Shirley Rietdyk
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EDUCATION:

1994-1999	Ph.D. Kinesiology, University of Waterloo, Waterloo, Ontario
1992-1994	M.Sc. in Kinesiology, University of Waterloo, Waterloo, Ontario
1986-1992	B.Sc. in Kinesiology, University of Waterloo, Waterloo, Ontario

PROFESSIONAL EXPERIENCE:

2015 – present	**Professor of Kinesiology,** Purdue University, West Lafayette, Indiana - Director of the Biomechanics Laboratory - Research focuses on neural and mechanical systems in posture, balance and mobility
2015 – present	**Professor of Mechanical Engineering, Courtesy Appointment,** Purdue University
2015 – present	**Professor of Speech Language and Hearing Sciences, Courtesy Appointment,** Purdue University
2014 – 2015	**Associate Professor of Mechanical Engineering, Courtesy Appointment,** Purdue University
2014 – 2015	**Associate Professor of Speech Language and Hearing Sciences, Courtesy Appointment,** Purdue University
2007 – 2015	**Associate Professor of Kinesiology,** Purdue University, West Lafayette, Indiana
2000 – 2007	**Assistant Professor of Kinesiology,** Purdue University, West Lafayette, Indiana
1997	**Lecturer**, Tashkent State Economics University, Tashkent, Uzbekistan
1993	**Visiting Scholar,** Center for Locomotion Studies, Pennsylvania State University, Pennsylvania
1991 - 1993	**Research Coordinator**, Neural Control Laboratory, University of Waterloo, Ontario, Canada

ACADEMIC AWARDS AND DISTINCTIONS

Fellow, Entrepreneurial Leadership Academy	Purdue University	2012-13
Outstanding Undergraduate Faculty Member	Health and Kinesiology Dept., Purdue	2012-2013
Exceptional Engagement Award	Center for Aging & the Life Course, Purdue	2012
New Investigator Award	Canadian Society of Biomechanics	1998
NSERC* Postgraduate Scholarship	University of Waterloo	1994-96
UW Graduate Scholarship	University of Waterloo	1995-96
UW PhD Entrance Scholarship	University of Waterloo	1994-95
Board of Governor's Achievement Award	University of Waterloo	1994
NSERC* Postgraduate Scholarship	University of Waterloo	1992-94
UW Graduate Scholarship	University of Waterloo	1993-94
UW Graduate Scholarship	University of Waterloo	1992-93
Dean's Honours List, B.Sc.	University of Waterloo	1989-92
UW Undergraduate Scholarship	University of Waterloo	1986-87

*NSERC: Natural Science and Engineering Research Council of Canada; UW: University of Waterloo, Canada

JOURNAL PUBLICATIONS (*italics denotes graduate students*, underline denotes undergraduate students)

1. *Cui C,* Muir B, **Rietdyk S**, Haddad JM, van Emmerik R, Ambike S. (in press). Sensitivity of the toe height to multi-joint angular changes in the lower limbs during unobstructed and obstructed gait. *Journal of Applied Biomechanics.* Impact factor 1.32, peer reviewed.
2. *Cui C, Kulkarni A,* **Rietdyk S,** Barbieri F, Ambike, S. (2020). Synergies in the ground reaction forces and moments during double support in curb negotiation in young and older adults. *Journal of Biomechanics,* 106: 109837. Impact factor 2.75, peer reviewed.
3. *Gomez D,* Dyke SJ, **Rietdyk S**. (2020). Structured uncertainty for a pedestrian-structure interaction model. *Journal of Sound and Vibration*, 474: 115237. Impact Factor 3.123, peer reviewed.
4. *Muir BC,* Bodratti L, Morris C, Haddad JM, van Emmerik REA, **Rietdyk S**. (2020). Gait characteristics during inadvertent obstacle contacts in young, middle-aged and older adults. *Gait and Posture*, 77: 100-104. Impact factor: 2.752, peer reviewed.
5. *Cho H, Romine N,* Barbieri, FA, **Rietdyk S**. (2019). Gaze diversion affects cognitive and motor performance in young adults when stepping over obstacles. *Gait and Posture*, 73: 273-278. Impact factor: 2.752, peer reviewed.
6. *Pereira VIA,* Polastri PF, *Simieli L*, **Rietdyk S**, *Imaizumi LFI, Moretto GF, Penedo T*, Rodrigues ST, Barbieri FA. (2019). People with Parkinson's disease perform late fixation to the obstacle during walking with obstacle circumvention and cognitive dual-tasking. *Gait and Posture,* 73: 291-298. Impact factor: 2.752, peer reviewed.
7. *Yang Z,* Qu F, Liu H, Jiang L, *Cui C,* **Rietdyk S**. (2019). The relative contributions of sagittal, frontal, and transverse joint powers to self-paced uphill and downhill slope walking. *Journal of Biomechanics,* 92: 35-44. Impact factor: 2.75, peer reviewed.
8. *Torgerud S, Cho H,* McGlothlin JD, **Rietdyk S**. (2019). Work-experience in challenging environments results in reduced susceptibility to moving room illusion. *Brazilian Journal of Motor Behavior,* 13(1): 11-22. Impact factor: N/A; peer reviewed. Invited.
9. *Muir BC,* Haddad JM, van Emmerik REA, **Rietdyk S**. (2019). Changes in the control of adaptive gait in middle age become evident as gait task difficulty increases. *Gait and Posture,* 70: 254-259. Impact factor: 2.752, peer reviewed.
10. *Raffegeau T,* Haddad JM, Huber JE, **Rietdyk S**. (2018). Walking while Talking: Young adults flexibly allocate resources between speech and gait. *Gait and Posture.* 64: 59-62. Impact factor: 2.752, peer reviewed.
11. *Gomez D,* Dyke SJ, **Rietdyk S**. (2018). Experimental verification of a substructure-based model to describe pedestrian-bridge interaction. *Journal of Bridge Engineering,* 23(4), 04018013. Impact factor: 1.39, peer reviewed.
12. *Heijnen MJH,* **Rietdyk S**. (2018). Failures in adaptive locomotion: Trial-and-error exploration to determine adequate foot elevation over obstacles. *Experimental Brain Research,* 236:187-194. Impact factor: 2.395, peer reviewed.
13. *Cruise DR,* Chagdes JR, *Liddy JJ,* **Rietdyk S**, Haddad JM, Zelaznik HN, Raman A. (2017). An active balance board system with real-time control of stiffness and time-delay to assess mechanisms of postural stability. *Journal of Biomechanics,* 60: 48-56. Impact factor: 2.75, peer reviewed.
14. *Anand, M,* Seipel, J, **Rietdyk, S**. (2017). A modeling approach to the dynamics of gait initiation. *Journal of the Royal Society Interface*. 14(128), 20170043. Impact factor: 3.818, peer reviewed.
15. *Liddy JJ,* Zelaznik HN, Huber JE, **Rietdyk S**, Claxton LJ, Samuel A, and Haddad JM. (2017). The Efficacy of the Microsoft Kinect™ to Assess Human Bimanual Coordination. *Behavior Research Methods.* 1-18. Impact factor: 2.928, peer reviewed.
16. Chagdes JR, **Rietdyk S**, Haddad JM, Zelaznik HN, Cinelli ME, *Denomme L, Powers K,* Raman A. (2016). Limit cycle oscillations in standing human posture. *Journal of Biomechanics,* 49(7): 1170-1179. Impact factor: 2.75, peer reviewed.

17. Chagdes JR, Huber JE, *White MD*, **Rietdyk S**, Zelaznik HN, Haddad JM. (2016). The relationship between intermittent limit cycles and postural instability associated with Parkinson's disease. *Journal of Sport and Health Science,* 5(1):14-24. doi:10.1016/j.jshs.2016.01.005. Impact factor: 1.23, peer reviewed.
18. *Heijnen MJH*, **Rietdyk S**. (2016). Falls in young adults: perceived causes and environmental factors assessed with a daily online survey. *Human Movement Science*, 46: 86-95. doi: 10.1016/j.humov.2015.12.007. Impact factor: 2.03, peer reviewed.
19. *Kim A*, Kim J, **Rietdyk S**, Ziaie B. (2015). Concurrent Validity of a Wearable Smartphone-Enabled Camera-Based System for Gait Assessment. *Gait and Posture*, 42(2): 138-144. doi:10.1016/j.gaitpost.2015.05.001. Impact factor: 2.752, peer reviewed.
20. *Muir BC*, Haddad JM, *Heijnen, MJH*, **Rietdyk S**. (2015). Proactive gait strategies to mitigate risk of obstacle contact are more prevalent with advancing age. *Gait and Posture,* 41(1): 233-239. doi:10.1016/j.gaitpost.2014.10.005. Impact factor: 2.752, peer reviewed.
21. *Heijnen MJH*, Romine NL, Stumpf DM, **Rietdyk S**. (2014). Memory guided obstacle crossing: more failures were observed for the trail limb versus lead limb. *Experimental Brain Research*, 232(7): 2131-2142. doi: 10.1007/s00221-014-3903-3. Impact factor: 2.395, peer reviewed.
22. *Muir BC*, **Rietdyk S**, Haddad JM. (2014). Gait initiation: the first four steps in young adults, adults aged 65-79 years, and adults aged 80-91 years. *Gait and Posture*, 39(1): 490-494. doi:10.1016/j.gaitpost.2013.08.037. Impact factor: 2.752, peer reviewed.
23. *Chagdes JC*, **Rietdyk S**, Haddad JM, Zelaznik HN, Raman A. (2013). Nonlinear dynamics of human postural stability on balance boards. *Journal of Biomechanics,* 46(15): 2593-2602. doi:10.1016/j.jbiomech.2013.08.012. Impact factor: 2.75, peer reviewed.
24. Haddad JM, **Rietdyk S**, Claxton LJ, Huber J. (2013). Task-dependent postural control throughout the life-span. *Exercise and Sport Sciences Reviews*, 41(2):123-132. Doi: 10.1097/JES.0b013e3182877cc8. Impact factor: 4.259, peer reviewed.
25. *Heijnen MJH, Muir BC,* **Rietdyk S**. (2012). Factors leading to obstacle contact during adaptive locomotion. *Experimental Brain Research,* 223(2): 219-231. doi: 10.1007/s00221-012-3253-y. Impact factor: 2.395, peer reviewed.
26. Haddad JM, **Rietdyk S**, Claxton LJ. (2012). Exercise training to improve independence and quality of life in impaired individuals: A commentary on Li and Hondzinski's "Select exercise modalities may reverse movement dysfunction because of peripheral neuropathy" [Peer commentary by JM Haddad, S Rietdyk and LJ Claxton]. *Exercise and Sport Sciences Reviews,* 40(3): 117. doi: 10.1097/JES.0b013e31825572f4
27. *Heijnen M, Muir B,* **Rietdyk S**. (2012). Interpolation techniques to reduce error in measurement of toe clearance during obstacle avoidance. *Journal of Biomechanics*, 45(1): 196-198.
28. *Rhea CK*, **Rietdyk S**. (2011). Influence of an unexpected perturbation on adaptive gait behavior. *Gait and Posture,* 34: 439-441. doi:10.1016/j.gaitpost.2011.06.011.
29. Haddad JM, **Rietdyk S**, *Ryu JH*, Seaman JM, *Silver TA*, Kalish JA, & *Hughes C*. (2011). Postural asymmetries in response to holding evenly- and unevenly-distributed loads during self-selected stance. *Journal of Motor Behavior*, 43(4): 345-355.
30. **Rietdyk S** & *Rhea CK*. (2011). The effect of the visual characteristics of obstacles on risk of tripping and gait parameters during locomotion. *Ophthalmic and Physiological Optics, Feature Issue on Vision in Everyday Life*. 31, 302–310. doi: 10.1111/j.1475-1313.2011.00837.x.
31. *Rhea CK*, **Rietdyk S**, Haddad JM. (2010). Locomotor adaptation versus perceptual adaptation when stepping over an obstacle with a height illusion. *PLoS ONE* 5(7): e11544. doi:10.1371/journal.pone.0011544.
32. **Rietdyk S**, *Drifmeyer JE*. (2010). The rough terrain problem: Accurate foot targeting as a function of visual information regarding target location. *Journal of Motor Behavior* 42(1): 37-48.

