CENTER FOR RESEARCH IN HUMAN MOVEMENT VARIABILITY

University of Nebraska Omaha

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EDUCATION

Ph.D. Human Movement Sciences – 2014
University of Montpellier, Movement to Health laboratory, Montpellier (France)
VU University Amsterdam, Research Institute MOVE, Amsterdam (Netherlands)
Dissertation: *Synchronization with fractal rhythms: Complexity matching of statistical structure*
Mentors: Dr. Delignières, Dr. Beek, Dr. Torre, Dr. Daffertshofer

M.S. Human Movement Sciences – 2010
University of Montpellier, Movement to Health laboratory, Montpellier (France)
Thesis: *Harmonization of temporal structures of two coupled complex systems*
Mentor: Dr. Delignières

B.S. Exercise Sciences – 2008
University of Avignon, Avignon (France)

ACADEMIC APPOINTMENTS

Courtesy Appointment – 2018- present
University of Nebraska Medical Center, Department of Neurological Sciences, Omaha, NE

Courtesy Appointment – 2018- present
University of Nebraska at Omaha, Department of Psychology, Omaha, NE

Assistant Professor – 2015-present
University of Nebraska at Omaha, Department of Biomechanics, Omaha, NE

Graduate Research Assistant – 2011-2014
University of Montpellier, Movement to Health laboratory, Montpellier (France)
VU University Amsterdam, Research Institute MOVE, Amsterdam (Netherlands)

Teaching Assistant – 2011-2013
University of Montpellier, Faculty of Sport Sciences, Montpellier (France)

Graduate Research Assistant – 2008-2010
University of Montpellier, Movement to Health laboratory, Montpellier (France)

RESEARCH GRANTS

FUNDING

Ongoing (N=2; Total Award = $887,698)

NIH P20-GM109090 (PI: Stergiou) – Research Project Lead (09/01/2019 – 08/31/2024)

Longitudinal analysis of gait variability and falls in people with Parkinson's disease.
PI: Marmelat V
Total Award: $877,698

UNO, Office of Research and Creative Activity, UCRCA Faculty Full Collaborative (12/01/2019 – 06/30/2020)

Interpersonal synchronization, empathy and hormones in people with Parkinson's disease and caregivers.
PI: Marmelat V; co-PI: Beadle JN
Total Award: $10,000

Pending

The Michael J. Fox Foundation; pre-proposal submitted 05/18/20

Effect of interpersonal motor synchronization between people with Parkinson's disease and caregivers on gait, hormones and emotional well-being
PI: Marmelat V
Total Award: <$2M

Nebraska System Science Collaboration Initiative – Team Seed Grant (07/01/20 – 06/30/22); submitted 01/13/19

Effect of interpersonal motor synchronization between people with Parkinson's disease and caregivers on gait, hormones and emotional well-being
PI: Marmelat V
Total Award: $149,976

NIH NINDS R01 (submitted: February 05, 2020)

Longitudinal assessment of gait and cortical activity to improve the prediction of Parkinson's disease progression
PI: Marmelat V
Total Award: $2,644,085 (5 years)

Completed (N=4; Total Award = $88,276)

OIA-1557417 - Nebraska EPSCoR FIRST Award (04/01/18 – 03/31/19)

Neural mechanisms underlying sensorimotor synchronization with fractal rhythms
PI: Marmelat V
Total Award: $49,992

UNMC Skate-a-thon for Parkinson's fund (08/15/15-07/31/18)

Optimizing gait variability in Parkinson's disease with a structured auditory stimulus
PI: Hellman A; co-I Marmelat V
Total Award: $10,500

NASA Nebraska EPSCoR Research Mini-Grant (11/01/17-06/30/18)

Relationship between gait variability and obstacle avoidance
PI: Marmelat V
Total Award: $24,584

UNO, Office of Research and Creative Activity, UCRCA Faculty Full (05/17/16 – 05/10/17)

Stitching together short gait trials for understanding stride-to-stride organization over time

PI: Marmelat V
Total Award: $3,200

Not funded

2019

UNO Research Development Program (11/08/19)
Effect of side-by-side walking on gait dynamics and brain activity in people with Parkinson's disease
PI: Marmelat V
Total Award: $77,505

NSF 1945273 – (05/01/20 – 04/30/25) – submitted 07/19/19
CAREER: Auditory-motor synchronization with scale-free rhythms
PI: Marmelat V
Total Award: $599,269

