiated Award
**Role:** Co-I (PI: Lieberman; Barrow Neurological Institute, AZ)
**Total Cost:** $350,000
**Subaward Cost to ASU / DSP:** $65,000 / $16,250
**Title:** Effect of L-DOPS on falls among Parkinson's disease patients with orthostatic hypotension
**Purpose:** Understand the effect of anti-hypotension medication on balance in people with PD
**Dates of Award:** 2018-2020

10) **Funding Source / Grant #:** Center for Innovation in Healthy & Resilient Aging
**Mechanism:** Seed Grant
**Role:** Co-I (PI: Krishnamurthi; ASU [CONHI] faculty)
**Total Direct Cost:** $50,000*
**Title:** Developing a real-time fall risk assessment in Parkinson's disease by continuous monitoring of free-living activities
**Purpose:** To evaluate the predictive capacity of real-time, free-living activities for fall prediction in people with Parkinson's disease.

**Dates of Award:** 1/2019 – 1/2021

11) **Funding Source / Grant #**: Arizona State University & Mayo Medical Center / N/A
**Mechanism:** Pilot Seed Grant
**Role:** PI
**Total Cost:** $50,000
**Title:** Dual-task Perturbation Training: A novel intervention for fall prevention in people with PD
**Purpose:** Determine whether people with Parkinson's disease can improve protective stepping over 1-day of practice while attention is divided (i.e. under dual tasking scenario).
**Dates of Award:** 1/2018 – 1/2019

12) **Funding Source / Grant #:** National Multiple Sclerosis Society / PP-1512-07101
**Mechanism**: Investigator Initiated Pilot Grant
**Role:** Co-I (PI of ASU subcontract; PI: Foreman; University of Utah)
**Total Cost**: $39,640
**Subaward Cost to ASU / DSP:** $16,200 / $16,200
**Title:** Compensatory Stepping in People with Multiple Sclerosis
**Purpose:** The purpose of this study is to determine the degree to which people with multiple sclerosis **c**an improve protective stepping over a short-term (1-day) practice period.
**Dates of Award:** 09/2016-01/2018

13) **Funding Source / Grant #**: U.S. Dept. of Veterans Affairs / I01BX007080
**Mechanism:** Career Development Award (CDA-1)
**Role:** PI
**Total Cost**: $160,983
**Title**: Effect of levodopa on postural motor learning in Parkinson disease
**Purpose**: Understand whether people with Parkinson's disease improve protective stepping responses after repeated postural perturbations (i.e. simulated trips), and the effect of levodopa on improvements.
**Dates of Award:** 2014-2016

14) **Funding Source / Grant #:** Medical Research Foundation of Oregon / N/A
**Mechanism:** Early Clinical Investigator Award
**Role:** PI
**Total Cost**: $19,971
**Title:** Postural motor learning in Parkinson's disease
**Purpose:** Characterize the performance and improvement of protective stepping between healthy young, healthy old, individuals with Parkinson's disease.
**Dates of Award:** 2014-2015

# RESEARCH DISSEMINATION & AWARDS

## *Peer Reviewed Publications*

| Source | H-index | Citations | i-10 index |
|---|---|---|---|
| Google Scholar | 31 | 2864 | 57 |
| Scopus | 26 | 1921 | -- |

*Updated Feb. 2025*

Full Bibliography:

- Pubmed: https://www.ncbi.nlm.nih.gov/myncbi/1DAPA8aLlzUAm/bibliography/public/
- Google Scholar: https://scholar.google.com/citations?user=zSjM_PEAAAAJ&hl=en
- Scopus: https://www.scopus.com/authid/detail.uri?authorId=16307615200
- ORCID: https://orcid.org/0000-0002-4639-6544

Shaded = student or mentee under full or partial supervision of DSP
[C] = DSP corresponding author

*2025*

85. **Peterson DS[c]**, Monaghan, AS, Hooyman A, Trevino J, Kratz K. Feasibility and Preliminary Effectiveness of a 2-week in-place reactive balance training program in people with multiple sclerosis. *Accepted and In Press. Multiple Sclerosis and Related Disorders.*

84. Zanotto T, Pradeep Kumar D, Golan D, Wilken J, Doniger GM, Zarif M, Bumstead B, Buhse M, Weller J, Morrow SA, Penner IK, Hancock L, Covey TJ, Ofori E, Peterson DS, Motl RW, Bogaardt H, Barrera M, Bove R, Karpatkin H, Sosnoff JJ, Gudesblatt M. Does cognitive performance explain the gap between physiological and perceived fall-risk in people with multiple sclerosis? *Mult Scler Relat Disord*. 2025 Feb 5:95:106322. doi: 10.1016/j.msard.2025.106322. Online ahead of print.

83. Johansson H, **Peterson DS**, Sedhed J, Leavy B. Dual-task performance during the Timed Up and Go test in Parkinson's disease – evaluating impact of freezing and cognition. *Gait Posture*. 2025 Jan:115:14-20. doi: 10.1016/j.gaitpost.2024.10.016. Epub 2024 Oct 18.

*2024*

82. Takla TN, Monaghan PG, **Peterson DS**, Fritz NE. The Relation Among Reactive Stepping and Fall-Related Psychological Factors in Multiple Sclerosis. *In Press. Brain Sciences. Brain Sci. 2024 Nov 28;14(12):1197. doi: 10.3390/brainsci14121197.*

81. Longhurst JK, Hooyman A, Landers MR, Mancini M, Franzen E, Leavy B, Johansson H, **Peterson DS**. Discordance between balance ability and perception is associated with falls in Parkinson's disease: a coordinated analysis. *Neurorehabilitation and Neural Repair*. Nov 27:15459683241300456. doi: 10.1177/15459683241300456. Online ahead of print. PMID: 39601421

80. Kim JK, Rider JV, Zinselmeier A, Chiu YF, **Peterson DS**, Longhurst JK. Dual task gait has prognostic value for cognitive decline in Parkinson's disease. *Journal of Clinical Neuroscience*. Aug;126:101-107. doi: 10.1016/j.jocn.2024.06.006. Epub 2024 Jun 11. PubMed PMID: 38865942.

79. Monaghan, AS, Ofori E, Fling B, **Peterson DS**[C]. Associating White Matter Microstructural Integrity and Improvements in Reactive Stepping in People with Parkinson's Disease. *Brain Imaging & Behavior*. Aug;18(4):852-862. doi: 10.1007/s11682-024-00867-w. Epub 2024 Mar 26.

78. Monaghan, AS, Hooyman A, Dibble LE, Mehta S, **Peterson DS[c]** Generalization of In-Place Balance Perturbation Training in People with Parkinson Disease. *Journal of Neurologic Physical Therapy.* Jul 1;48(3):165-173. doi: 10.1097/NPT.0000000000000471. Epub 2024 Mar 14.

*2023*

77. Monaghan, AS, Hooyman A, Dibble LE, Mehta S, **Peterson DS[c]** Cognitive Predictors of Responsiveness to Reactive Step Training in People With Parkinson's Disease at Fall Risk. *Neuroscience Letters.* 2023 Nov 20:817:137517. doi: 10.1016/j.neulet.2023.137517. Epub 2023 Oct 11.PMID: 37832815

76. Lockhart T, Frames C, Olson M, Moon SH, **Peterson DS**, Lieberman A. Effects of Protective Step Training on Proactive and Reactive Motor Adaptations in Parkinson's' Disease Patients. *Frontiers in Neurology.* Accepted and in press

75. Monaghan AS, Ragothaman A, Harker GR, Carlson-Kuhta P, Horak FB[c], **Peterson DS**[c]. Freezing of Gait in Parkinson's Disease: Implications for Dual-Task Walking. *Journal of Parkinson's Disease.* PMID: 37574744 DOI: 10.3233/JPD-230063.

74. Rafie F, Shibani V, Shahbazi M, Pourranjbar M, Nekouei AH, Rajizadeh MA, **Peterson DS**. Effects of voluntary, and forced exercises on neurotrophic factors and cognitive function in animal models of Parkinson's disease. *Neuropeptides*. Neuropeptides 101,102357

73. Mancini M, Hasegawa N, **Peterson DS**, Horak FB, Nutt John G. Digital Measures of Freezing of Gait across the spectrum of normal, non-freezers, possible freezers and definite freezers. *Journal of Neurology*. 2023 May 19. doi: 10.1007/s00415-023-11773-4. PMID: 37208526.