33. *Chagdes JR*, **Rietdyk S**, Haddad JM, Zelaznik HN, Raman A, *Rhea C, Silver T*. (2009). Multiple timescales in postural dynamics associated with vision and a secondary task are revealed by wavelet analysis. *Experimental Brain Research* 197(3): 297-310.
34. *Kim J*, **Rietdyk S**, Breur GJ. (2008). Comparison of two-dimensional and three-dimensional systems for kinematic analysis of the sagittal motion of canine hind limbs during walking. *American Journal of Veterinary Research*, 69(9): 1116-1122.
35. *Rhea CK*, **Rietdyk S**. (2007). Visual exteroceptive information provided during obstacle crossing did not modify the lower limb trajectory. *Neuroscience Letters*, 418(1): 60-65.
36. **Rietdyk S** & *Rhea CK*. (2006). Control of adaptive locomotion: Effect of visual obstruction and visual cues in the environment. *Experimental Brain Research*, 169(2): 272-8.
37. **Rietdyk S**. (2006). Anticipatory locomotor adjustments of the trail limb during surface accommodation. *Gait and Posture*, 23(3): 268-72.
38. **Rietdyk S**, McGlothlin JD, *Knezovich MJ*. (2005). Work experience mitigated age-related differences in balance and mobility during surface accommodation. *Clinical Biomechanics*, 20(10): 1085-1093.
39. **Rietdyk S**, McGlothlin JD, Williams J & Baria A. (2005). Proactive stability control while carrying loads and negotiating an elevated surface. *Experimental Brain Research*, 165(1): 44-53.
40. Winter, D.A., Patla, A.E., Ishac, M.G. & **Rietdyk, S**. (2001). Ankle muscle stiffness in the control of balance during quiet standing. *Journal of Neurophysiology*, 85: 2630-2633.
41. **Rietdyk, S**., Patla, A.E., Winter, D.A., Ishac, M.G. & Little, C.E. (1999). Balance recovery from medio-lateral perturbations of the upper body during standing. *Journal of Biomechanics*, 32(11): 1149-1158. Winner of the New Investigator Award, North American Congress on Biomechanics.
42. Patla, A.E., Prentice, S.D., **Rietdyk, S**., Allard, S. & Martin, C. (1999). What guides the selection of alternate foot placement during locomotion in humans? *Experimental Brain Research*, 128: 441-450.
43. **Rietdyk, S**. & Patla, A.E. (1998). Context dependent reflex control: Some insights into the role of balance. *Experimental Brain Research*, 119(2): 251-259.
44. Patla, A.E., **Rietdyk**, S., Martin, C. & Prentice, S. (1996). Locomotor patterns of the leading and trailing limb while going over solid and fragile obstacles: Some insights into the role of vision during locomotion. *Journal of Motor Behavior*, 28(1): 35-47.
45. Elliot, D.B., Patla, A.E., Flanagan, J.G., Spaulding, S., **Rietdyk, S**., Strong, G. & Brown, S. (1995). The Waterloo Vision and Mobility Study: postural control strategies in subjects with ARM. *Ophthalmic and Physiological Aspects*, 15(6): 553-559, 1995.
46. Spaulding, S.J., Patla, A.E., Flanagan, J., Elliot, D.B., **Rietdyk, S.** & Brown, K.S. (1995). Waterloo Vision and Mobility Study: Normal gait characteristics during dark and light adaptations in individuals with age-related maculopathy. *Gait and Posture*, 3(4):227-235, 1995.
47. **Rietdyk, S**. & Patla, A.E. (1994). Does the step length requirement in the subsequent step influence the strategies used for step length regulation in the current step? *Human Movement Science*, 13: 109-127.
48. Spaulding, S.J., Patla, A.E., Elliot, D.B., Flanagan, J., **Rietdyk, S**. & Brown, S. (1994). Waterloo Vision and Mobility Study: Gait adaptations to altered surfaces in individuals with age-related maculopathy. *Optometry and Vision Science: Special Issue on Vision and Aging*, 71(12):770-777.
49. Patla, A.E. & **Rietdyk, S**. (1993). Visual control of limb trajectory over obstacles during locomotion: effect of obstacle height and width. *Gait and Posture*, 1: 45-60.
50. Patla, A.E., Frank, J.S., Winter, D.A., **Rietdyk, S**., Prentice, S. & Prasad, S. (1993). Age-related changes in balance control system: initiation of stepping. *Clinical Biomechanics*, 8: 179-184.

MANUSCRIPTS SUBMITTED FOR REVIEW

1. *Cho H,* Heijnen MJH, Craig BA, **Rietdyk S**. (first review, editor decision: revise and resubmit). The frequency and circumstances of falls in young adults: the effect of sex, physical activity, and prescription medications. *Submitted to PLOS ONE.* Impact factor: 2.74, peer reviewed.
2. *Gomez D,* **Rietdyk S**, Dyke SJ. (in review). Spatio-temporal assessment of gait kinematics in pedestrian-structure interaction. *Submitted to Structures*. Impact Factor 1.839, peer reviewed.
3. *Kulkarni A, Cho H,* **Rietdyk S**, Ambike S. (in review) The synergy stabilizing step length while crossing an obstacle is weaker in older adults. *Submitted to Journal of Biomechanics.* Impact factor: 2.32, peer reviewed.
4. *Cho H, Forster A,* Christ SL, Franks M, Richards EA, **Rietdyk S**. (in review). Changes to gait speed when romantic partners walk together: Effect of age and obstructed pathway. *Submitted to Gait and Posture.* Impact factor: 2.752, peer reviewed.

INVITED BOOK CHAPTERS

1. Hollands M, Hollands K, & **Rietdyk S**. (2017). Visual Control of Adaptive Locomotion and Changes Due to Natural Ageing. In Barbieri FA & Vitório R (Eds), Locomotion and Posture in Older Adults (pp. 55-72). Springer International Publishing.
2. Templin TJ, **Rietdyk S**, Claxton LJ & Savage M (2014) Kate: Recognising and addressing developmental coordination disorder. In Armour, K (Ed), Pedagogical Cases in Sport, Exercise, and Movement. London, Routledge.

REFEREED CONFERENCE PROCEEDINGS

1. Barbieri FA, *Penedo T,* Filho CAK, **Rietdyk S**, Ambike S. People with Parkinson's disease reduce ankle joint angle variance during obstacle avoidance. *X Brazilian Motor Behavior Conference*, Virtual conference through Vitória, Brazil, October, 2020. National conference.
2. *Cho H,* **Rietdyk S**. Task challenge affects both gait and reaction time performance in young adults. *44th Meeting of the American Society of Biomechanics*, Virtual conference through Atlanta, Georgia, USA, August, 2020. Poster, national conference.
3. *Cui C, Muir BC,* **Rietdyk S**, Haddad JM, van Emmerik REA, Ambike S. Sensitivity of Toe Height to Joint Angles of the Bipedal Linked Chain during Obstacle Crossing. *44th Meeting of the American Society of Biomechanics*, Virtual conference through Atlanta, Georgia, USA, August 2020. Podium, national conference.
4. *Kulkarni A, Cho H, Cui C,* **Rietdyk S**, Ambike S, Barbieri FA. Step length synergy during adaptive gait tasks in young adults. *44th Meeting of the American Society of Biomechanics*, Virtual conference through Atlanta, Georgia, USA, August 2020. Poster, national conference.
5. *Cui C, Kulkarni A, Cho H,* **Rietdyk S**, Ambike S, Barbieri FA. Gait Termination After Stepping Down A Curb: Effect of Concurrent Cognitive task. *XXVII Congress of the International Society of Biomechanics and 43rd Annual Meeting of the American Society of Biomechanics 2019*, Calgary, Canada, July 2019. Podium, international conference.
6. *Yang Z,* Qu F, Liu H, Jiang L, *Cui C,* **Rietdyk S**. The relative changes of 3D joint work during self-paced incline and decline slope walking. *XXVII Congress of the International Society of Biomechanics and 43rd Annual Meeting of the American Society of Biomechanics 2019*, Calgary, Canada, August 2019. Podium, international conference.
7. *Cho, H., Romine, N*., **Rietdyk, S.** Gaze diversion in obstacle crossing: Effects of aging. *XXVII Congress of the International Society of Biomechanics and 43rd Annual Meeting of the American Society of Biomechanics 2019*, Calgary, Canada, August 2019. Podium, international conference.