NIH NINDS R15 NS116656-01 (04/01/20 – 03/31/23) – submitted 06/25/19 (not discussed)
Neuromechanisms underlying locomotor control and gait variability in Parkinson's disease
PI: Marmelat V
Total Award: $423,374

Nebraska System Science Collaboration Initiative – Team Seed Grant (07/01/19 – 06/30/21); submitted 01/11/19
Interpersonal synchronization and Parkinson's disease
PI: Marmelat V
Total Award: $149,976

Nebraska System Science Collaboration Initiative – Team Planning Grant (07/01/19 – 06/30/21); submitted 01/11/19
The Development and Feasibility of an Augmented Reality-Based Visual Perturbation for Balance Training in Musculoskeletal Rehabilitation
PI: Burcal C; co-PI: Marmelat V
Total Award: $14,248

2018

NSF CAREER (04/01/19 – 03/31/24); submitted 07/20/18
Neural and motor entrainment to fractal rhythms
PI: Marmelat V
Total Award: $438,918

MJ Fox Foundation (01/01/19 – 12/31/20); submitted 05/31/18
Improving gait in people with Parkinson's disease using an ankle-foot orthosis
PI: Marmelat V
Total Award: $429,568

Nebraska System Science Collaboration Initiative – Team Seed Grant (07/01/18 – 06/30/20); submitted 01/12/18
Tap, Talk, Walk: A systemic approach to rhythmic impairments affecting speech and movements in Parkinson's disease.
PI: Marmelat V
Total Award: $149,652

Nebraska System Science Collaboration Initiative – Planning Grant (07/01/18 – 06/30/19); submitted 01/12/18
Relationship between gait variability, locomotor adaptability and falls in people with Parkinson's disease.
PI: Marmelat V
Total Award: $7,000

Great Plains IDeA-CTR Community-Academic Partnership Program (07/01/18 – 06/30/19); submitted 01/31/18

Boxing Parkinson's disease: A community-academic partnership to study the effect of a boxing training program on gait, posture and daily activity in people with Parkinson's disease.
PI: Marmelat V
Total award: $73,222

APDA Research Grant (09/01/18 – 08/31/19); submitted 03/12/18
Feedback-controlled treadmill walking in patients with Parkinson's disease
PI: Marmelat V
Total award: $50,000

NSF EPSCoR RII-Track 4 (01/01/19 – 12/31/20); submitted 03/13/18
RII Track-4: Mechanisms underlying behavioral and neural entrainment with fractal rhythms.
PI: Marmelat V
Total award: $152,892

Davis Phinney Foundation (07/01/18 – 06/30/20); LOI submitted 03/26/18
Boxing Parkinson's disease: the effect of a boxing training program on gait, posture and daily activity in people with Parkinson's disease.
PI: Marmelat V
Total award: $100,00

Davis Phinney Foundation (07/01/18 – 06/30/20); LOI submitted 03/26/18
Feedback-controlled treadmill training for people with Parkinson's disease
PI: Marmelat V
Total award: $100,00

2017

Great Plains IDeA-CTR Pilot Grant Program (06/10/18 – 06/09/19); submitted 12/22/17
Linking Real-World Driver State to Driver Safety in Parkinson's Disease
PI: Merickel J; co-I Marmelat V
Total Award: $49,754

Great Plains IDeA-CTR Pilot Grant Program (LOI submitted 10/17/17)
Relationship between gait variability and obstacle avoidance in people with Parkinson's disease.
PI: Marmelat V
Total Award: $50,000

NASA Nebraska Space Grant Research Mini-Grant (submitted 05/18/17)
Gait and posture in people with orthostatic tremor: disentangling fear of falling from postural instability
PI: Marmelat V
Total Award: $4,985

2016

Nebraska EPSCoR FIRST Award pre-proposal (submitted 09/19/16)
Walking adaptability and stride-to-stride variability
PI: Marmelat V
Total Award: $24,221

AbiliLife, The Edmond J. Safra Core Programs for PD Research, Therapeutic Pipeline program, MJ Fox Foundation (submitted 08/05/16)
Comparative study of AbiliLife's Calibrace+ and current state of art for Parkinson's postural instability
PI: Marmelat V
Total Award: $255,333

NIH/NIGMS 1P20GM109090, Junior Investigator Research Project (submitted 07/08/16)
Visual cues and treadmill to improve gait in patients with Parkinson's disease
PI: Marmelat V
Total Award: $177,505