72. Monaghan, AS, Hooyman A, Dibble LE, Mehta S, **Peterson DS**[c]. Stability Changes in Fall-Prone Individuals with Parkinson's Disease Following Reactive Step Training. *Journal of Neurologic Physical Therapy.* 2023 Jun 1. doi: 10.1097/NPT.0000000000000442. PMID: 37259190

71. Monaghan, P, Monaghan, AS, Hooyman A, Fling BW, Huisinga JM, **Peterson DS**[c], Utilizing the ISway to Identify and Compare Balance Domain Deficits in People with Multiple Sclerosis. *Archives of Physical Medicine & Rehabilitation*. 2023 Apr 8;S0003-9993(23)00153-3. doi: 10.1016/j.apmr.2023.02.018. PMID: 37037293

70. Monaghan, AS, Gordon, E, Graham L, Hughes, E, **Peterson, DS**[c], Morris, R. Cognition and Freezing of Gait in Parkinson's Disease: A Systematic Review and Meta-Analysis. *Neuroscience and Biobehavioral Reviews*. 2023 Apr;147:105068. doi: 10.1016/j.neubiorev.2023.105068. PMID: 36738813.

69. Van Liew C, Gudesblatt M, Covey TJ, Wilken J, Golan D, Zarif M, Bumstead B, Buhse MJB, Ofori E, **Peterson DS**. The moderating roles of self-efficacy and depression in dual-task walking in multiple sclerosis: A test of self-awareness theory. *J Int Neuropsychol Soc.* 2023 Mar;29(3):274-282. doi: 10.1017/S1355617722000200. Epub 2022 Apr 25. PubMed PMID: 35465869.

*2022*

68. Phan Vu, **Peterson DS**, Lee H[C]. Directional Virtual Time-to-Contact: A New Measure for Investigating Temporal, Spatial, and Control Aspects of Postural Balance Control. *Journal of Biomechanics*. 2023 Jan;146:111428. doi: 10.1016/j.jbiomech.2022.111428. PMID: 36610387

67. Loyd BJ, Agnew L, Dibble L, Fangman A, **Peterson DS**, Schubert M, Gappmaier E, Thackeray A. Rehabilitation to Improve Gaze and Postural Stability in People with Multiple Sclerosis: A Randomized Clinical Trial. *Neurorehabilitation & Neural Repair*. 022 Nov;36(10-11):678-688. doi: 10.1177/15459683221124126. Epub 2022 Sep 13. PMID: 36113117.

66. **Peterson DS**[C]. Effects of Gender on Dual-Tasking and Prioritization in Older Adults. *Gait & Posture.* 2022 Sep;97:104-108. doi: 10.1016/j.gaitpost.2022.07.247. Epub 2022 Jul 22. PMID: 35917700.

65. Monaghan A, Mansfield A, Huisinga J, **Peterson DS**[C]**.** Examining the Relationship Between Reactive Stepping Outcomes and Falls in People With Multiple Sclerosis. *Physical Therapy Journal (PTJ).* 2022 Jun 3;102(6):pzac041. doi: 10.1093/ptj/pzac041. PMID: 35403692

64. Monaghan A, Johansson H, Torres A, Brewer G, **Peterson DS**[C]**.** The impact of divided attention on automatic postural responses: A systematic review and meta-analysis. *Experimental Gerontology.* 2022 Jun 1;162:111759. doi: 10.1016/j.exger.2022.111759. Epub 2022 Mar 1. PMID: 35245641

63. Richmond SB, **Peterson DS,** Fling BW. Bridging the Gap- Bilateral lower limb coordination and Callosal Integrity in people with Multiple Sclerosis. Accepted and in press: *Brain imaging and Behavior.* 2022 Jan 28. doi: 10.1007/s11682-021-00612-7. PMID: 35088352.

62. Van Liew C, Huisinga, **Peterson DS**[C]. Evaluating the contribution of reactive balance to prediction of fall rates cross-sectionally and longitudinally in persons with multiple sclerosis. *Gait and Posture*. 2022 Feb;92:30-35. doi: 10.1016/j.gaitpost.2021.11.008. PMID: 34808516.

*2021*

61. Monaghan A, Huisinga J, **Peterson DS**[C]. The relationship between plantar sensation and muscle onset during automatic postural responses in people with multiple sclerosis and healthy controls.

*Multiple Sclerosis & Related Disorders*. Oct 5;56:103313. doi: 10.1016/j.msard.2021.103313. PMID: 34644600

60. Monaghan A, Finley J, Mehta SH, **Peterson DS[C]**. Assessing the impact of dual-task reactive step practice in people with Parkinson's disease: A feasibility study. *Human Movement Science.* Sep 14;80:102876. doi: 10.1016/j.humov.2021.102876. PMID: 34534945

59. Van Liew C, Monaghan A, Foreman B, Dibble LE, **Peterson DS[C]** Perturbation Practice in Multiple Sclerosis: Assessing Generalization from Surface Support Translations to Tether-Release Tasks. *Multiple Sclerosis and Related Disorders. Aug 16;56:103218. doi: 10.1016/j.msard.2021.103218.* PMID: 34454306

58. Van Liew C, Dibble L, Foreman B, **Peterson DS[C]**. Change in "First Trial" Performance After Protective Step Practice in People with Multiple Sclerosis. *Clinical Biomechanics.* Aug 13;88:105448. doi: 10.1016/j.clinbiomech.2021.105448. PMID: 34418821.

57. Loyd BJ, Agnew L, Fangman A, Thackeray A, **Peterson D**, Schubert M, Dibble L. Characterizing Gaze and Postural Stability Deficits in People with Multiple Sclerosis. *Multiple Sclerosis and Related Disorders*. Aug 14;55:103205. doi: 10.1016/j.msard.2021.103205. PMID: 34438218

56. **Peterson DS[c]**, Phan V, Richmond S, Lee H, Effects of dual-tasking on time-to-boundary during stance in people with PD: A Preliminary Study. *Clinical Biomechanics.* Jun 26;88:105420. doi: 10.1016/j.clinbiomech.2021.105420. PMID: 34216987

55. Monaghan A, Huisinga J, **Peterson DS[C].** The Application of Principal Component Analysis to Characterize Gait and its Association with Falls in Multiple Sclerosis. *Sci Rep.* 2021 Jun 17;11(1):12811. doi: 10.1038/s41598-021-92353-2. PMID: 34140612,

54. Richmond SB, Lee H, Fling BW, **Peterson DS[c]**. The assessment of center of mass and center of pressure during quiet stance: Current applications and future directions. *Journal of Biomechanics*. 2021 Jun 23;123:110485. doi: 10.1016/j.jbiomech.2021.110485, PMID: 34004395

53. Roman G, **Peterson DS**, Ofori E, Vidt M. Upper extremity biomechanics in native and non-native signers *Accepted and In Press, WORK.*

52. Monaghan A, **Peterson DS[C]**. Torque responses to in-place-perturbations in people with multiple sclerosis. *Gait & Posture.* Feb;84:346-351. doi: 10.1016/j.gaitpost.2021.01.003. Epub 2021 Jan 10. PMID: 33454502

51. Johansson H, Ekman, U, Rennie L, **Peterson DS**, Leavy B, Franzen E. Dual-Task Effects During a Motor-Cognitive Task in Parkinson's Disease: Patterns of Prioritization and the Influence of Cognitive Status. *Neurorehabilitation and Neural Repair.* 2021, March 10. DOI: 10.1177/1545968321999053, PMID: 33719728

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49. Richmond SB. Swanson CW. **Peterson DS**. Fling BW. Advanced characterization of Static Postural Control Dysfunction in Persons with Multiple Sclerosis and Associated Neural Mechanisms. *Gait & Posture*. Jan;83:114-120. doi: 10.1016/j.gaitpost.2020.10.015. PMID: 33129171.