8. *Cui C, Cho H, Kulkarni A*, **Rietdyk S**, Barbieri FA, Ambike S. Synergistic ground reaction forces during double support while negotiating a curb. *International Society of Posture and Gait Research World Congress 2019*, Edinburgh, Scotland, June-July 2019. Poster, international conference.
9. *Kulkarni A, Cho H, Cui C,* **Rietdyk S**, Ambike S, Barbieri FA. Joint angle variance in the bipedal linked chain during curb negotiation. *International Society of Posture and Gait Research World Congress 2019,* Edinburgh, UK, June-July 2019. Poster, international conference.
10. *Cho, H, Romine, N,* Barbieri, A, **Rietdyk, S**. Does it matter where you look during obstacle crossing? *International Society of Posture and Gait Research World Congress 2019.* Edinburgh, Scotland, UK, June-July 2019. Poster, international conference.
11. *Cho, H, Forster, A, Hatala, S,* Ochoa, M, Christ, S, Franks, M, Richards, E, **Rietdyk, S**. Walking speed choices among married couples: Middle-aged and older adults walk slower when walking with their partner. *International Society of Posture and Gait Research World Congress 2019.* Edinburgh, Scotland, UK, June-July 2019. Poster, international conference.
12. *Cho H, Romine* N, **Rietdyk S**. Gaze diversion in obstacle crossing: Effects of aging. *2019 Midwest American Society of Biomechanics Regional Meeting*, Dayton, OH, February 2019. Podium, regional.
13. *Cui C, Kulkarni A, Cho H*, **Rietdyk** S, Ambike S, Barbier FA. Gait Termination After Stepping Down From A Curb: Effect of Concurrent Cognitive task. *2019 Midwest American Society of Biomechanics Regional Meeting*, Dayton, OH, February 2019. Podium, regional.
14. *Yang Z*, Qu F, Liu H, Jiang L, *Cui C*, **Rietdyk S**. The relative changes of 3D joint work during self-paced incline and decline slope walking. *2019 Midwest American Society of Biomechanics Regional Meeting*, Dayton, OH, February 2019. Podium, regional.
15. *Cui C, Muir B*, van Emmerik R, Haddad J, **Rietdyk S**, Ambike S. Understanding the causes of trips and falls: Lower limb joint angle variance as a function of obstacle height during obstacle crossing. *2018 Annual Center on Aging and the Life Course Symposium*, West Lafayette, IN, September, 2018. Poster, regional.
16. *Cho H, Foster A, Hatala S,* Ochoa M, Franks M, Richards E, **Rietdyk S**. Walking speed choices among married couples: Females adjust to match males. *2018 Annual Center on Aging and the Life Course Symposium*, West Lafayette, IN, September, 2018. Poster, regional.
17. *Hatala SS*, Franks MM, Rector JL, **Rietdyk S**, Thomas PA, & Friedman EM. Marriage and Health: An Examination of Marital Status and Gait Speed. *Gerontological Society of America 2018 Annual Scientific Meeting*, Boston, MA, November, 2018. National.
18. *Yang Z*, Qu F, *Cui C*, **Rietdyk S**. The contribution of frontal hip power to slope walking. *American Society of Biomechanics 2018*, Rochester, MN, August, 2018. National.
19. *Cui C*, Muir B, van Emmerik R, Haddad J, **Rietdyk S**, Ambike S. Lower limb joint angle variance as a function of obstacle height during obstacle crossing. *American Society of Biomechanics 2018*, Rochester, MN, August, 2018. National.
20. *Cho H*, Heijnen MJH, Craig BA, **Rietdyk S**. Young adults are surprisingly bad at walking: Sex differences in the circumstances associated with falls. *American Society of Biomechanics 2018*, Rochester, MN, August, 2018. National.
21. *Gomez D*, Dyke SJ, **Rietdyk S**, Thomson P. Development and evaluation of a pedestrian-bridge model in the presence of uncertainties. *FootBridge 2017* Berlin, Germany, Sept., 2017.
22. *Muir BC*, Bodratti LA, Morris CE, Haddad JM, van Emmerik REA, **Rietdyk S**. Circumstances leading to inadvertent trips in the lab for young, middle-aged and older adults. *World Congress of the International Society for Posture and Gait Research*, Fort Lauderdale, FL, June 2017. International, podium.
23. *Cho H, Heijnen M, Romine N*, **Rietdyk S**. Can visual fixation on an obstacle prevent trips? *World Congress of the International Society for Posture and Gait Research*, Fort Lauderdale, FL, June 2017. International, poster.
24. *Muir BC*, Haddad JM, van Emmerik REA, **Rietdyk S**. Middle-aged adults have reduced ankle braking and push-off power in order to achieve the same gait speed as young adults. *World Congress of the International Society for Posture and Gait Research*, Fort Lauderdale, FL, June 2017. International, poster.

25. *Muir BC*, Haddad JM, van Emmerik REA, **Rietdyk S**. Stepping over obstacles reveals gait changes in middle-aged adults not evident during steady state gait. *World Congress of the International Society for Posture and Gait Research*, Fort Lauderdale, FL, June 2017. International, podium.
26. *Cui C*, **Rietdyk S**, Ambike S. Lower-limb joints stabilize trailing toe height during repeated obstacle crossing: A UCM analysis. *World Congress of the International Society for Posture and Gait Research*, Fort Lauderdale, FL, June 2017.
27. *Heijnen MJH*, **Rietdyk S**. Failures in adaptive locomotion: Knowledge of obstacle contact is instrumental to guide limb trajectory. *World Congress of the International Society for Posture and Gait Research*, Fort Lauderdale, FL, June 2017. International, poster.
28. Gómez S, Marulanda J, Thomson P, García JJ, *Gómez D*, Ortiz AR, Dyke SJ, Caicedo J, **Rietdyk S**. Benchmark Problem for Assessing Effects of Human-Structure Interaction in Footbridges. In Dynamics of Civil Structures, Volume 2. Conference Proceedings of the *Society for Experimental Mechanics* Series. 2017 (pp. 213-222). Springer, Cham.
29. *Cruise D*, Chagdes JR, *Liddy JJ*, **Rietdyk S**, Haddad JM, Zelaznik HN & Raman A. Studying Balance on an Active Balance Board with Controllable Stiffness and Time-delay. *Midwest American Society of Biomechanics*, Grand Rapids, MI. February, 2017. Regional, podium.
30. *Pontecorvo SM, Heijnen MJH, Muir BC*, **Rietdyk S**. Relationship between gaze behavior and failure to cross a stationary, visible obstacle. *Midwest American Society of Biomechanics*, Grand Valley, MI, February 2017. Regional, podium.
31. *Cho HY, Romine N, Kim J, Heijnen M*, Ziaie B, **Rietdyk S**. Gait asymmetry during uphill, downhill and level walking while outdoors. *Midwest American Society of Biomechanics*, Grand Valley, MI, February 2017. Regional, podium.
32. *Gomez D*, Dyke SJ, **Rietdyk S**, Ramirez J. Efectos de la interacción dinámica humano-estructura en puentes peatonales (Dynamic human-structure interaction effects in footbridges). *18 Convencion Cientifica de Ingenieria y Arquitectura (18th Scientific Convention of Engineering and Architecture*), Havana, Cuba. November, 2016. International, poster.
33. Haddad, J.M., Snyder, S., McDonough, M.H., **Rietdyk, S**., *Simon, K*., Altenburger, P.A., *Salsabili, H*., Zauber, E., & Huber, J.E. A combined cognitive- and balance-based training intervention for people with Parkinson's disease: COBALT. *4th World Parkinson Congress*, Portland, OR. September, 2016. International, poster.
34. *Salsabili, H*., Huber, J.E., Snyder, S., *Simon, K*., McDonough, M.H., **Rietdyk, S**., & Haddad, J.M. The integration between posture, manual control, and speech in people with Parkinson's disease. *4th World Parkinson Congress*, Portland, OR. September, 2016. International, poster.
35. Chagdes JR*, *Liddy, J.J*., Huber, J.E., Zelaznik, H.N., **Rietdyk, S**., Raman, A., & Haddad, J.M. Dynamic instabilities induced through altered visual cues and their relationship to postural response latencies. American Society of Mechanical Engineering, *International Design Engineering Technical Conferences & Computer and Information in Engineering Conference*, Charlotte, NC. August, 2016. International, podium.
36. *Cho HY, Romine N, Kim J, Heijnen M*, Ziaie B, **Rietdyk S**. Gait asymmetry during uphill, downhill and level walking while outdoors. *40th Annual Meeting of the American Society of Biomechanics*, Raleigh, NC. August, 2016. National, poster.
37. *Romine N, Cho HY, Kim J, Heijnen M*, Ziaie B, **Rietdyk S**. Gait asymmetry during outdoor unrestrained locomotion in able-bodied participants. 40th Annual Meeting of the American Society of Biomechanics, Raleigh, NC. August, 2016. National, poster.
38. *Liddy JJ**, Chagdes, J.R., Huber, J.E., Zelaznik, H.N., **Rietdyk, S**., Raman, A., & Haddad, J.M. Neuromuscular time-delay and visually-induced dynamic instabilities. The North American Society for the Psychology of Sport and Physical Activity, Montreal, QB, June, 2016. National, poster.
39. Chagdes, J.R., Haddad, J.M., **Rietdyk, S.,** Zelaznik, H.N., and Raman, A. "Understanding the role of time-delay on maintaining upright stance on rotational balance boards," Proceedings of the ASME 2015

International Design Engineering Technical Conferences & Computer and Information in Engineering Conference, Boston, MA, August 2015. National.

40. *Cruise D*, **Rietdyk S**, Haddad JM, Zelaznik HN, Chagdes JR, *Liddy JJ*, Raman A. Principal component analysis of human balance on a tunable balance board. 39th Annual Meeting of the American Society of Biomechanics, Columbus, OH, USA. National, poster.
41. *Heijnen MJH*, **Rietdyk S**. Falls in the real world are related to obstacle crossing behaviors in a lab setting for young adults. World Congress of the International Society for Posture and Gait Research, Seville, Spain, June 2015. International, poster.
42. *Heijnen MJH, Kim A, Kim J*, Ziaie B, **Rietdyk S**. The step width of young and middle-aged adults was substantially reduced by texting and walking. World Congress of the International Society for Posture and Gait Research, Seville, Spain, June 2015. International, poster.
43. *Pontecorvo SM, Heijnen MJH, Muir BC*, **Rietdyk S**. Relationship between gaze behavior and failure to cross a stationary, visible obstacle. World Congress of the International Society for Posture and Gait Research, Seville, Spain, June 2015. International, poster.
44. *Kim A, Kim J, Heijnen MJH*, **Rietdyk S**, Ziaie B. Concurrent validity of a wearable smartphone-enabled camera-based system for assessment of postural sway. World Congress of the International Society for Posture and Gait Research, Seville, Spain, June 2015. International, poster.
45. *Liddy JJ, Kim J, Heijnen MJH, Kim A*, Ziaie B. **Rietdyk S**. Reliability of multifractal detrended fluctuation analysis using smartphone technology. World Congress of the International Society for Posture and Gait Research, Seville, Spain, June 2015. International, poster.
46. *Raffegeau TE*, Haddad JM, Huber JE, **Rietdyk, S**. Walking while talking is cognitively demanding for young adults. World Congress of the International Society for Posture and Gait Research, Seville, Spain, June 2015. International, poster.
47. *Liddy JJ*, Haddad JM, Huber JE, Claxton LJ, **Rietdyk S**, Zelaznik, H. Assessing Bimanual Coordination with the Microsoft Kinect. *Proceedings of the North American Society for the Psychology of Sport and Physical Activity NASPSPA 2015 J*une, 2015, Portland, Oregon, USA. National.
48. Beltran-Pulido AF, Chagdes JR, Zelaznik HN, Chiu G, Haddad JM, **Rietdyk S**, and Raman A. Fitts' law behavior when producing rapid aiming movements with delayed visual feedback. Proceedings of the North American Society for the Psychology of Sport and Physical Activity NASPSPA 2015 June, 2015, Portland, Oregon, USA.
49. **Rietdyk S,** *Heijnen MJH, Muir BC.* Failures of Proactive Gait Adaptations: Individual and Environmental Characteristics that Result in Failure to Cross a Visible, Stationary Obstacle. World Congress of the International Society for Posture and Gait Research, Vancouver, Canada, June 2014. International, podium at symposium *"Proactive and Reactive Adaptations to Slips and Trips: Implications for Fall-Risk Assessment and Rehabilitation"*.
50. *Heijnen MJH,* **Rietdyk S**. Prevalence and circumstances of falls in young adults: 29% fell in a five week observation period. World Congress of the International Society for Posture and Gait Research, Vancouver, Canada, June 2014. International, poster.
51. *Heijnen MJH,* **Rietdyk S**. Failure to clear stationary, visible obstacles is affected by surface characteristics. World Congress of the International Society for Posture and Gait Research, Vancouver, Canada, June 2014. International, poster.
52. *Muir BC*, Haddad JM, **Rietdyk S**, Van Emmerik REA. Dynamic gait instability occurs at different time scales for young and older adults. World Congress of the International Society for Posture and Gait Research, Vancouver, Canada, June 2014. International, poster.
53. *Muir BC*, **Rietdyk S**, Haddad JM, *Heijnen MJH*. The effects of advancing age on adaptive gait: a comparison of adults aged 20-25 years, 65-79 years, and 80-91 years. World Congress of the International Society for Posture and Gait Research, Vancouver, Canada, June 2014. International, poster.