L'Oréal USA For Women in Science fellowship (submitted 02/04/16)
Improving walking in Parkinson's disease with audio cues by unveiling brain-behavior relationships
PI: Worster K; co-I Marmelat V
Total Award: $60,000

2015

National Institutes for Health, F32 fellowship (submitted 12/07/15)
Using behavioral measures and functional neuroimaging to study gait variability with audio cueing
PI: Worster K; co-I Marmelat V
Total Award: $163,796

NASA Nebraska EPSCoR (submitted 12/07/15)
Spaceflight effects on locomotor control: the role of gait variability on functional performances
PI: Marmelat V
Total Award: $621,250

Microsoft (submitted 09/05/15)
Mixed reality for Parkinson's disease rehabilitation
PI: Stergiou N; co-I Marmelat V
Total Award: $100,000

FACULTY SUPPORT

Ongoing

UNO, Office of Research and Creative Activity, GRACA grant (2019-2020)
Listening or finger tapping to auditory rhythms prior to walking: immediate effects on gait and brain activity in Parkinson's disease
PI: Meidinger, R Faculty Mentor: Marmelat V
Total Award: $5,000

Completed

UNO, Office of Research and Creative Activity, GRACA grant (2018-2019)
Effect of Dual-Task Walking on Gait Variability in People with Parkinson's Disease
PI: Meltz S Faculty Mentor: Marmelat V
Total Award: $5,000

UNO, Office of Research and Creative Activity, FUSE grant (2018-2019)
Effect of the Usage of Handrails on Gait Dynamics in People with Parkinson's Disease
PI: Jaravata D Faculty Mentor: Marmelat V
Total Award: $2,500

NASA Nebraska Space Grant Fellowship (2017-2018)
Effect of the Usage of Handrails on Gait Dynamics in People with Parkinson's Disease
PI: Jaravata D Faculty Mentor: Marmelat V
Total Award: $6,000

UNO, Office of Research and Creative Activity, GRACA grant (2017-2018)
Bridging the gap: individual relationships of gait variability and adaptability
PI: Duncan A Faculty Mentor: Marmelat V
Total Award: $5,000

UNO, Office of Research and Creative Activity, GRACA grant (2017-2018)
The effect of happy vs. sad music on gait variability
PI: Daley S Faculty Mentor: Marmelat V
Total Award: $5,000

UNO, Office of Research and Creative Activity, FUSE grant (2017-2018)
Validation of a Kinect-based interactive treadmill
PI: Wicks C Faculty Mentor: Marmelat V
Total Award: $2,450

UNO, Office of Research and Creative Activity, GRACA grant (2017-2018)
Influence of neuromuscular fatigue on the reliability of gait variability measures
PI: Reynolds N Faculty Mentor: Marmelat V
Total Award: $5,000

NASA Nebraska Space Grant Fellowship (2016-2017)
Effect of steps synchronization with fractal audio cues in subjects with Parkinson's disease
PI: Duncan A Faculty Mentor: Marmelat V
Total Award: $4,000

Not funded

NIH 1 F31 NS115241-01 (2019) – not discussed
Learning to Time Movements in Parkinson's Disease
PI: Meidinger R Faculty Mentor: Marmelat V

NASA Nebraska Space Grant Fellowship FY20 (2019)
PI: Meidinger R Faculty Mentor: Marmelat V

NASA Nebraska Space Grant Fellowship (2017)
Effect of levodopa on postural complexity in people with Parkinson's disease
PI: Daley S Faculty Mentor: Marmelat V

NASA Nebraska Space Grant Fellowship (2017)
Individual relationship between walking adaptability and stride-to-stride fluctuations
PI: Duncan A Faculty Mentor: Marmelat V

NASA Nebraska Space Grant Fellowship (2017)
Influence of fatigue on the reliability of gait variability measures
PI: Reynolds N Faculty Mentor: Marmelat V

NASA Nebraska Space Grant Fellowship (2017)
Validation of a Kinect-based interactive treadmill
PI: Wicks C Faculty Mentor: Marmelat V

UNO, Office of Research and Creative Activity, UCRCA Student grant (2017)
The effect of major vs. minor music on gait variability
PI: Daley S Faculty Mentor: Marmelat V
Total Award: $500

UNO, Office of Research and Creative Activity, UCRCA Student grant (2017)
The effect of happy vs. sad music on gait variability
PI: Daley S Faculty Mentor: Marmelat V
Total Award: $500