*2020*

48. **Peterson DS[C]**, Van Liew, Stuart S, Horak FB, Mancini M. Relating Parkinson freezing and balance domains: A structural equation modeling approach. *Parkinsonism Relat Disord*. 2020 Aug 25;79:73-78. doi: 10.1016/j.parkreldis.2020.08.027. PMID: 32889503

47. **Peterson DS[C],** Barajas J, Denney L, Mehta S. Backward Protective Stepping During Dual-Task Scenarios in People With Parkinson's Disease: A Pilot Study. *Neurorehabilitation & Neural Repair*. Aug;34(8):702-710. doi: 10.1177/1545968320935814. Epub 2020 Jul 7. PMID: 32633614

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42. Schlenstedt C, **Peterson DS**, Mancini M. The effect of tactile feedback on gait initiation in people with Parkinson's disease. *Gait & Posture.* 2020 Jul;80:240-245. doi: 10.1016/j.gaitpost.2020.06.001. PMID: 32559642.*,* **(IF= 2.76).**

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38. Jung SH, Hasegawai N, Mancini M, King LA, Carlson-Kuhta P, Smulders K, **Peterson DS**, Barlow N, Harker G, Morris R, Nutt JG, Horak FB. Effects of the Agility Boot Camp with Cognitive Challenge (ABC-C) Exercise Program on Balance in Parkinson's Disease. *nPJ Parkinson's Disease*, 2020 Nov 2;6(1):31. doi: 10.1038/s41531-020-00132-z. PMID: 33298934

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*2019*

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*2018*

32. **Peterson DS**[C], Lohse KR, & Mancini, M. (2018) Relating Anticipatory Postural Adjustments to Step Outcomes During Loss of Balance in People with Parkinson's Disease. *Neurorehabilitation & Neural Repair.* Oct;32(10):887-898. PMID:30198384. doi: 10.1177/1545968318798937,

31. **Peterson DS**[C], Lohse KR, & Mancini, M. (2018) Anticipatory postural responses prior to protective steps are not different in people with PD who do and do not freeze. *Gait Posture*. 2018 Jul;64:126-129. doi: 10.1016/j.gaitpost.2018.06.006. PMID: 29902715,

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28. Dounskaia N, **Peterson DS**, & Bruhns RP. (2018) Destabilization of the upright posture through elevation of the center of mass. *Ann Biomed Eng*. 2018 Feb;46(2):318-323. doi: 10.1007/s10439-017-1957-7. PMID: 29134294,

27. **Peterson DS**[C] & Fling BW. (2018) How changes in brain activity and connectivity are associated with motor performance in people with MS. *Neuroimage: Clinical.* Sep 28;17:153-162. doi: 10.1016/j.nicl.2017.09.019. PMID: 29071209,

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26. Schlenstedt C, Mancini M, Horak FB, & **Peterson DS**[C]. (2017) Anticipatory postural adjustment during self-initiated, cued and compensatory stepping in healthy elderly and patients with Parkinson's disease. *Arch Phys Med Rehabil.* 2017 Jul;98(7):1316-1324.e1. doi: 10.1016/j.apmr.2017.01.023. PMID: 28254637

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24. **Peterson DS**[C], Gera G, Horak FB, & Fling BW. (2017) Corpus Callosum Structural Integrity Is Associated With Postural Control Improvement in Persons With Multiple Sclerosis Who Have Minimal Disability. *Neurorehabilitation & Neural Repair*. 2017; 31(4):343-353.; DOI: 10.1177/1545968316680487. PMID: 27932696

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23. **Peterson DS**[C] & Horak FB. (2016) The effects of levodopa on improvement in protective stepping in people with Parkinson's disease. *Neurorehabilitation & Neural Repair.* 2016 Nov;30(10):931-940. doi: 10.1177/1545968316648669. PMID: 27162165,

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20. **Peterson DS**[C]**,** Gera G, Horak FB, & Fling BW. (2016) Supraspinal control of postural responses in people with multiple sclerosis. *Gait & Posture*. 2016 Jun;47:92-5. doi: 10.1016/j.gaitpost.2016.02.023. PMID: 27264410

19. **Peterson DS**[C], King LA, Cohen RG, & Horak FB. (2016) Cognitive Contributions to Freezing of Gait in Parkinson Disease- Implications for Physical Rehabilitation*. Phys Ther*. 2016 May;96(5):659-70. doi: 10.2522/ptj.20140603. PMID: 26381808,

18. **Peterson DS**[C], Huisinga J, Spain B, & Horak F. (2016) Characterization of compensatory Stepping in People with Multiple Sclerosis. *Archives of Physical Medicine & Rehabilitation.* 2016 Apr;97(4):513-21. doi: 10.1016/j.apmr.2015.10.103. PMID:26603657. *EDITORS SELECTION*

17. **Peterson DS**[C] & Horak FB. (2016) Neural Control of Walking in People with Parkinson's disease *Physiology (Bethesda)*. Mar;31(2):95-107. doi: 10.1152/physiol.00034.2015. Review. PMID: 26889015; PMCID: PMC4888974,

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16. **Peterson DS**[C] & Smulders K. (2015) Cues and attention in Parkinsonian gait: Potential mechanisms and future directions. *Front. Neurol*, 08 Dec 2015. PMID: 26696955.

15. **Peterson DS**[C], Fling B, Mancini M, Cohen RG, Nutt J, & Horak FB. (2015) Dual-task interference and brain structural connectivity in people with Parkinson's disease who freeze*. J Neurol,*

*Neurosurg, and Psychiatry*; 86:786-792. doi:10.1136/jnnp-2014-308840. PMID: 25224677,

14. Dijkstra BW, Horak F, Kamsma Y, & **Peterson DS**[C]. (2015) Older adults can improve compensatory stepping with repeated postural perturbations*. Frontiers in Aging Neuroscience.* Vol 7. ISSN: 1663-4365. DOI. 10.3389/fnagi.2015.00201,

13. King LA, **Peterson DS**, Mancini M, Carlson-Kuhta P, Fling BW, Nutt J, Carter J, Winters-Stone KM, & Horak FB. (2015) Do cognitive measures and brain circuitry predict outcomes of exercise in Parkinson Disease: a randomized clinical trial. *BMC Neurol*. 2015 Oct 24;15(1):218. PMID: 26499867.

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10. Williams AJ, **Peterson DS**, Ionno M, & Earhart GE. (2013) Upper Extremity Freezing and Dyscoordination in Parkinson Disease: Effects of Amplitude and Cadence Manipulations. *Parkinson Disease.* PMCID: PMC3763266 DOI: 10.1155/2013/595378

9. Williams AJ, **Peterson DS**, & Earhart GE. (2013) Gait Coordination in Parkinson Disease: Effects of Step Length and Cadence Manipulations*. Gait and Posture*. Jun;38(2):340-4. PMCID: PMC3640640 DOI: 10.1016/j.gaitpost.2012.12.009

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7. **Peterson DS**, Plotnik M, Hausdorff J, & Earhart GM. (2012) Evidence for a relationship between bilateral coordination during complex gait tasks and freezing of gait in Parkinson's disease, *Parkinsonism and Related Disorders*; 2012 Nov;18(9):1022-6. doi: 10.1016/j.parkreldis.2012.05.019,

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4. Torry MR, Shelburne KB, **Peterson DS**, Giphart JE, Krong JP, Myers C, Steadman JR, & Woo SLY. (2011) Knee Kinematic Profiles During Drop Landings: A Biplane Fluoroscopy Study, *Medicine Science in Sports & Exercise*. Mar;43(3):533-41. PMID: 20689456; doi: 10.1249/MSS.0b013e3181f1e491,

3. Myers CA, Torry MR, **Peterson DS**, Shelburne KB, Giphart JE, Krong J, Woo SLY, & Steadman JR. (2011) Measurements of Tibiofemoral Kinematics During Soft and Stiff Drop Landings Using Biplane Fluoroscopy. *American Journal of Sports Medicine* Aug;39(8):1714-22. PMID: 21602566,

2. Torry MR, Myers C, Shelburne, KB, **Peterson DS**, Giphart JE, Pennington WW, Krong JP, Woo SLY, & Steadman, JR. (2011) Relationship of Knee Shear Force and Quadriceps Extensor Moment on Knee Translations in Females Performing Drop Landings: A Biplane Fluoroscopy Study. *Clinical Biomechanics* (26);1019-1024; doi:10.1016/j.clinbiomech.2011.06.010. PMID: 21820780,

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1. **Peterson DS**, Martin PE (2010) Effects of Age and Walking Speed on Coactivation and Cost of Walking in Healthy Adults. *Gait and Posture*. Mar; 31(3):355-9. PMID: 20106666

***Letters to the Editor***

*2021*

1. Richmond, SB., Fling BW., Lee H., Peterson DS. Letter to the editor in response to “The assessment of center of mass and center of pressure during quiet stance: Current applications and future directions”. Journal of Biomechanics 128,110730

## *Selected Conference Abstracts*

Mentee presenter or co-author under Dr. Peterson’s mentorship

***Conference Proceedings***

Vaibhav Polisetti Venkata S, Sabat S, Deshpande CA, Arefeen A, Peterson DS, Zadeh H. On-Device Machine Learning for Diagnosis of Parkinson's Disease from Hand Drawn Artifacts. *BHI-BSN 2022 - IEEE-EMBS International Conference on Biomedical and Health Informatics and IEEE-EMBS International Conference on Wearable and Implantable Body Sensor Networks – Proceedings.*

***Podium presentations***

Peterson, DS, Monaghan AS, Hooyman A, Trevino J, Wooliscroft L, Kratz, K. The effects of a 2-week in-place reactive balance training program in people with multiple sclerosis. The 13th International Symposium on Gait and Balance in MS. Virtual, Oct. 2024

Monaghan A, Gordon E, Graham L, Hughes E, Peterson DS, Morris R. Cognition and Freezing of Gait in Parkinson’s Disease: A systematic Review and Meta-Analysis. World Parkinson’s Congress. Barcelona SP, 2023.