54. *Kim A*, Kim J, **Rietdyk S**, Ziaie B. Field assessment of gait: Valid measures of step length and step width provided with a simple, inexpensive device. World Congress of the International Society for Posture and Gait Research, Vancouver, Canada, June 2014. International, poster.
55. *Kim A*, Kim J, **Rietdyk S**, Ziaie B. A wearable optical gait analysis system using smartphone camera to assess spatio-temporal parameters. World Congress of Biomechanics WCB 2014, Boston, MA, July 2014. International, poster.
56. *Muir BC*, **Rietdyk S**, Haddad JM, Van Emmerik REA. Age-Related Changes in Foot Placement Variability when Approaching and Stepping Over an Obstacle. World Congress of Biomechanics WCB 2014, Boston, MA, July 2014. Presentation selected as finalist in PhD level Student Paper Competition. International, podium.
57. *Heijnen MJH*, **Rietdyk S**. Failure to Clear a Stationary Visible Obstacle During Gait in Older Adults. World Congress of Biomechanics WCB 2014, Boston, MA, July 2014. International, poster.
58. Chagdes JR, **Rietdyk S**, Haddad JM, Zelaznik HN, Raman A, *Denomme L*, Cinelli M. Limit cycles in standing human posture are an indicator of neuromuscular impairment. World Congress of Biomechanics Conference WCB 2014, Boston, MA, July 2014. International.
59. Chagdes JR, **Rietdyk S**, Haddad JM, Zelaznik HN, *Denomme L*, Cinelli ME, Raman A. Dynamic stability and limit cycles in upright human posture. 17th U.S. National Congress on Theoretical & Applied Mechanics USNCTAM 2014, East Lansing, MI, June 2014. National, podium.
60. Kristen L. Clark, Kathryn A. Sands, Steven McKenzie, Jeff M. Haddad, **Shirley Rietdyk**, Wayne W. Campbell. Effects of whey protein supplementation on dietary compensation and muscle energetics in elderly adults. Experimental Biology, Boston, USA, April 2013. National, poster.
61. Kathryn A. Sands, Kristen L. Clark, Stephen McKenzie, Jeff M. Haddad, **Shirley Rietdyk**, Wayne W. Campbell. Effects of short-term protein supplementation on muscle work efficiency in elderly adults. Experimental Biology, Boston, USA, April 2013. National, poster.
62. *Raffegeau, T.*, **Rietdyk, S.,** Haddad, J. M., & Huber, J. The impact of extemporaneous speech on adaptive locomotion. National Association of Sport Psychology and Physical Activity (NASPSPA). New Orleans, Louisiana, June 2013. National, podium.
63. *Muir BC*, **Rietdyk S**, Haddad JM. The transition period between initiation and steady state gait as a function of advancing age. 60th annual Meeting of the American College of Sports Medicine and 4th World Congress on Exercise is Medicine. Indianapolis, IN, May, 2013. Abstract published in: Medicine and Science in Sports and Exercise, 45. National, poster.
64. *Raffegeau T*, **Rietdyk S**, Haddad JM, Huber JE. Gait and speech are interdependent in young healthy adults. 60th annual Meeting of the American College of Sports Medicine and 4th World Congress on Exercise is Medicine. Indianapolis, IN, May, 2013. Abstract published in: Medicine and Science in Sports and Exercise, 45. National, poster.
65. *Heijnen MJH*, **Rietdyk S**. A stored obstacle representation successfully guided lead limb but not trail limb trajectories during obstacle crossing. International Society for Posture and Gait Research, Trondheim, Norway, June 2012. International, poster.
66. *Chagdes JR*, **Rietdyk S**, Haddad JM, Zelaznik HN, Raman A. Nonlinear dynamics and bifurcations in postural control on rigid surfaces and rotational balance boards. American Society of Mechanical Engineers 2012 Summer Bioengineering Conference, June 2012, Fajardo, Puerto Rico. National, poster.
67. Haddad JM, **Rietdyk S**, *Ryu JH.* The task-dependent modulation of posture in young adults. North American Society for Psychology of Sport and Physical Activity, Honolulu, HI, June 2012. National, podium at symposium *"Life-span changes in the integration of posture with other goal-directed behaviors"*.
68. *Raffegeau TE, Seaman JM, Ryu JH, Muir B;* Haddad JM, **Rietdyk S**. Balance training to improve the performance of dual-task activities in older adults. North American Society for Psychology of Sport and Physical Activity, Honolulu, HI, June 2012. National, *podium at symposium "Life-span changes in the integration of posture with other goal-directed behaviors"*.

69. *Heijnen MJH, Muir BC*, **Rietdyk S**. Increased toe clearance accuracy during obstacle avoidance: Validation of cubic interpolation to upsample kinematic data. 35th Annual Meeting of the American Society of Biomechanics, Long Beach, CA, August 2011. National, poster.
70. *Muir BC*, **Rietdyk S**, Haddad JM, *Seaman JM, Heijnen MJH*. The effects of balance training on obstacle crossing in older adults. 35th Annual Meeting of the American Society of Biomechanics, Long Beach, CA, August 2011. National, poster.
71. *Chagdes J*, Raman A, **Rietdyk S**, Haddad J, Zelaznik H. Nonlinear dynamics and bifurcations in postural control with and without a wobble board. 35th Annual Meeting of the American Society of Biomechanics, Long Beach, CA, August 2011. National, poster.
72. *Heijnen MJH, Muir BC*, **Rietdyk S**. Motor adaptation to repeated obstacle crossing during locomotion. Progress in Motor Control VIII, Cincinnati, OH, July 2011. International, poster.
73. *Muir BC*, **Rietdyk S**, Haddad JM, *Seaman JM*. Improving gait characteristics in older adults: the effect of Biodex Balance System SD™ versus wobble board balance training. Sixteenth Biennial Conference for the Canadian Society for Biomechanics, Kingston, Ontario, Canada, June 2010. National, podium.
74. *Schanfein L*, **Rietdyk S**. The use of self-motion feedback with a balance screening and training system for balance control in younger and older dancers. Proceedings from the 19th Annual Conference of the International Association of Dance Medicine and Science, The Hague, Netherlands, October 2009. International.
75. *Marshall A*, Davies P, **Rietdyk S**. An investigation of differences in startle physiological measures between sonic booms and other transients. 38th International Congress and Exposition on Noise Control Engineering, Ottawa, Canada, August 2009. International.
76. *Rhea CK*, Haddad JM, **Rietdyk S**. Control of adaptive gait: effect of experience and light level on action and perception. North American Society for Psychology of Sport and Physical Activity, Austin, TX, June 2009. National, poster.
77. *Drifmeyer JE*, **Rietdyk S**. Step cycle regulation for accurate foot placement. North American Society for Psychology of Sport and Physical Activity, Austin, TX, June 2009. National, poster.
78. *Schanfein L*, **Rietdyk S**. Relationship between center of pressure displacement and estimated stability of dancers and non-dancers while in a moving room. The Fourth North American Congress on Biomechanics, Ann Arbor, MI, August 2008. International, podium.
79. *Rhea CK, Drifmeyer JE*, **Rietdyk S**. Increased exposure to an obstacle crossing task decreased toe elevation at obstacle crossing, but not estimation of obstacle height. The Fourth North American Congress on Biomechanics, Ann Arbor, MI, August 2008. International, poster.
80. *Silver TA, Ryu JH*, Haddad JM, **Rietdyk S**. Comparison of Center of Pressure in Inverted and Upright Stance Positions. North American Society for the Psychology of Sport and Physical Activity, NASPSPA 2008, Niagara Falls, ON, June 2008. National, poster.
81. *Silver TA*, **Rietdyk S**, Haddad JM. A comprehensive approach to the center of pressure differences between yoginis and controls. American College of Sports Medicine, Indianapolis, IN, June 2008. National, podium.
82. *Schanfein L* and **Rietdyk S**. Location of stationary visual references alters center of pressure displacement among university modern dancers. Proceedings from the 17th Annual Conference of the International Association of Dance Medicine and Science, Canberra, Australia, Oct 2007. International, podium.
83. *Rhea CK* & **Rietdyk S**. Height estimation of an obstacle is scaleable to toe elevation at obstacle crossing. 2007 Annual Conference of the American Society of Biomechanics, Palo Alto, CA, August 2007. National, poster.
84. *Schanfein L* & **Rietdyk S**. Location of stationary visual references alters center of pressure displacement. North American Society for the Psychology of Sport and Physical Activity, NASPSPA 2007, San Diego, CA, June, 2007. National, poster.