Dirks L, Plesher K, Rupiper P, Moskowitz S, Ivy C, Denney L, Peterson D, Shill H. Impact of Laser Shoes On Activities of Daily Living in People with Parkinson’s and Freezing of Gait. World Parkinson’s Congress. Barcelona SP, 2023.

Monaghan A, Trevino J, Barajas J, Ofori E, Fling B, Peterson DS. Examining the Relationship Between White Matter Integrity and Reactive Stepping. International Symposium on Gait and Balance in Multiple Sclerosis. Denver, CO. 2023

Monaghan A, Trevino J, Barajas J, Ofori E, Fling B, Peterson DS. The Effectiveness of Reactive Step Training in People with Multiple Sclerosis. International Symposium on Gait and Balance in Multiple Sclerosis. Denver, CO. 2023

Monaghan P, Monaghan A, Hooyman A, Fling B, Huisinga J, Peterson DS. Modeling Balance in People with Multiple Sclerosis: An Exploratory Factor Analysis Approach. International Symposium on Gait and Balance in Multiple Sclerosis. Denver, CO. 2023

Phan, V, Peterson DS, Lee H, Adverse impacts of Parkinson’s disease and dual-tasking on the temporal and control aspects of balance interpereted by directional virtual time to contact. American Society of Biomechanics. 2023

Monaghan A, Trevino JL, Barajas, JS, Dibble LE, Mehta SH, Peterson DS. Cognitive Predictors of Reactive Step Training in Parkinson's Disease. *American Society of NeuroRehabilitation.* St. Louis, MO. April, 2022

Oxpring M, Peterson DS. Improvement in muscle activation latency through reactive step training in people with Parkinson’s Disease. American Accadamy of Physical Medicine and Rehabilitation. 2023

Delgado F, Der Ananian C, Schaefer S, Bosch P, **Peterson DS**. Balance and Reactive Steps in Older Adults With and Without Self-Reported Musculoskeletal Conditions. *Gerontological Society of America*, November 4-7, 2020

**Peterson DS,** Dijkstra BW, & Horak FB. Effects of Levodopa on Postural Motor Learning in Parkinson’s Disease. *International Society of Posture and Gait Research*, June, 2015.

**Peterson DS,** Dijkstra BW, & Horak FB. Effects of Parkinson’s Disease on Adaptation of Compensatory

Stepping. *Gait and Clinical Movement Analysis Society* Annual Meeting, March, 2015.

**Peterson DS**, Pickett KA, & Earhart GM. Supra-spinal Control of Locomotion in Freezers and Non-freezers with Parkinson Disease. *International Society of Posture and Gait Research*, Akita, Japan, June 2013

**Peterson DS**, Pickett KA, & Earhart GE. "Cortical and subcortical brain activity during imagined gait tasks across age" *International Society of Posture and Gait Research*, Trondheim Norway, June 2012.

**Peterson DS,** Pickett KA, & Earhart GE. "Comparing Supra-spinal Locomotor Regions in Parkinson's Disease and Controls. *Clinical Research Training Center National Meeting*, Rochester MN, May 2012.

**Peterson DS**, & Martin PE. "Effects of Age and Walking Speed on Coactivation during Gait" *American Society of Biomechanics*. State College, PA. August 26-69, 2009.

**Peterson DS**, Krong J, Giphart JE, Shelburne K, Steadman JR & Torry M. "Comparison of Tibial Translations during Soft and Stiff Landings in Healthy Adults: A Biplane Fluoroscopy Study" *American Society of Biomechanics*. State College, PA. August 26-69, 2009.

***Selected Poster Presentations***

Nayak S, Peterson DS, Huisinga J, Lee H. Comparative Assessment of Postural Balance Control in Multiple Sclerosis Patients Using Virtual Time-to-Contact and Traditional Balance Metrics. American Society of Biomechanics, Madison Wisconsin, **2024**.

Peterson DS., Johannson L, Westerlind B, Lopes de Oliviera T, Finkel D. Relating Specific Medications to Record of Falls in a Large Cohort of Older Swedish Adults. Geriatric Society of America. Seattle, WA. **2024**

Velez M, Ofori E, Rodi A, Valdez M, Grabeel K, Sabri A, Smith-Plata J, Peterson DS, Beversdorf D, Braden B. Identifying Links Between Parkinsonism Symptoms, Restricted and Repetitive Behaviors and Interests, and Caudate Volume in Autistic Adults Across the Lifespan. *International Society for Autism Research **2024**.*

Soumma SB, Peterson DS, Ghasemzadeh H, Mehta S. AI-Powered Detection of Freezing of Gait Using Wearable Sensor Data in Patients with Parkinson's Disease. *Movement Disorders Society **2024**.* Philadelphia PA

Kim J, Rider JV, Zinselmeier A, Chiu Yi-Fang, Peterson DS, Longhurst JK. Interlimb arm swing asymmetry during dual-task gait has diagnostic values for cognitive decline in Parkinson's disease. *APTA Combined Sections Meeting*. Boston, MA, **2024**.

Barajas JS, Monaghan A, Trevino T, Dibble L, Mehta S, Peterson DS Effects of In-Place Perturbation Training on Falls in People with Parkinson's disease and Postural Dysfunction *International Society of Posture and Gait Research.* Montreal, CA, July, 2022

Monaghan A, Trevino J, Barajas J, Dibble L, Mehta S, Peterson DS. The Effectiveness of Reactive Step Perturbation Training in People with Parkinson's Disease and Posture Disturbances. *International Society of Posture and Gait Research.* Montreal, CA, July, 2022.

Mancini M, Hasegawa N, Peterson DS, Horak FB, Nutt JG. Freezing of Gait across the spectrum of normal, non-freezers, possible freezers, and definite freezers. *International Society of Posture and Gait Research.* Montreal, CA, July, 2022

Phan Vu, Peterson DS, Lee H. Directional Virtual Time-To-Contact: A Case Study on Assessing Impacts of Disease and Dual-Tasking. North American Society of Biomechanics (NACOB) Ottowa, CA, August, 2022.

Monaghan A, Mansfield A, Huisinga J, Peterson DS. Delayed Step Latencies During Backward Reactive Stepping Increases the Odds of Having a Fall History. *American Society of NeuroRehabilitation*. St. Louis, MO, April. 2022.

Van Liew C, Gudesblatt M., Covey T., Wilken J., Golan D, Zarif M, Peterson D. The moderating roles of self-efficacy and depression in dual task walking in multiple sclerosis: A test of self-awareness theory. *International Symposium on Gait and Balance in Multiple Sclerosis*. Virtual. September, 2021

Van Liew, C., Gudesblatt M, Srinivassan J, Kaczamarek O, Golan D, Doinger G, Peterson D. Cognitive Domains and Dual Task Walking in Persons with Multiple Sclerosis. *International Symposium on Gait and Balance in Multiple Sclerosis*. Virtual. September, 2021.

Monaghan, A, Huisinga, J, & Peterson D. Modeling Gait in People with Multiple Sclerosis: A Principal Component Analysis Approach. *International Symposium On Gait and Balance in Multiple Sclerosis.* Virtual. September, 2021

Phan, Vu, Peterson, DS, Lee, H: Intermittent Switching Rate as a Measure to Assess Impacts of Parkinson's Disease and a Secondary Cognitive Task on Postural Balance. *North American Congress on Biomechanics*, Virtual. August, 2021.

Scavarda M, Nagel K, **Peterson DS**, Plesher K, Moskowitz S, Ivy C, Denney L. The Impact of Visual Cueing on Gait Velocity in those with Parkinson's Disease with Freezing of Gait International *Parkinson and Movement Disorder Society Virtual Congress.* Virtual. September 17-22, 2021.

Barajas J, Denney L, Mehta SH, Peterson DS[c]. Characterizing the Impact of Baseline Cognitive Status on Dual Task Performance While Backward Reactive Stepping *American Society of Neurorehabilitation*. Virtual. April 5-9, 2021

Monaghan AS, Finley J, Mehta SH, Peterson DS[c]. Adaptation of dual-task performance with reactive steps in people with PD. *American Society of Neurorehabilitation.* Virtual. April 5-9, 2021

Phan V, **Peterson DS**, Richmond S, Lee, H. Effects of Parkinson's Disease and a Secondary Cognitive Task on Standing Postural Stability. International Conference on Neural Rehabilitation (ICNR) 2020

Monaghan AS, **Peterson DS**. Torque Responses to In-Place Perturbations in People with Mild Multiple Sclerosis. *10th International Symposium on Gait & Balance in Multiple Sclerosis*. Virtual. October, 2020

Van Liew C, Gudesblatt M, Srinivasan J, Kaczmarek O, Golan D, Doniger G, Wilken J, Ofori E, **Peterson DS**. Cognitive Domains and Dual Task-Walking in Persons with Multiple Sclerosis. *10th International Symposium On Gait & Balance in Multiple Sclerosis.* Virtual. October, 2020

Van Liew C, Dibble LE, Foreman KB, & **Peterson DS**. Change in 'First-Trial' Performance After Protective Step Practice in People with Multiple Sclerosis. *2020 Consortium for Multiple Sclerosis Centers.* August 3rd, 2020

Monaghan A, Van Liew C, Dibble LE, Schaefer SY, Hunt GR, Foreman KB, **Peterson DS**. Understanding Generalization after Perturbation Practice in Multiple Sclerosis. *9th International Symposium On Gait & Balance in Multiple Sclerosis.* Denver, CO, 2019

Barajas J, Nadkarni A, Denney L, Mehta S, **Peterson DS.** Protective Postural Control with Divided Attention: Effects of Parkinson's Disease. *International Society of Posture and Gait Research.* Edinburgh, Scotland, June 30-July 4; 2019.

Roman G, **Peterson DS**, Vidt ME. Quantification of ballistic signing: Does native and non-native status matter? *Combined Sections Meeting of the American Physical Therapy Association*, Feb. 2019.

**Peterson DS,** Lohse KR, Mancini M. Anticipatory postural responses prior to protective steps are not different in people with PD who do and do not freeze. *International Freezing of Gait Society*, Leuven, Belgium, 2018

**Peterson DS,** Lohse KR, Mancini M. How anticipatory postural adjustments affect protective steps: A step-by-step multi-level analysis *American Society of Neurorehabilitation,* San Diego, CA. 2018

Muthukrishnan N, **Peterson DS**, Choice of stepping limb after postural perturbations in people with PD, does disease severity or limb dominance matter? *American Society of Neurorehabilitation*, San Diego, CA. 2018

Roman G, **Peterson DS**, Vidt ME. Work Envelope in Native and Non-Native Signers. *American Society of Biomechanics*, 2018

Barajas J, Mehta S, **Peterson DS.** First trial protective step performance before and after short-term perturbation practice in people with Parkinson's disease. *American Society of Neurorehabilitation.* Baltimore, MD, 2017

**Peterson DS,** Kratz K, Foreman BK, Dibble L. Protective stepping in people with MS: effects of a single bout of practice. *International Society of Posture and Gait Research.* Ft Lauderdale, FL. 2017

**Peterson DS**, Schlenstedt C, Mancini M, Horak FB. Anticipatory Postural Adjustments to Internal and External Perturbations in People who Do and Do Not Experience Freezing of Gait. *Society for Neuroscience*, San Diego, CA. 2016.

**Peterson DS,** Huisinga JM, Spain R, & Horak FB. Characterization of protective stepping in people with Multiple sclerosis. *Society for Neuroscience*. Chicago, IL. 2015

**Peterson DS,** Gera G, Horak FB, & Fling BW. Supra-spinal control of automatic postural reactions in People with MS. *International Multiple Sclerosis Symposium*. Portland, OR. September, 2015.

**Peterson DS,** Cohen RG, Fling B, Mancini M, Nutt JG, & Horak FB. "Dual-task interference in related to PPN structural connectivity in people with Parkinson's disease who freeze." *International Society of Posture and Gait Research*, Vancouver, Canada, June 28-July 2, 2014.

**Peterson DS**, Pickett KA, Duncan RP, & Earhart GM. Neural pathology during imagined locomotion in people with Parkinson disease. *American PT Association: Combined Sections Meeting*. San Diego, CA. January 21-24, 2013.

**Peterson DS**, Plotnik M, Hausdorff J, & Earhart, GM. "Effects of Turning and Backward Walking on Bilateral Coordination in Individuals with Parkinson Disease" *World Parkinson Congress*, Glasgow, Scotland, Sept 29-31, 2010.

## *Symposia and Invited Conference Presentations*

** Indicates international conference or symposium

**Roundtable lead / speaker, World Parkinson's Congress 2023
The role of the physical therapist in addressing non-motor symptoms

Invited Speaker: MDS- PAS 8th Annual Movement Disorders School for Neurology Residents 2023

**Symposium Speaker, International Society of Posture & Gait Research 2023
Subcortical contributions to reactive balance

**Invited Speaker: International Symposium of Gait and Balance in MS 2023
"Neural control of reactive balance in people with MS"

Symposium Speaker, Combined Sections Meeting (CSM) 2023
Neuroimaging of Reactive Balance Control: Identifying Therapeutic Targets to Inform Fall Prevention

**Invited Speaker: INSIGHT, Living Brave with PD: PD Warrior Conference 2022
"Freezing of Gait and Cognition: Opportunities for Rehabilitation"

**Invited Speaker: Movement Disorders Society- European Section: Multidisciplinary Teamwork in PD, Atypical PD & Dystonia: Innovations & Challenges. 2022
"Impacts of FOG on Cognition: Current Knowledge and Clinical Application"

Symposium Speaker, Combined Sections Meeting (CSM) 2019
"Fake News: Understanding limitations and pitfalls of scientific literature"

**Invited Speaker: International Symposium of Gait and Balance in MS 2019
"Compensatory Stepping in people with Multiple Sclerosis"

**Invited Speaker: International Freezing of Gait Conference (Leuven, Belgium) 2018
Posture and Gait Control in People with PD who Freeze

Symposium Speaker, 2017 Combined Sections Meeting (CSM) 2017
"Cognitive impairment in PD: Understanding and unlocking freezing of gait

Invited Speaker, 2017 Washington State Traumatic Brain Injury Conference 2017
"Linking Mobility and Cognition: Implications for Rehabilitation"

**Symposium Speaker, 2014 International Society of Posture and Gait Research 2014
"Supraspinal Control of Locomotion in PD- Implications for Rehabilitation"

Invited Speaker, OHSU Parkinson Center: Managing & Treating PD 2014
"Integrating cognitive tasks into physical therapy

## *Invited Academic Research Presentations*

** Indicates international presentation

**Drug-related falls in older adults: Utilization of the SENIOR ALERT Swedish Registry 2024
University of Jonkoping

**Assessing deficits and possible treatments of reactive balance in neurological groups 2024
University of Bologna

**Neural mechanisms of reactive balance in people with PD and MS 2024
Karolinska Institute

Reactive balance in People with Parkinson's disease 2024
Oregon Health & Science University, (Neurology Grand Rounds)

Characterization and treatment of reactive balance in neurological populations 2023
Pennsylvania State University (Action Club)

** Protective postural control in people with PD: Deficits & potential for rehabilitation 2021
Tel Aviv University & Sheba Medical Center, Israel

Parkinson's, Motor Disorders & the Community 2021
ASU TRiP Talk

Dual Task Postural Control People with PD 2020
Oregon Health & Science University

Protective Step Training in PD: Potential for Rehabilitative Application 2020
University of Southern California

One Step Backward and Two Steps Forward: Protective Posture in Clinical Populations 2019
Arizona State University; Speech & Hearing Science

Protective Step Dysfunction and Training in Clinical Populations 2018
University of Utah

Protective postural control in clinical populations: Potential for clinical intervention? 2017
Colorado State University