85. *Silver TA* & **Rietdyk S**. Visual fixation effects on quiet standing: Yoginis versus controls. North American Society for the Psychology of Sport and Physical Activity, NASPSPA 2007, San Diego, CA, June, 2007. National, poster.
86. *Rhea CK* & **Rietdyk S**. Does varying amounts of optic flow prior to gait initiation alter kinematics? North American Society for the Psychology of Sport and Physical Activity, NASPSPA 2007, San Diego, CA, June, 2007. National, podium.
87. *Rhea CK* & **Rietdyk S**. Dynamic versus static vision prior to obstacle avoidance: does optic flow affect foot placement and limb elevation? Fourteenth Biennial Conference for the Canadian Society for Biomechanics, Waterloo, Ontario, Canada, August, 2006. National, poster.
88. **Rietdyk S,** Zelaznik HN & *Rhea CK*. Interaction of timing and postural control: Is there competition for cerebellar resources? Fourteenth Biennial Conference for the Canadian Society for Biomechanics, Waterloo, Ontario, Canada, August, 2006. National, podium.
89. *Rhea CK* & **Rietdyk S**. Increased exteroceptive information did not alter lower limb kinematics during obstacle avoidance. North American Society for the Psychology of Sport and Physical Activity, NASPSPA 2006, Denver, CO, June 2006. International, podium.
90. Zelaznik HN & **Rietdyk S**. Applications of Event and Emergent Timing Processes to Postural Control. New England Sequencing and Timing Meeting, New Haven, CT, March 2006. Regional, podium.
91. *Naksuk N*, Lee CSG & **Rietdyk S.** Whole-body human-to-humanoid motion transfer. In IEEE-RAS International Conference on Humanoid Robots, Humanoids 2005, Tsukuba, Japan, December 2005. p. 104-109. doi: 10.1109/ICHR.2005.1573553 International, podium.
92. **Rietdyk S**, *Rhea C* & Ferguson M. Tripping with the trail foot affected trail clearance but not lead clearance in subsequent trials. Progress in Motor Control V, Pennsylvania State University, Pennsylvania, August 2005. National, poster.
93. *Rhea C* & **Rietdyk S**. Gait adaptation: Lead toe clearance continually decreased over multiple exposures with and without on-line visual information. XXth Congress of the International Society of Biomechanics, Cleveland, Ohio, August 2005. International, poster.
94. **Rietdyk S**, *Torgerud SR*, McGlothlin JD & *Knezovich MJ*. Stationary visual cues reduced centre of pressure displacement in a dynamic environment for experienced roofers. XXth Congress of the International Society of Biomechanics, Cleveland, Ohio, August 2005. International, podium.
95. *Rhea C* & **Rietdyk S**. Increased exposure to visual interference altered gait kinematics while avoiding an obstacle. North American Society for the Psychology of Sport and Physical Activity, NASPSPA 2005, St. Petersburg, Florida, June 2005. International, poster.
96. **Rietdyk S** & *Rhea C*. Gait adaptations: Obstacle position cues modify foot placement and clearance. North American Society for the Psychology of Sport and Physical Activity, NASPSPA 2005, St. Petersburg, Florida, June 2005. International, podium.
97. *Torgerud SR*, **Rietdyk S**, McGlothlin JD & *Knezovich MJ*. Quiet standing and stability limits: effect of work experience and age. 28th Annual Meeting of the American Society of Biomechanics, Portland, OR, September 2004. National, poster.
98. **Rietdyk S.** Anticipatory locomotor adjustments of the trail limb during surface accommodation. Thirteenth Biennial Conference for the Canadian Society for Biomechanics, Halifax, Nova Scotia, August 2004. National, poster.
99. **Rietdyk S**, McGlothlin JD & Williams JL. Control of step width while carrying light symmetrical loads and negotiating an elevated surface. American College of Sports Medicine, Indianapolis, IN, June 2004. National, podium.
100. **Rietdyk S**, McGlothlin JD & *Torgerud SR*. How is Postural Stability Affected by Age and Manual Materials Handling in the Occupational Environment? Fourth Annual Symposium of the University of Cincinnati NIOSH-supported Education and Research Center Pilot Research Project, Cincinnati, October 2003. Regional, podium.

101. **Rietdyk S**, McGlothlin JD & *Torgerud SR*. Worksite trips and falls: effect of age and handling small loads. 27th Annual Meeting of the American Society of Biomechanics, Toledo, OH, September 2003. National, podium.
102. *Torgerud SR* & **Rietdyk S**. Moving room paradigm: adaptation during prolonged and repeated exposures. 27th Annual Meeting of the American Society of Biomechanics, Toledo, OH, September 2003. National, poster.
103. *Potts S*, McGlothlin JD & **Rietdyk S**. Practices that contribute to reduced incidences of falls from elevations in the construction industry. American Industrial Hygiene Conference and Exposition, Dallas, TX, May 2003. National, podium.
104. **Rietdyk S**, McGlothlin JD, *Torgerud S* & Baria AT. How is postural stability affected by age and manual materials handling in the occupational environment? Third Annual Symposium of the University of Cincinnati NIOSH-supported Education and Research Center Pilot Research Project, Cincinnati, October 2002. Regional, poster.
105. **Rietdyk S** & Wiley K. Anticipatory behaviour during recovery from unexpected perturbations: Younger verses older adults. IV World Congress on Biomechanics, Calgary, Canada, August 2002. International, podium.
106. *McCarty J* & **Rietdyk S**. Consistency of putter trajectory and golf putting accuracy. IV World Congress on Biomechanics, Calgary, Canada, August 2002. International, podium.
107. Winter DA, **Rietdyk S**, Patla AE & Ishac MG. Postural motor response synergies to force perturbations. XXVth Congress of the Societe-de-Biomecanique and XIth Congress of the Societe-Canadienne-de-Biomechanique, Montreal, Canada, Aug 2000. April 2000. National, poster.
108. **Rietdyk S**, Patla AE, Winter DA, Ishac MG & Little CE. Kinetic strategies and stiffness for balance recovery from sagittal upper body perturbations during standing. 14th Symposium of the International Society for Posture and Gait Research, Waterloo, Canada. International, poster.
109. **Rietdyk S**, Patla AE, Winter DA, Ishac MG & Little CE. Controlling postural recovery from medio-lateral perturbations of the upper body during standing: Joint kinetic strategies and the role of joint stiffness. Identifying Control Mechanisms for Postural Behavior: Satellite Meeting to the Society for Neuroscience, Los Angeles, California, November, 1998. National, poster.
110. **Rietdyk S**, Patla AE, Winter DA, Ishac MG & Little CE. Kinetic strategies for balance recovery during medio-lateral perturbations of the upper body during standing. NACOB '98: The Third North American Congress on Biomechanics, Waterloo, Ontario, 1998. International, podium.
111. **Rietdyk S**, Patla AE & Winter DA. Comparison of the perturbation moment to the net response moment: A technique to quantify the overall body response. 28th Annual Meeting: Society for Neuroscience, Los Angeles, California, November, 1998. National, poster.
112. **Rietdyk S**, Winter DA, Patla AE, Ishac MA, Little CE & Judge S. Kinetic analysis to determine components of balance response to medio-lateral perturbations: Development of a Computer Simulation. 13th Symposium of the International Society for Posture and Gait Research, Paris, France, 1997. International, poster.
113. Little CE, Patla AE, Winter DA, **Rietdyk S** & Judge S. Unexpected trunk perturbations reveal considerable complexity in postural control. 13th Symposium of the International Society for Posture and Gait Research, Paris, France, 1997. International, poster.
114. **Rietdyk S** & Patla AE. Strategies used to recover from a trip: The effect of stability constraints. Ninth Biennial Conference and Symposium: Canadian Society for Biomechanics, Vancouver, British Columbia, 1996. National, podium.
115. Patla AE, Elliot DB, Flanagan J, **Rietdyk S** & Spaulding S. Effects of age-related maculopathy on strategies for going over obstacles of different heights and contrast. *2nd Annual North American Clinical Gait Laboratory Conference, Waterloo, Ontario, 1995. International, poster.*
116. Patla AE, Goodale MA, **Rietdyk S**, Adkin A & Silcher C. Role of binocular vision in obstacle avoidance during locomotion. 25th Annual Meeting: Society for Neuroscience, San Diego, California, 1995. National, poster.

117. **Rietdyk S** & Patla AE. The contribution of vision and muscle proprioception to the termination of gait. Eighth Biennial Conference and Symposium: Canadian Society for Biomechanics, Calgary, Alberta, 1994. National, poster.
118. **Rietdyk S**, Patla AE, Cavanagh PR & Becker MB. The role of the kinaesthetic system in the control of lower limb movement during locomotion. 24th Annual Meeting: Society for Neuroscience, Miami Beach, Florida, 1994. National, poster.
119. Elliot DB, Flanagan JG, Patla A, Spaulding S, **Rietdyk S** & Strong G. The Waterloo Vision and Mobility Study: Vision impairment in the control of posture. Optical Society of America, Washington, D.C., 1993. National, poster.
120. Patla AE, **Rietdyk S**, Prentice S, Unger-Peters G & Gobbi L. Understanding the roles of sensory inputs in the control of limb trajectory over obstacles during locomotion. 23rd Annual Meeting: Society for Neuroscience, Washington D.C., Virginia, 1993. National, poster.
121. Spaulding SJ, Patla AE, **Rietdyk S**, Flanagan J & Elliot D. Effect of surface characteristics on gait modification in individuals with age-related macular degeneration. 22nd Annual Meeting: Society for Neuroscience, Anaheim, California, 1992. National, poster.
122. **Rietdyk S** & Patla AE. The neural control of running: Is the step cycle programmed independently? NACOB II: The Second North American Congress on Biomechanics, Chicago, Illinois, 1992. International, podium.
123. Patla AE, Martin C & **Rietdyk S**. The effect of visually inferred property of an obstacle on obstacle avoidance response during locomotion in humans. XI International Symposium on Posture and Gait: Control Mechanisms, Portland, Oregon, 1992. International, poster.
124. Patla AE, Prentice S, Martin C & **Rietdyk S**. The bases for selection of alternate foot placement during locomotion in humans. XI International Symposium on Posture and Gait: Control Mechanisms, Portland, Oregon, 1992. International, poster.
125. Patla AE & **Rietdyk S**. Effect of obstacle height and width on gait patterns. XIII International Society of Biomechanics Congress, Perth, Australia, 1991. International, poster.
126. Patla AE & **Rietdyk S**. Characteristics of the foot trajectory while going over obstacles during locomotion. 21st Annual Meeting: Society for Neuroscience, New Orleans, Louisiana, 1991. National, poster.
127. **Rietdyk S**, Patla AE, Frank JS, Winter DA & Walt SE. The stepping response test for balance assessment. Canadian Society for Biomechanics, Human Locomotion VI, Quebec City, Canada, 1990. National, podium.

INVITED LECTURES

1. Rietdyk S. Can Slips, Trips, and Falls be Beneficial? Information Gained from Locomotor Failures. Inaugural speaker at CEREBBRAL Member Highlight Presentations (CEREBBRAL: Center for Research on Brain, Behavior, and Neurorehabilitation). Purdue, November 2019. Regional meeting
2. Rietdyk S. Factors associated with falls: Unsupervised learning with data from a national survey. Purdue's Data Science Coffee Klatch, October, 2019. Regional meeting.
3. Rietdyk S. Sex differences in the frequency and circumstances of falls across the adult lifespan. Women's Global Health Institute (WGHI)/Purdue Institute of Inflammation, Immunology and Infectious Disease (PI4D) Sponsored Symposium: Gut to Brain, September 2018. Regional meeting.
4. Rietdyk S. Opening keynote lecture: Identifying the role of the task, the environment, and the individual in shaping locomotor behavior. IX Brazilian Motor Behavior Congress, Bauru, Brazil, August 2018. National meeting.
5. Rietdyk S. Control of adaptive locomotion: The effect of vision and age-associated changes. First Brazilian Motor Behavior School, Bauru, Brazil, August 2018. National meeting.
6. Huber J. & Rietdyk S. Emerging Technology: How to Improve Communication and Maintain Balance. Center on Aging and the Life Course Scholars in the Spotlight and Spring Luncheon, Purdue, West Lafayette, IN; co-presented with Dr. Jessica Huber (Speech Language and Hearing Sciences), April 2018. Regional meeting.

7. Rietdyk S. Falls across the Adult Lifespan: Humans are Surprisingly Bad at Walking. Purdue Chapter of Sigma Xi. Purdue University, West Lafayette, IN, April 2018. Regional meeting.
8. Rietdyk S. Department of Health and Kinesiology 2017 Charles C. Cowell Lecture: Gait and environmental characteristics that increase fall-risk. Purdue University, IN. April, 2017. Regional meeting.
9. Rietdyk S. Gait and environmental characteristics that increase susceptibility to trips and falls. Seminar Series of Physical Therapy Department, University of Illinois at Chicago, IL. September, 2013. Regional meeting.
10. Rietdyk S. Gait and environmental characteristics that increase susceptibility to trips and falls. Colloquium of Health and Kinesiology Department, Purdue University, IN. September, 2013. Regional meeting.
11. Haddad, J. M., Rietdyk, S. & Claxton, L. J. Task-dependent postural control throughout the life-span. Department of Psychology, Indiana University, Bloomington, IN. April, 2013. Regional meeting.
12. Rietdyk S. The contribution of visual inputs to maintaining balance and mobility in complex environments. Seminar Series of Department of Mechanical and Aerospace Engineering, Dayton University, OH. Sponsored by the LEADER consortium, through an NSF ADVANCE grant. March, 2011. Regional meeting.
13. Rietdyk S. Rough terrain: The effect of visual cues on locomotor behavior. Cognition, Action and Perception Seminar, Department of Psychology, University of Cincinnati, Cincinnati, OH, May 2010. Regional meeting.
14. Rietdyk S. Aftab Patla's perspective on stability: Four legs good, two legs bad. The Aftab Patla Memorial Symposium at the North American Congress on Biomechanics, Ann Arbor, MI, August 2008. International meeting.
15. Rietdyk S. Effect of age and work experience on balance and mobility control. Initiative on Aging, University of Illinois at Urbana-Champaign, IL, November, 2004. Regional meeting.
16. Rietdyk S. Balance control during stance and locomotion. Purdue University Neuroscience Retreat, Purdue University, IN, March, 2004. Regional meeting.
17. Rietdyk S. Postural stability: Effect of age, experience and handling small loads. School of Health Sciences Seminar, Purdue University, IN, October, 2003. Regional meeting.
18. Rietdyk S. Maintaining balance as we age. 2002 Indiana Governor's Conference on Aging and In-Home Services, Indianapolis, IN, October 2002. Regional meeting.
19. Rietdyk S. Diabetic neuropathy and its effects on mobility. Pedortho '94, Pedorthic Association of Canada, Waterloo, July 1994. National meeting.

VISITING SCHOLARS

2020	Murilo Faria, Undergraduate student, São Paulo State University, São Paulo, Brazil
2018-2019	Fabio Barbieri, PhD, Assistant Professor, São Paulo State University (Universidade Estadual Paulista), São Paulo, Brazil; funded through Fulbright Visiting Scholar Program
2017-2018	Zihan Yang, PhD candidate, Beijing State University, Beijing, China

FUNDING

External Funding in Support of Research – Pending

National Institutes of Health, R01 / "Auditory, Vestibular, and Cognitive Contributions to Balance and Fall Risk in Older Adults" Role: Co-investigator with PI: Dr. Alexander Francis (Speech, Language and Hearing Sciences). This study will examine the association between hearing loss and risk of falling, with an emphasis on reduced auditory spatial awareness and increased auditory cognitive load. *Status: Pending.*

National Institutes of Health, R03 / "The Use of Virtual Manipulations to Assess Fall Risk and the Mechanisms of Postural Instability that Occur with Age" Role: Collaborator with PI: Dr. James Chagdes (Mechanical Engineering, Miami University). *Status: Pending. Proposal has received an impact score of 26 (7^{th} percentile).*

National Institutes of Health R21 / "Physical activity maintenance among older adults after program completion" Role: Co-investigator with PI: Dr. Steve Amireault (Health and Kinesiology). Status: Pending.

External Funding in Support of Research

Indiana State Department of Health, Community Health Partnership's Trailblazer Award / "Factors associated with the maintenance of physical activity beyond program termination: A longitudinal investigation among rural older adults" Role: Co-investigator with PI Dr. Steve Amireault (Health and Kinesiology), and co-investigators Ms. Angela Abbott (Purdue Extension), Dr. Sharon Christ (Human Development and Family Studies), Dr. Kenneth Ferraro (Sociology), and Dr. Yumary Ruiz (Public Health). The primary objective of this community-engaged research project is to evaluate the ability of an evidence-based program, A Matter of Balance, to maintain physical activity in rural older adults. $24,430 (2019-2021).

American Nurses Foundation/ "Stepping out: A pilot study of midlife couples' paired walking" Role: Co-I with Dr. Elizabeth Richards (Nursing) and Dr. Melissa Franks (Human Development and Family Studies). The goal of this research is to examine the relationship between gait speed, health, and physical activity in middle-aged married adults. $5,000 (2017-2018).

National Science Foundation/"Nonlinear dynamics and bifurcations of human posture on tunable balance boards" Role: Co-PI with Dr. Arvind Raman (Mechanical Engineering) and Dr. Howard Zelaznik (Health and Kinesiology) and Dr. Jeffrey Haddad (Health and Kinesiology). The goal of this research was the development and assessment of an interactive balance board which will enable early detection of neuromuscular disorder and improve rehabilitation for balance-impaired individuals. $550,392 (2013-2017).

National Science Foundation sub-contract with Drexel University/"Development of a common platform for unifying humanoids research" Role: Co-PI with PI Dr. George Lee (Electrical and Computer Engineering, Purdue) and Dr. Zygmunt Pizlo (Pyschology, Purdue). My role is the development of decision algorithms to drive robot locomotor behavior based on visual characteristics of the environment. $200,000 (2010-2015).

FAA/NASA/Transport Canada PARTNER COE, Project 8/ "Sonic Boom Mitigation (Project 8: Supersonic Metrics)" Role: Co-PI with Dr. Patricia Davies (Mechanical Engineering), on portion of grant focused on startle modelling; $70,000 (2009-2010).

National Institute for Occupational Safety and Health, University of Cincinnati Pilot Project Research Training Program/ **"**Do Optical Properties of Obstacles Affect the Risk of Tripping in Construction Workers?**"** Role: PI; Co-PIs Mr. Chris Rhea, PhD advisee and Dr. Jim McGlothlin, School of Health Sciences, Purdue; $5,000 (2006).

National Institute for Occupational Safety and Health, University of Michigan Pilot Project Research Training Program "Risk Assessment of Tripping in Construction Workers: Application of Action Perception Theory" Role: PI; Co-PIs Mr. Chris Rhea, PhD advisee and Dr. Jim McGlothlin, School of Health Sciences, Purdue; $13,385 (2006).

National Institute for Occupational Safety and Health ERC NORA (National Occupational Research Agenda) "Training in interdisciplinary ergonomic research: Collaboration between University of Cincinnati and Purdue University" Role: Co-PI. Multi-disciplinary project includes Dr. Kermit Davis (PI), Department of Environmental Health, University of Cincinnati and Dr. James McGlothlin (Co-PI), School of Health Sciences, Purdue University. $6,800 (2005).

Interdisciplinary Innovation Initiative, School of Technology, Purdue. Interdisciplinary Airline Job Hazard Assessment" Role: Co-PI; PI Gary Eiff, Aviation Technology; Co-PI James D. McGlothlin, Health Science. $50,000 ($30,000 internal and $20,000 external funds from Jet Blue) (2004-2005).

National Institute for Occupational Safety and Health, University of Michigan Pilot Project Research Training Program "Can Visual References Enhance Balance Control in the Occupational Environment in both Younger and Older Construction Workers?" Role: PI; Joint research with Dr. Jim McGlothlin from the School of Health Sciences, Purdue University. $28,550 (2002).

National Institute for Occupational Safety and Health, University of Cincinnati Pilot Project Research Training Program **"**How Is Postural Stability Affected by Age and Manual Materials Handling in the Occupational Environment?**"** Role: PI; Joint research with Dr. Jim McGlothlin from the School of Health Sciences, Purdue University. $5,025 (2002).

External Funding in Support of Entrepreneurial Activities

National Science Foundation, SBIR (Small Business in Research) / "SBIR Phase I: Validation and optimization of balance and gait assessment technology in order to identify fall-risk in older adults" Role: Co-Founder and Co-Owner of SmartGait LLC with Dr. Babak Ziaie (Electrical and Computer Engineering). This grant focuses on the commercial development of a device, SmartGait, that will provide an easy and inexpensive assessment of fall-risk in large cohorts. $225,000 for 14 months (2017-2018).

Elevate Ventures Indiana SBIR/STTR Phase I Matching Grant Program / "Validation and optimization of balance and gait assessment technology in order to identify fall-risk in older adults" Role: Co-Owner of SmartGait LLC with Dr. Babak Ziaie (Electrical and Computer Engineering). This grant focuses on the commercial development of a device, SmartGait, that will provide an easy and inexpensive assessment of fall-risk in large cohorts. $50,000 with no end date (2017-).

Elevate Purdue Foundry Fund, Elevate Ventures Indiana / SmartGait: A physical therapist in your pocket. Role: Co-Owner of SmartGait LLC with Dr. Babak Ziaie (Electrical and Computer Engineering). This grant focuses on the commercial development of a device, SmartGait, that will provide an easy and inexpensive assessment of fall-risk in large cohorts. $20,000 with no end date (2015-).

Internal Funding in Support of Research

CEREBBRAL Pilot Grant Funding Application (CEREBBRAL – Center for Research on Brain, Behavior, and Neurorehabilitation), Purdue University (2020-2021) "Effects of Listening Effort on Balance and Gait". Interdisciplinary project involving Dr. Alexander Francis (PI) (Speech Language and Hearing Sciences), Dr. Jeffrey Haddad (Health and Kinesiology), Dr. Dongjuan Xu (Nursing). Role: Co-I. $5,000.

Engineering Faculty Conversation (EFC) on Human in the Loop Engineering, Purdue University (2018-2019) "Smart Carpet and Gait Imaging System to Immunize Older Adults Against Falls". Interdisciplinary project involving Dr. Mohit Verma (PI) (Agricultural and Biological Engineering), Dr. Adrian Buganza Tepole (Co-PI) (Mechanical Engineering), and Dr. Juan Wachs (Co-PI) (Industrial Engineering). Role: Co-PI. $75,000.

Center for Families (CFF) Hancook Fellowship, Purdue University (2018-2019) "Stepping out: A pilot study of older couples' paired walking" Interdisciplinary project including PI Dr. Elizabeth Richards from Nursing and Dr. Melissa Franks from Human Development and Family Studies. Role: Co-I. $10,000.

Purdue University Research Foundation (July 2013- June 2014) "Trip-Related Loss of Balance" Role: PI. $16,500.

Research Incentive Grant, College of Liberal Arts, Purdue University (Nov 2008-Dec 2009) "Fall prevention through trip training" Role: PI. $1,000.

Center on Aging and the Life Course, Purdue University (June-August, 2005) "Relationship of Age, Timing and Postural Control" Interdisciplinary project with Dr. Howard Zelaznik (Co-PI), Department of Health and Kinesiology. Role: Co-PI. $6,705.

Research and Discovery Support Program, College of Liberal Arts (March, 2005): "Aging, Balance and Voluntary Movement Timing" Role: PI. $2,500.