Understanding and treating mobility dysfunction in clinical populations 2016
Arizona State University, Biomedical Engineering Seminar Series

Compensatory Stepping in Parkinson's disease and Multiple Sclerosis 2015
University of Utah

Postural Motor Learning in Parkinson's Disease: Implications for Rehabilitation 2014
Utah State University

Biomechanical and Neural Factors Associated with Freezing in PD 2013
Utah State University

Biomechanical and Neural Factors Associated with Freezing of Gait in PD 2012
Oregon Health Sciences University

Freezing of Gait in Parkinson Disease 2012
Illinois State University

Metabolic Cost of Walking in Older Adults and Mechanisms of ACL Injury in Young 2009
University of Illinois in Chicago

Effects of age on Coactivation, Variability, and Joint Kinetics During Walking 2008
Mayo Clinic, Rochester, MN

## *Honors & Awards*

| | |
|---|---|
| Outstanding Faculty Mentor Award Nominee- Arizona State University Graduate College | 2021 |
| Outstanding Teaching Award Nominee- 5th Annual CHS Staff and Faculty Awards | 2020 |
| Outstanding Faculty Mentor Award Nominee- Arizona State University Graduate College | 2020 |
| Attendee: NIH-Sponsored "Training in Grantsmanship for Rehabilitation Research" workshop | 2017 |
| Manuscript selected as "Editor's Choice" (Archives of Physical Medicine & Rehabilitation) | 2016 |
| Travel Grant Recipient- 2016 World Parkinson Congress | 2016 |
| Attendee, NIH-sponsored "Training Course in fMRI" (Univ. of Michigan) | 2012 |
| 2nd Place- Graduate Research Symposium; (Washington University in St. Louis) | 2011 |
| Selected as a Funded Pre-Doctoral Trainee on an NIH CTSA (T32 HD007434; PI: Mueller); Washington University School of Medicine; Program in Physical Therapy | 2009 |
| B.K. & Betty Stevens Undergraduate Scholarship (University of Florida) | 2006 |
| Anderson Scholar for Academic Achievements (University of Florida) | 2005 |

***Mentee awards (while under supervision of Dr. Peterson)***

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|---|---|
| College of Health Solutions Christine Wells Outstanding Research Award (Monaghan) | 2023 |
| College of Health Solutions Christine Wells Outstanding Research Award (Van Liew) | 2021 |
| Graduate & Professional Student Association Outstanding Research Award (Monaghan) | 2020 |
| School of Biological and Health Systems Engineering Merit Award Stipend (Muthukrishnan) | 2018 |
| Northern Arizona University Annual 3-minute Research Presentation (3rd place; Peters) | 2017 |

# SERVICE

## *Service for Arizona State University*

***College:***

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|---|---|
| Co-Chair: CHS Lab and Clinic Safety Committee | 2021 – Present |
| Member: CHS Research Council | 2018 – Present |
| Member: CHS Grant Review Committee | 2020 – Present |
| Member: Jumpstart Grant Review Committee | 2019 – Present |
| Co-Chair: Faculty Mentoring Committee | 2022 – 2024 |
| Member: CHS Personnel Committee | 2021 |
| Member: Faculty success hub (CHS Visioning Committee) | 2018 |
| Member: Faculty success hub (Research subcommittee) | 2018 |

***Program****:*

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|---|---|
| Member: MS in EXW Curriculum Committee | 2019 – Present |
| Member: MS in Biomechanics Curriculum Committee | 2016 – 2018 |
| Member: Search Committee (Biomechanics Tenure Track Hire) | 2017 – 2018 |

## *Professional Service*

***Grant Review Service (national & international)***

*NIH Grant Review Activities:*

| | |
|---|---|
| Ad-Hoc Member: Musculoskeletal Rehabilitation Service (MRS) study section | 2025 |
| Ad-Hoc Member: NINDS G64 (NSDK) Clinical Trials Study Section | 2024 |
| Ad-Hoc Member: Musculoskeletal Rehabilitation Service (MRS) study section | 2023 |
| Ad-Hoc Member: NINDS ZNS1 G38 Special Emphasis Panel | 2021 |
| Ad-Hoc Member: NINDS NSD-K (Clinical Trials) Study Section | 2018 |
| Ad-Hoc Member: Special Emphasis Panel/SRG ZRG1 ETTN-C (10) B: Small Business panel: Clinical Neurophys, Devices, Neuroprosthetics, & Biosensors | 2017 |

*Dept. of Veterans Affairs Grant Review Activities*

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|---|---|
| Standing Member- Rehabilitation R&D Scientific Group Review (RRD6-Chronic Medical Conditions and Aging) | 2020 – 2022 |
| Ad-Hoc Member: Rehabilitation R&D Scientific Group Review (RRD6-Chronic Medical Conditions and Aging) | 2018 – 2019 |
| SPiRE Grant reviewer (RRDS R); Rehabilitation Research and Development | 2017 – 2024 |

*NSF Study Section Grant Review Activities*

| | |
|---|---|
| Ad-Hoc Member: Program in Perception, Action, and Cognition | 2018 |

*Congressionally Directed Medical Research Program (CDMRP)* 2022

*National Multiple Sclerosis Society*

| | |
|---|---|
| Recovering Functional Activity Grant Review Committee | 2023 |

*International Funding Agency Review Activities:*

| | |
|---|---|
| Standing grant reviewer (College of Experts): Parkinson's UK | 2020 – Present |
| Ad-Hoc Reviewer: ZonMw Reviewer (Netherlands) | 2024 |
| Ad-Hoc Member: Israeli Ministry of Innovation, Science & Technology Grant Review | 2022 |
| Ad-Hoc Member: Mitacs "Accelerate" Proposal Stream (Canada) | 2022 |
| Ad-Hoc Member: Dunhill Medical Trust (UK) | 2020 |
| Ad-Hoc Member: Health Research Board, national funding agency for Ireland | 2019 |
| Ad-Hoc Member: Research Foundation Flanders (Belgium) | 2017 & 2018 |
| Ad-Hoc Member: Israeli Science Foundation | 2017 |

*Other, National Grant Review Activities*

Univ. of Maryland Claude D. Pepper Older Americans Independence Center 2020

***Service to Societies***

2026 World Parkinson's Congress Local Organizing Committee 2024 – Present

2026 World Parkinson's Congress Comprehensive Care Program Subcommittee 2024 – Present

2023 World Parkinson's Congress Comprehensive Care Program Subcommittee 2022-2023

International Society of Posture and Gait Research (ISPGR) World Congress 2019
Session Co-Chair & Scientific Review Committee

***Service to Journals***

Editorial Board- Neuroscience Letters 2024 – Present

Editorial Board- Journal of Neurologic Physical Therapy 2016 – Present

Special Issue Editor (Journal of Neurologic Physical Therapy) 2017 – 2018
"Physical Therapy for Parkinson's Disease – Mechanisms and Interventions"

Review Editor- Frontiers in Movement Disorders 2020 – Present

Ad Hoc Reviewer (***approximately 25-35 per year***) for the following journals:

*Anatomical Record*
*Arch Phys Med & Rehab*
*Behavioural Brain Research*
*Brain Imaging and Behavior*
*Cerebral Cortex*
*Clinical Biomechanics*
*Clinical Neurophysiology*
*Disability & Rehabilitation*
*Experimental Aging Research;*
*European J. of Neuroscience*
*Gait & Posture*
*Human Brain Mapping*
*Human Movement Science*
*J. of Biomechanics*
*J. of Gerontology: Med. Sci.*
*J. of Neurology, Neurosurgery, & Psychiatry*
*J. of NeuroEng. & Rehab.*
*J. of Motor Learning & Devel.*
*J. of Sci & Medicine in Sport*
*J. of Applied Biomechanics;*
*J. of Parkinson's Disease*
*J of Neural Transmission*
*J. of Neurologic PT*
*J. of Neurology*
*JOVE*
*Lancet Neurology*
*Peer J*
*Parkinson Disease J.*
*Parkinson's Dis. & Rel. Dis.*
*Pilot & Feasibility Studies*
*Physiotherapy Theory & Practice;*
*PLoS One*
*Physical Therapy Journal*
*Psychological Research*
*Medical Engineering & Physics*
*Medicine & Sci in Sports & Ex.*
*Motor Control*
*Movement Disorders*
*Mechanisms of Aging & Devel.*
*Multiple Sclerosis & Rel. Dis.*
*Neurobiology of Aging*
*Neuroimage*
*Neuroscience Letters*
*Neurorehab. & Neural Repair*
*Neuroscience and Biobehav. Rev*
*Sensors*
*Scientific Reports*
*Transactions on Neural Systems & Rehab Eng*