Research and Discovery Support Program, School of Liberal Arts (April, 2003): "Anticipatory Recovery from Perturbations: Effect of Age" Role: PI. $2,500.

Purdue Research Foundation, Summer Faculty Grant (Summer 2001): "The elderly and balance: Development of a clinical test." Role: PI. $6,000.

Internal Funding in Support of Entrepreneurial Activities

TRASK Innovation Fund, Purdue University, January-August 2015 "SmartGait: A device to assess gait parameters and predict falls" Interdisciplinary project with Dr. Babak Ziaie, Department of Electrical and Computer Engineering. Role: Co-PI. $20,000.

Entrepreneurial Leadership Academy, Purdue University Aug. 2012 – June 2013 "Accurate assessment of fall risk" Role: PI. $5,000

Internal Funding in Support of Teaching

College of Health and Human Sciences Instructional Equipment Program 2014 / "Student training in objective assessment of coordination, balance, and mobility across the lifespan" Role: Co-Investigator, PI: Dr. Jeff Haddad and co-investigator: Dr. Laura Claxton. $38,179

College of Health and Human Sciences Instructional Equipment Program 2011/ "Student training in objective assessment of gait" Role: PI, co-investigators: Drs. Laura Claxton and Jeff Haddad. $28,244.

College of Liberal Arts Instructional Equipment 2010/ "Equipment to add laboratory experiences to several Motor Behavior classes" Role: co-investigator; PI: Dr. Laura Claxton with co-investigators Drs. Jeff Haddad and Howard Zelaznik. $18,732.

Dean's Incentive Grant Award, School of Liberal Arts (Spring 2002) "Development of a new graduate course: PE 590, Age-related changes in the balance control system." $606.

College of Liberal Arts 2010 Instructional Equipment / Undergraduate Instructional/Laboratory Equipment 2001 Co-investigators Drs. Rietdyk, Corbetta and Zelaznik. $52,000.

TEACHING ACTIVITIES (Teaching load is two courses per semester)

Undergraduate Courses (Average evaluation for courses: 4.1/5; for instructor: 4.3/5)
Balance Rehabilitation in Older Adults
Biomechanical Foundations of Motor Skills
Analysis of Human Motion
Biomechanics and Motor Control of Human Gait
Independent Inquiry in Movement and Sport Science

Graduate Courses (Average evaluation for courses: 4.6/5; for instructor: 4.7/5)
Mobility Across the Lifespan
Research Methods in Movement Sciences
Neural Control of Locomotion
Scientific Writing and Presentations
Control of Balance and Adaptive Locomotion
Advanced Topics in Motor Control

Biomechanics of Human Motion

GRADUATE STUDENT SUPERVISION

Of the graduate students that Dr. Rietdyk has chaired, one is completing a post doc, one is in medical school, and five are faculty at universities. Of the four students with completed PhDs, three are faculty (University of North Carolina Greensboro, University of North Carolina Wilmington, and Miami University), and one is a research scientist at University of Washington at Seattle.

M.S. Thesis Committee Chair

1. Becker, Timothy (2020). Factors Associated with Inadvertent Contact During Obstacle Crossing in Older Adults. Department of Health and Kinesiology.
2. Romine, Nathaniel (2017). Diverted gaze in obstacle crossing. Department of Health and Kinesiology.
3. Pontecorvo, Samuel (2015). Gaze behavior during adaptive gait. Department of Health and Kinesiology.
4. Raffegeau, Tiphanie (2013, co-chair Dr. Haddad). The relationship between mobility and communication in young healthy adults. Department of Health and Kinesiology.
5. Muir, Brittney (2011). Improving Gait Characteristics in Older Adults: The Effects of Biodex Balance System SD™ and Wobble Board Balance Training. Department of Health and Kinesiology.
6. Schanfein, Leigh (2009). The use of self-motion feedback for balance control in younger and older dancers. Department of Health and Kinesiology.
7. Drifmeyer, Julia (2008). Control of Locomotion: The Effect of Visual Obstruction and Visual Cues. Department of Health and Kinesiology.
8. Torgerud, Steven (2004). The effect of age on balance in the work environment. Department of Health and Kinesiology.
9. McCarty, Jeff (2002). Biomechanical analysis of golf putting. Department of Health and Kinesiology.

Ph.D. Thesis Committee Chair

1. Kulkarni, Ashwini (in progress, co-chair Dr. Ambike). Department of Health and Kinesiology.
2. Cui, Chuyi (in progress, co-chair Dr. Ambike). Department of Health and Kinesiology.
3. Cho, HyeYoung (2020). Multitask performance in adaptive gait: Structural and capacity interference. Department of Health and Kinesiology.
4. Heijnen, Michel (2016). Failures in adaptive locomotion in healthy young adults. Department of Health and Kinesiology.
5. Muir, Brittney (2015, co-chair Dr. Haddad). The effects of locomotor task challenge on the gait strategies of young, middle-aged, and older adults. Department of Health and Kinesiology.
6. Chagdes, James (2012, co-chair Dr. Raman). Nonlinear dynamics of human posture on rigid and compliant surfaces. Department of Mechanical Engineering
7. Rhea, Chris (2009). Control of adaptive gait: effect of experience and light level on action and perception. Department of Health and Kinesiology.

M.S. Thesis Committee Member (Two departments and two colleges)

1. McKeeman, Jonathan (2017). An examination of the relationship between Fitts' Law and Schmidt's Law. Department of Health and Kinesiology.
2. McGough, Jacob (2017). Quantification of Muscle Force in the Human Anconeus (and Triceps) using Dimensional Analysis of Surface EMG. Department of Mechanical Engineering.
3. Kruse, Jennifer (2015). Estrogen, muscle damage, and the repeated bout effect. Department of Health and Kinesiology.
4. Liddy, Joshua (2014). Using the Microsoft Kinect to Assess Human Bimanual Coordination. Department of Health and Kinesiology.

5. Harris, Rachel (2014). Postural sway in infants at low and high risk for autism spectrum disorder. Department of Health and Kinesiology.
6. Cruise (nee Hickman), Denise (2014). Design, Development, and Testing of a Balance Board with Variable Torsional Stiffness and Time Delay. Department of Mechanical Engineering.
7. Pham, Hahn (2013). The relationship between visual task-demands and postural stability in infancy. Department of Health and Kinesiology.
8. Larson, Peter (2012). Effects of radial forcing on spring-mass running. Department of Mechanical Engineering.
9. Beiser, David (2009). Carbohydrate supplementation during prolonged intermittent exercise in endurance trained women. Department of Health and Kinesiology.
10. Studenka, Breanna (2004). The effects of synchronization on tapping and circle drawing variability over a range of durations. Department of Health and Kinesiology.
11. Snapp-Childs, Winona (2003). Dynamic changes in step width, lateral acceleration and arm position in early walking: A comparison of infant and adult gait. Department of Health and Kinesiology.
12. Haslett, Kristi (2002). Control of timing in single tapping and circle drawing tasks. Department of Health and Kinesiology.

M.S. Non-Thesis Committee Member (Two departments)

1. Rheaume, Nicole (2008). Individual Differences in 1/f Noise between Tapping and Circle Drawing. Department of Health and Kinesiology
2. Tsai, Jennifer (2004). Timing and spatial variability in speed accuracy trade-off tasks. Department of Health and Kinesiology.
3. Potts, Scott (2003). The effects of age and manual materials handling on postural stability among residential construction roofers. School of Health Sciences.

Ph.D. Thesis Committee Member (Six departments and three colleges)

1. Huang, Gaojian (in progress), Department of Industrial Engineering
2. Knodel, Nathan (in progress). Department of Mechanical Engineering.
3. Ryu, Joong Hyun (in progress). Department of Health and Kinesiology.
4. Gomez, Daniel (2019). Human-induced vertical vibration on pedestrian structures: numerical and experimental assessment. Department of Civil Engineering.
5. Arnold, Amanda (2019). The Impact of Object Carriage on Walking Abilities and Language Development in Infancy. Department of Health and Kinesiology.
6. Cruise, Denise (2018). A dynamical systems analysis of upright stance: exploring the effect of unstable surfaces, aging, and pathology. Department of Mechanical Engineering.
7. Manish, Anand (2018). Propulsive characteristics of rotary force and its influence on bipedal gait initiation and gait transition speed. Department of Mechanical Engineering.
8. Li, Chih-Wei (2018). Probabilistic-based modeling of human perceptual-motor behaviors with application to wheelchair targeting locomotion. Department of Mechanical Engineering.
9. Park, Hyungju (Andy) (2016). Representation and control of coordinated tasks for human-robot systems. Department of Electrical and Computer Engineering.
10. Ackerman, Jeffrey (2016). Coupled dynamics of legged locomotion with suspended loads. Department of Mechanical Engineering.
11. Shen, Zhuohua (2014). Understanding preferred leg stiffness and layered control strategies for locomotion. Department of Mechanical Engineering.
12. Cai, Fuwen (2014). Coordination between hand and trunk movements in a Fitts' law task. Department of Health and Kinesiology.
13. Alshehabat, Musa (2012). Instrumented gait analysis to characterize pelvic limb ataxia in dogs. Department of Veterinary Clinical Sciences.

14. Marshall, Andrew (2011). Development of a model of startle for sonic booms. Department of Mechanical Engineering.
15. Hughes, Charmayne (2010). The effects of physical object coupling on interlimb coordination. Department of Health and Kinesiology.
16. Lin, Hsien-I (2009). On robot skill learning: Self-organizing capability and understanding robot motor capability. Department of Electrical and Computer Engineering.
17. Kim, Jongmin (2009). Gait analysis as a measure of neurological function in dogs. Department of Veterinary Clinical Sciences.
18. Ritchie, Dan (2008). Effect of two doses of an exercise intervention on mobility and function in older adults. Department of Health and Kinesiology.
19. Studenka, Breanna (2008). Error Correction Timing Behavior in Tapping and Circle Drawing. Department of Health and Kinesiology.
20. Snapp-Childs, Winona (2007). On the Stability and Flexibility of Walking Patterns in 4-6 Year Olds and Adults. Department of Health and Kinesiology.
21. Naksuk, Nirut (2006). Humanoid Robot Locomotion. Department of Electrical and Computer Engineering.

External Ph.D. Thesis Committee Member

Worden, Timothy (2016). Examination of dual-task training protocols to alter performance on a concurrent auditory Stroop and obstacle crossing dual-task test. Human Health and Nutritional Sciences and Neuroscience. University of Guelph.

ENTERPRENEURIAL ACTIVITIES

2013-present Co-founder and co-owner of Tech Start Up: SmartGait LLC. We have developed a balance and gait assessment device: SmartGait®. Co-owners include Dr. Babak Ziaie (Electrical and Computer Engineering, Purdue) and Dr. Albert Kim (Temple University). We have a patent on SmartGait®, have filed a provisional patent on a different technology, and have received $315,000 in funding from internal and external granting mechanisms.

11/27/2018 trademark published for SwayWatch®

US patent 9,801,568 filed 7/16/2015, date of patent 10/31/2017. Gait Pattern Analysis for Predicting Falls. Ziaie, Kim, Kim, Rietdyk, priority date Jan 2014.