***Professional Memberships***

Society for Neuroscience
International Society for Posture and Gait Research

## *Community service*

***Community Research / Educational Presentations***

"What goes wrong with Balance in Parkinson's Disease & Can we change it" 2023
American PD Association "Let's Keep Moving with APDA" seminar series
https://www.apdaparkinson.org/videos/lets-keep-moving-with-apda-what-goes-wrong-with-balance-in-parkinsons-disease-can-we-change-it/

"Falls, Balance & MS- causes and possible treatments" 2022
MS support groups (Phoenix)

"Falls, Balance, and Parkinson's Disease" 2022
PD support groups (Phoenix)

"Balancing activity, safety, and quality of life" 2020 / 2021
Braille Institute Quarterly Fall Prevention Seminar

"PT and PD: Balance and physical therapy in people with Parkinson's disease" 2019
Arizona Rehab PT Clinic

"Balance and posture in Parkinson's disease" 2018
Scottsdale Parkinson's disease support group

"Parkinson's Disease: Symptoms and Signs" 2016
Cache Valley Senior Center, Logan UT

"Walking & Balance in Parkinson's Disease: Latest Research" 2013
Logan, UT Parkinson's Disease Support Group

"Imagine That! Imagined walking to gain insights into locomotor control in PD" 2013
Young Onset PD Support Group, St. Louis, MO

***Community Engagement***

"New Adventures in Learning" (NAIL) Continued adult education program 2017- 2020
Instructor / Presenter

Hereditary Neuropathy Foundation- "Movement is Medicine" Summit (Phoenix, AZ) 2018
Co-presenter / researcher

Hereditary Neuropathy Foundation Center for Excellence for CMT (ASU & BNI) 2021 – present
contributor

## TEACHING & MENTORING

### *Teaching (ASU)*

***Instructor of Record***

"Introduction to Kinesiology" (KIN 101) 2024 – Present
*Undergraduate, in-person delivery*

"Neural Aspects of Movement and Rehabilitation" (KIN 424 / 598) 2016 – Present
*Undergraduate, in-person delivery*

"Motor Behavior" (KIN345) 2021 – Present
*Undergraduate, in-person delivery*

### *Teaching (Other Institutions)*

***Instructor of Record***

"Neural Aspects of Rehabilitation"; MS in Exercise Science Curriculum 2016
Utah State University

***Guest Lecturer***

"Motor Control"; Doctorate in Physical Therapy Curriculum 2015 – Present
University of Utah

"Biocontrol"; Movement Science PhD Curriculum 2012
Washington University in St. Louis

"Development, Control, and Analysis of Human Movement"; Post Professional DPT 2012
Washington University in St. Louis

"Neuroscience" Doctorate in Physical Therapy Curriculum 2011 – 2012
Washington University in St. Louis

## *Mentoring - ASU*

***Committee Chair:***

***Graduate: PhD***

**Andrew Monaghan** (Exercise & Nutrition Science; College of Health Solutions) 2019 – 2023
Title: Neural Control of Protective Stepping in Neurological Populations;
*Successfully defended thesis: May 2023*
***Received the CHS 2021 Christine Wells Outstanding Research Award***
*Fall 2024- Faculty (tenure track) at Queens University Belfast, Ireland*

**Charles Van Liew** (Exercise & Nutrition Science; College of Health Solutions) 2018 – 2021
Title: Dual-Task Walking in MS: Correlates, Moderators, and Consequences
*Successfully defended thesis: April 2021*
***Received the CHS 2021 Christine Wells Outstanding Research Award***
*Faculty, Glendale Community College*

***Graduate: MS***

**Alexander Belnavis** (MS; Speech & Hearing Science) 2021 – 2023
Title: Relating speech and gait outcomes in people with PD
Committee co-chair: (co-chair: Daliri)

**Jordan Barajas** (MS: Exercise, Nutrition, & Wellness; College of Health Solutions) 2017 – 2020
Title: Effects of Dual Tasking on protective stepping in people with PD
*Thesis successfully defended 11/2020*
***Currently working in industry***

**Marvin Vergara** (MS: Applied Project; Fulton Schools of Engineering) 2019
Title: Characterizing electromyographic activity in people with PD
*Project successfully defended 5/2019*
***Currently working in industry***

**Matthew Gerveler** (MS Applied Project; Fulton Schools of Engineering) 2017 – 2018
Title: Characterizing protective stepping in healthy young adults via TMM
*Project successfully defended, 05/2018*
***Currently working in industry***

***Undergraduate Honors Theses***

**Skyla Cochrane** (Barrett Honors Senior Thesis) 2024 – Present
Title: TBD

**Sean Bowman** (Barrett Honors Senior Thesis) 2023 – 2024
Title: Anticipatory vs. expected reactive stepping in people with PD

**Devin Nikjou** (Barrett Honors Senior Thesis) 2023 – 2024
Title: EMG responses in reactive balance in people with PD

**Ayden Salek** (Barret Honors Senior Thesis) 2023 – 2024
Title: EMG responses to reactive balance training in neurological populations

**Sam Webster** (Barrett Honors Senior Thesis) 2022 – 2023
Title: Parkinsonian Symptoms in Patients with REM Sleep Behavior Disorder

**Tea McCormick** (Barrett Honors Senior Thesis, BME) 2021 – 2023
Title: assessing cognitive tests across domains in people with PD & FOG

**Cal Bosard** (Barrett Honors Senior Thesis, CHS) 2021 – 2022
Title: Characterizing reactive lateral stepping in people with PD

**Jelena Mitrovic** (Barrett Honors Senior Thesis, CHS) 2021 – 2022
Title**:** Effects of Ballet on Balance in Individuals with Down Syndrome

**Becca Sturm** (Barrett Honors Senior Thesis, CHS) 2021 – 2022
Title: Dual tasking in people with and without PD

**Finn Larsen** (Barrett Honors Senior Thesis, College of Nursing) 2019 – 2020
Title: Transfer of skills across hockey & Golf

**Randall Arroyo** (Barrett Honors Thesis, Kinesiology) 2018 – 2019
Title: Generalization of protective stepping across lateral stepping directions

**Rachael Nowak** (Barrett Honors Thesis, Kinesiology) 2017 – 2018
Title: Generalization of protective stepping: forward and backward steps

**Rachael Preshler** (Barrett Honors Senior Thesis, Kinesiology) 2017 – 2018
Title: Relating reactive stepping to falls in community dwelling older adults.

***Committee Member:***

***Graduate: PhD***

**Soubhagya Nakak** (PhD in Engineering) 2023 – Present
Title: TBD
Committee Chair: Hyunglae Lee

**Ferdinand Delgado** (PhD in Exercise & Nutrition Science; CHS) 2018 – 2023
Title: Investigating the Interplay between Executive Function, Apolipoprotein E4, and Falls in Older Adults with Normal Cognition, Mild Cognitive Impairment, and Alzheimer's Dementia
Committee Chair: Cheryl Der Ananian
*Thesis Defense: May 2023*

**Josh Beaumont** (PhD in Exercise & Nutrition Science, CHS) 2017 – 2023
Title: Energy expenditure of walking in adults: influence of body mass index, age, height, and sex
Committee Chair: Glenn Gaesser
*Thesis Defense: Nov. 2023*

**Seong Moon** (PhD in Biomedical Engineering; Fulton Schools of Engineering) 2017 – 2023
Title: Understanding the Effect of Epidural Steroid Injection in Lower Back Pain using Inertial Measurement Unit Wearable Device
Committee Chair: Thurmon Lockhart
*Thesis Defense: May 2023*

**Kaycee Glattke** (PhD in Biomedical Engineering, Fulton Schools of Engineering) 2017 – 2022
Title: Low-Intensity Blood Flow Restriction Training as a Pre-Operative Rehabilitative Modality to Improve Post-Operative Outcomes for ACL Reconstruction
Committee Chair: Thurmon Lockhart
*Thesis successfully defended, May 2022*

**Victoria Smith** (PhD in Biomedical Engineering; Fulton Schools of Engineering) 2015 – 2019
Title: Understanding the application and limitations of lyapunov exponents for fall risk assessments
Committee Chair: Thurmon Lockhart
*Thesis Defense: 10/2019*
***Currently working in industry***