10/31/2017 Provisional Patent filed; Method for Determining Risk of Fall; Rietdyk, Ochoa, Ziaie

12/24/2014 trademark filed for SmartGait®

COMMUNITY ENGAGEMENT / SERVICE LEARNING

2014 EPICS faculty advisor for the team "Healthy Aging and Living Projects". Development of device to prevent injury from falls (EPICS = Engineering Projects in Community Service; teams of undergraduates design, build, and deploy real systems to solve engineering-based problems for local community service and education organizations)

2010-present Dr. Rietdyk co-developed a service learning class with Dr. Jeffrey Haddad (Health and Kinesiology). Senior undergraduate students work one-on-one with older adults each week at University Place, a local continuing care retirement community affiliated with Purdue University. The course promotes intergenerational experiences as students learn to improve the motor skills of older adults in our community. The course serves approximately 35 students and up to 70 older adults each year.

SERVICE PRESENTATIONS

1. Maintaining Mobility and Independence. Co-presented with Dr. Haddad to the Purdue Women's Club, West Lafayette, IN, April 2019.

2. Falls across the Adult Lifespan: Humans are Surprisingly Bad at Walking. Asset Management All Staff Meeting, Purdue, West Lafayette, IN, October 2018.
3. Falls across the Adult Lifespan: Humans are Surprisingly Bad at Walking. 2018 Elderhostel Road Scholar; Adventures in Lifelong Learning "All You Can Learn Buffet", Purdue, West Lafayette, IN, June 2018.
4. Falls across the Adult Lifespan: Humans are Surprisingly Bad at Walking. 2018 Radiological and Environmental Management (REM) Annual Safety Chair Meeting and Safety Fair, Purdue, West Lafayette, IN, March 2018.
5. Balance and Sight Impairment. Health Education Series at Ismail Center, Purdue, West Lafayette, IN, October 2017.
6. Maintaining Mobility and Independence. Co-presented by Drs. Haddad, Huber, Rietdyk to the Purdue President's Council "Back to Class", West Lafayette, IN, October, 2017
7. Humans are Surprisingly Bad at Walking. Presented to the Advisory Council of Health and Kinesiology, Purdue, West Lafayette, IN, September, 2017
8. Preventing Falls. Presented to residents of Westminster Village, West Lafayette, IN, May, 2017.
9. Balance and Mobility. Presented to the Multiple Sclerosis Support Group at Rosewalk Village, Lafayette, IN, April, 2017.
10. Falls in Young and Older Adults. Guest Lecture in BME 496 Smart Healthcare Engineering, Purdue University, West Lafayette, IN, March, 2017.
11. Preventing Falls in Older Adults. Presented to healthcare providers at Mulberry Health and Retirement Community, Mulberry, IN, April, 2016.
12. Preventing Falls in an Aging Population. Presented to President's Council Back to Class Event (Purdue Alumni), Naples, FL, February, 2016.
13. Balance and Mobility in Older Adults. Presented to the residents of University Place (a continuing care retirement community), West Lafayette, IN, West Lafayette, IN, January, 2015.
14. Gait Difficulties in People with Parkinson's Disease. Presented to the Parkinson's Disease Support Group in West Lafayette, IN, March, 2014.
15. Improving Balance and Mobility in Later Life. Co-presented (with Dr. Jeffrey Haddad) to the Purdue University Retirees Association, West Lafayette, IN, April, 2013.
16. University Place Intervention Research Initiative: 2009-2012. Presented to the residents of University Place (a retirement community), West Lafayette, IN, West Lafayette, IN, September, 2012.
17. Improving Balance and Mobility in Older Adults. Co-presented (with Dr. Jeffrey Haddad) as an Inservice Presentation to Physical and Occupational Therapists at St. Elizabeth Regional Health, West Lafayette, IN, July, 2011.
18. Engaging University Aging Research in a Continuing Care Retirement Community. Published in The Journal of Active Aging, March/April 2010.
19. New undergraduate course: Motor function in older adults. Provided to residents of University Place (a residence facility for older adults) as a call-out for residents to participate in a senior undergraduate course which provides balance assessments and balance training, West Lafayette, IN, August, 2010
20. Does balance training improve precision manual control and functional gait? Provided to residents of University Place (a residence facility for older adults), West Lafayette, IN, June 2010
21. Open House: Balance Assessments. Provided to residents of University Place (a residence facility for older adults), West Lafayette, IN, September, 2009
22. Balance and Mobility in Adults. Presented at the Home and Family Conference sponsored by Purdue Extension, Consumer and Family Sciences. West Lafayette, IN, May, 2007.
23. Balance and Mobility in Adults. Presented to the Purdue University Extension Consumer and Family Sciences educators by IP videoconference. West Lafayette, IN, December, 2006.
24. Balance, Exercise and Parkinson's Disease. Presented to the Parkinson's Disease Support Group in West Lafayette, IN, November, 2005.

25. The Aging Workforce: Steps to take to Maintain Health and Safety. Presented to manufacturers in Kosciusko County, Warsaw, IN during meeting of Chamber of Commerce, September, 2004.
26. Maintaining Balance: Effect of Age and Experience. Dean's Advisory Council, School of Liberal Arts, Purdue University, IN, April, 2004.
27. Researcher Working to Catch Elderly Before they Fall. Magazine article: Indianapolis Prime Times, January, 2004.
28. Studying Balance in the Older Adult. Television broadcast: WLFI West Lafayette, IN, November, 2003.
29. Can We Prevent Falls in the Occupational Environment? Presented to Sullivan and Fortner Roofing Company employees, Lafayette, IN, October, 2003.
30. Risks of Residential Roofing. Presented to Sullivan and Fortner Roofing Company employees, Lafayette, IN, January, 2003.

GRANT REVIEWING ACTIVITIES

NASA Human Exploration Research Opportunities (HERO), Sensorimotor Review Panel
Canadian Institute of Health Research
Natural Sciences and Engineering Research Council of Canada, Biological Systems and Functions
Kentucky Science and Engineering Foundation R&D Excellence Awards

JOURNAL EDITORIAL BOARDS

Brazilian Journal of Motor Behavior, 2020-2022 (invited to the editorial board in order to improve the indexation and visibility of the Brazilian Journal of Motor Behavior)

JOURNAL REVIEWING ACTIVITIES

Archives of Physical Medicine and Rehabilitation
Behavior Research Methods
Cerebral Cortex
Computer Methods in Biomechanics and Biomedical Engineering
Developmental Medicine and Child Neurology
Ergonomics
Experimental Brain Research
Experimental Gerontology
Gait and Posture
Human Movement Science
IEEE Transactions on Mechatronics
IEEE Transaction on Human-Machine Systems
Journal of Applied Physiology
Journal of Biomechanics
Journal of Gerontology: Social Sciences
Journal of Motor Behavior
Journal of Motor Learning and Development
Journal of NeuroEngineering and Rehabilitation
Journal of Neurophysiology
Journal of Neuroscience Methods
Journal of the American Geriatrics Society
Journal of the Royal Society Interface
Motor Control
Neuroscience Letters

Ophthalmic and Physiological Optics
Perceptual and Motor Skills
PLoS One
Proceedings of the Royal Society B: Biological Sciences
Psychology and Neuroscience
Royal Society Open Science

COMMITTEE INVOLVEMENT

International Society for Posture and Gait Research (ISPGR)

2015-2018	Member, Scientific Content Committee
2014-2015	Co-chair, 2015 World Congress of ISPGR in Seville, Spain
2014-2015	Co-chair, Scientific Content Committee
2013-2014	Member, Scientific Content Committee
2012	Member, Promising Young Scientist Award Committee

Purdue University

2018	Member, Engagement Award Committee (Subcommittee of the Center on Aging the Life Course Steering Committee)
2017-2018	Member, Search Advisory Committee for the Dean of Health and Human Sciences
2017-2018	Member, Center on Aging and the Life Course Steering Committee
2017	Member, Provost's Office Major Scientific Equipment Program Review Committee
2001-2004	Member, Gerontology Steering Committee

College of Health and Human Sciences

2021	Member, HK Department Head Review Committee
2020	Member, Kinley Grant Proposal Review Committee
2020-present	Member, Public Health Primary Committee (to review tenure and promotion cases in Public Health due to insufficient full faculty in unit)
2020-present	Member, School of Nursing Primary Committee (to review tenure and promotion cases in Nursing due to insufficient full faculty in unit)
2020-present	Member, College of Health and Human Sciences Research Advisory Council
2019	Member, Search Advisory Committee for the Associate Dean for Research for Health and Human Sciences
2019	Member, Signature Areas Committee for Health and Human Sciences
2018-present	Member (elected), College of Health and Human Sciences Area Committee (to review tenure and promotion cases)
2018	Member, College of Health and Human Sciences Research Advisory Council
2017-2018	Alternate (elected), College of Health and Human Sciences Area Committee
2011-2013	Member, Faculty Affairs Committee
2012-2013	Member, Development of Mentoring Policy for HHS (sub-committee of Faculty Affairs Committee)

2012-2013 Member, Faculty Agenda Committee (sub-committee of Faculty Affairs Committee)

College of Liberal Arts (HK Department was in CLA until new College of Health and Human Sciences was formed in 2010)

2007-2010 Senator, College Liberal Arts Senate
2007 Member, College Liberal Arts Task Force (Ad hoc committee)
2006 Member, Grievance Panel Committee (Ad hoc committee)
2005-2007 Member, College of Liberal Arts Honors Committee
2003-2007 Member, College of Liberal Arts Grievance Committee

Health and Kinesiology Department

2020-present Chair, Evaluation Committee
2020-present Member, HK Diversity, Equity, and Inclusion Committee
2018 Chair, Purdue Research Foundation Graduate Awards Committee
2017 Member, Purdue Research Foundation Graduate Awards Committee
2017 Member, Wall of Distinction Awards Committee
2016-2017 Member, Public Health Search Committee
2014-2015 Chair, Biomechanics Search Committee
2014 Member, PRF Grant Review Committee
2012-2013 Member, Public Health Search Committee
2011-2012 Member, HK Department Head Search Committee
2009-2010 Chair, Preliminary Exam Review Committee
2008-2010 Chair, Movement and Sport Science Committee
2008 Member, MPH Director Search Committee
2007-2008 Member, Qualifying Exam Committee
2007 Member, Needs Committee for Ismail Center / University Place
2006-2007 Member, HK Department Steering Committee
2006-2007 Member, Exercise Physiology Search Committee
2005-2006 Member, HK Department Head Search Committee
2005 Member, Qualifying Exam Committee
2005 Member, PRF Grant Review Committee
2005 Member, Motor Development Search Committee
2005 Member, AARP Grant Review Committee
2003 Member, Qualifying Exam Committee
2001-2002 Member, Gerontology Search Committee
2001 Member, Qualifying Exam Committee
2000-2003 Member, Professional Development Fund Review Committee
2000-present Member, Health and Kinesiology Graduate Committee
2000-present Member, Health and Kinesiology Faculty Committee