**Gretchen Roman** (PhD in Exercise & Nutrition Science; College of Health Solutions) 2015 – 2019
Title: 'Upper extremity biomechanics in native and non-native sign language
Committee Chair: Swan
*Thesis Defense: 11/2018*
***Currently in a postdoctoral position- University of Rochester***

***Graduate: MS***

**Lexi Kasofsky** (MS in Exercise & Wellness; CHS) 2022 – 2023
Title: Blood flow restriction in Stroke Survivors
Committee Chair: Siegler

**Kalyani Datta** (Speech Language Pathology) 2022 – 2022
Title: Effects of Levodopa on Cognitive Control in Parkinson's Disease
Committee Chair: Brewer

**Madeline Hooten** (Speech Language Pathology) 2022 – 2022
Title: Effects of Gender on Cannabis consumption in people with PD
Committee Chair: Ofori

**Kwanghee Jo** (MS in Biomedical Engineering) 2022 – 2022
Title: The Use of a Vibrotactile Feedback for Improving Standing Posture Stability
Committee chair: Lee

**Xun Yu** (MS in Biomedical Engineering) 2022 – 2022
Title: Dynamic stability assessment of walking while wearing passive back support Exo-suit
Committee chair: Lockhart

**Arianna Marquez** (MS in Biomedical Engineering; Applied Project) 2022 – 2022
Title: Gait Symmetric Adaptation and Retention to Short-Term Visual Distortion and Split-Belt Treadmill Walking
Committee chair: Lee

**Theophilus Annan** (MS Applied Project; Fulton Schools of Engineering) 2020 – 2021
Title: Backward reactive stepping in stroke survivors
Committee Chair: Honeycutt

**Niveditha Muthukrishnan** (MS in Biomedical Engineering) 2016 – 2018
Title: Evaluation of a Soft Robotic Knee Exosuit for Assistance in Stair Ascent
Committee Chair: Polygerinos
***Currently completing an PhD at ASU***

**Chloe Houlihan** (MS Applied Project) 2017 – 2018
Title: Testing the Relationship Between Dexterity and Cognitive Ability in Healthy Older Adults
Committee Chair: Schaefer
***Currently working in industry***

**Troy Ramos** (MS Applied Project; Fulton Schools of Engineering) 2017 – 2018
Title: Quantifying Local Dynamic Stability in Healthy and Fall Prone Adults
Committee Chair: Lockhart
***Currently working in industry***

***Undergraduate Honors Theses***

**Lauren Berrett** (Barrett Honors Senior Thesis, Engineering) 2020 – 2021
Title: gait in people with multiple sclerosis
Committee Chair: Lee

**Danielle Keim** (Barrett Honors Senior Thesis, CHS) 2019 – 2020
Title: Postural control after varying interventions in children with Autism
Committee Chair, Ringenbach

**Cheng Chang** (Barrett Honors Senior Thesis, CHS) 2019 – 2020
Title: App Development for facilitating PT at-home exercise prescription
Committee Chair, Holzapfel

**Jonathan Talos** (Barrett Honors Senior Thesis, Fulton Schools of Engineering) 2019
Title: Gait monitoring for transtibial amputees
Committee Chair: Schaefer

**Sydney Connor** (Barrett Honors Senior Thesis, Fulton Schools of Engineering) 2016 – 2017
Title: Utilizing Motor Practice to Prime Motor Performance
Committee Chair: Schaefer
***PhD Candidate, Johns Hopkins University***

***Other***

**Isabel Rosas (SCENE High-school Scholar; Bioscience High School)** 2022 – 2023
Topic: Motor Learning and Cognition in people with PD

**Achintya Sai (SCENE High-school Scholar; Bioscience High School)** 2022 – 2023
Topic: CVLT performance in people with MS
*2nd place in Behavioral & Social Science Devision, 1st place award from American Psychological Association, 2023 Arizona Science & Engineering Fair*

**Katherine Shi (Basis High-school Scholar)** 2022 – 2023
Topic: Reactive balance and proprioception in people with PD

**Hanna Johannsson, PhD** (Visiting PhD student; Karolinska Institute) 2020
Topic: Cognition and motor learning in people with PD
***Currently a postdoctoral scholar at Karolinska Institute***

**Anandita Nadkarni** (Summer Intern; Milburn High school) 2017
Topic: Protective postural control in people with PD

***Other Research Mentoring at ASU***

*I provide for-credit research experiences and mentorship to undergraduate (UG) & Graduate (Grad) students each semester*

## *Mentoring Outside of ASU*

***Committee Chair / co-chair:***

***Graduate: MD***

*University of Arizona, School of Medicine*

**Orlando Acuna** 2022 – 2024
Project: Dual tasking in Parkinson's disease- clinical samples

**Milan Oxspring** 2021 – 2024
Project: Changes in EMG across reactive stepping training in those with PD

**Andrew Acosta** ("Pathway Scholar") 2020 – 2024
Project: Relating Cognition and Depression to learning in people with PD

***Graduate: Doctorate in Physical Therapy***

*Northern Arizona University (NAU), Program in Physical Therapy*

**Alyssa Martin** 2020 – 2021
Thesis: Impacts of "laser shoes" on freezing episodes in people with PD
* Joint project with Rachael Nowak
*DSP Co-Chair; Linda Denney (NAU)*

**Rachael Nowak** 2020 – 2021
Thesis: Impacts of "laser shoes" on freezing episodes in people with PD
* Joint project with Alyssa Martin
*DSP Co-Chair; Linda Denney (NAU)*

**Madison Scavarda** 2020 – 2021
Thesis: Impacts of "laser shoes" on freezing episodes in people with PD
* Joint project with Kenneth Nagel
*DSP Co-Chair; Linda Denney (NAU)*

**Kenneth Nagel** 2020 – 2021
Thesis: Impacts of "laser shoes" on freezing episodes in people with PD
* Joint project with Madison Scavarda
*DSP Co-Chair; Linda Denney (NAU)*

**Sidney Gutierrez** 2019 – 2020
Thesis: Dual tasking and postural control in community dwelling older adults
*DSP Co-Chair; Linda Denney (NAU)*

**Wendy Peters** 2017 – 2018
Thesis: Understanding Stroke: A Physical Therapy Perspective
*DSP Co-Chair; Pamela Bosch (NAU)*
**Won 3rd place at Annual NAU 3-minute Research Symposium*

**Lisa Britton** 2017 – 2018
Thesis: Prioritization of a Cognitive Task and an Increased Risk of Falls in Community Dwelling Older Adults; *Joint project with Alexa Zienka
*DSP Co-Chair; Pamela Bosch, (NAU)*

**Alexa Zienka** 2017 – 2018
Thesis: Prioritization of a Cognitive Task and an Increased Risk of Falls in Community Dwelling Older Adults; *Joint project with Lisa Britton
*DSP Co-Chair; Pamela Bosch (NAU)*

**Jenna Martinez** 2016 – 2017
Thesis: Dual Task Performance in people with Parkinson's Disease
*DSP Co-Chair; Linda Denney (NAU)*

***Graduate: MS***

*Oregon Health & Science University*

**Bauke Dijkstra** (MS, Kinesiology) 2013 – 2014
Thesis: Older Adults Improve Postural Control Through Perturbation Training
Visiting Scholar from the University of Groningen, The Netherlands
*DSP Committee member; Chair: Yvo Kamsma*

***Committee Member / Dissertation reader:***

***Graduate: PhD***

*Colorado State University*

**Sutton Richmond** (PhD, Human Bioenergetics) 2018 – 2020
Thesis: Bridging the Callosal Gap in Gait: A mechanistic Evaluation of White Matter's Role in Bilateral Coordination
Committee Member; Chair: Brett Fling

*Ben Gurion University, Be'er Sheva, Israel*

**Uri Rosenblum Belzer** (PhD) 2021
Thesis: Mechanisms of Balance Recovery During Walking in Complex Environments in Healthy Young and Older Adults
Role: External thesis reviewer; Chair: Drs. Melzer & Plotnik

*University of New South Wales*

**Steven Phu (PhD)**
Thesis: Understanding the Neuromuscular Mechanisms of Perturbation-based Balance Training in Older People
Role: External Reader

***Post-doctoral Mentorship***

*University of Utah*
Brian Loyd, PhD 2018 – 2021
Distance co-mentor (Primary mentor- Lee Dibble)
*Currently Faculty Member at University of Montana*