UNO, Office of Research and Creative Activity, FUSE grant (2016)
Improving walking in individuals with Parkinson's disease
PI: Bischoff B Faculty Mentor: Marmelat V
Total Award: $2,450

UNO, Office of Research and Creative Activity, FUSE grant (2015)
Control of walking in patients with Parkinson's disease: effect of holding handrails on gait dynamics
PI: Bischoff B Faculty Mentor: Marmelat V
Total Award: $2,450

PUBLICATIONS

PEER-REVIEWED ARTICLES

2020

1. Marmelat, V., Duncan, A., Meltz, S., Meidinger, R., Hellman, A. (2020). Fractal auditory stimulation have greater benefit for people with Parkinson's disease showing more random gait pattern. *Gait & Posture*, 80, 234-239. https://doi.org/10.1016/j.gaitpost.2020.05.021

2. Ravi, D.K., Marmelat, V., Taylor, W.R., Newell, K.M., Stergiou, N., Singh, N.B. (2020). Assessing the temporal organization of walking variability: A systematic review and consensus guidelines on detrended fluctuation analysis. *Front. Physiol*. 11:562. doi: 10.3389/fphys.2020.00562
3. Meade, Z., Marmelat, V., Mukherjee, M., Takahashi, K. (2020). Comparison of a portable balance board for measures of persistence in postural sway. *Journal of Biomechanics*, 109600. doi.org/10.1016/j.jbiomech.2020.109600.

2019

1. Marmelat, V., Duncan, A., Meltz, S. (2019). Effect of sampling frequency on fractal fluctuations during treadmill walking. *PLoS ONE* 14(11): e0218908. https://doi.org/10.1371/journal.pone.0218908 .
2. Schloesser, D.S., Kello, C.T., Marmelat, V. (2019). Complexity matching and coordination in individuals and dyadic performance. *Human Movement Science*, 66, 258-272.
3. Marmelat, V., Meidinger, R.L. (2019). Fractal analysis of gait in people with Parkinson's disease: three minutes is not enough. *Gait and Posture*, 70, 229-234. doi.org/10.1016/j.gaitpost.2019.02.023 .
4. Wiens, C., Denton, W., Schieber, M.N., Harley, R., Marmelat, V., Myers, S.A., Yentes, J.M. (2019). Walking speed and spatiotemporal step mean measures are reliable during feedback-controlled treadmill walking; however, spatiotemporal step variability is not reliable. *Journal of Biomechanics*, 83(23), 221-226. doi.org/10.1016/j.jbiomech.2018.11.051.

2018

5. Rock, C.G., Marmelat, V., Yentes, J., Sui, K.C., Takahashi, K.Z. (2018). Interaction between step-to-step variability and metabolic cost of transport during human walking. *Journal of Experimental Biology*, jeb.181834. doi.org/10.1242/jeb.181834.
6. Marmelat, V., Reynolds, N.R., Hellman, A. (2018). Gait dynamics in Parkinson's disease: Gait dynamics in Parkinson's disease: Short gait trials 'stitched' together provide different fractal fluctuations compared to longer trials. Frontiers in Fractal Physiology, doi: 10.3389/fphys.2018.00861.
7. Den Hartig, R., Marmelat, V., Cox, R. (2018) Multiscale coordination between athletes: Complexity matching in ergometer rowing. *Human Movement Sciences*, 57, 434-441.

2017

8. Wiens, C., Denton, W., Schieber, M., Hartley, R. Marmelat, V., Myers, S., Yentes, J. (2017). Reliability of a feedback-controlled treadmill algorithm dependent on the user's behavior. *2017 IEEE International Conference on Electro Information Technology (EIT)*, Lincoln, NE, 2017, pp. 545-550.
9. Rastegari, E., Marmelat, V., Najjar, L., Bastola, D., Ali, H.H. (2017). Using Gait Parameters to Recognize Various Stages of Parkinson's Disease. *2017 IEEE International Conference on Bioinformatics and Biomedicine (BIBM),* Kansas City, MO, 2017.

2016

10. Delignières, D., Hajy-Almurad, Z., Roume, C., Marmelat, V. (2016). Multifractal signatures of complexity matching. *Experimental Brain Research*, 234, 2773-2785.

2015

11. Blain, H., Léglise, M.S., Bernard, P.L., et al. (2015). Living Lab MACVIA-LR Équilibre et prevention des chutes. *La Presse Médicale*, 44(1), 23-30.
12. Bousquet, J., Bourret, R., Camuzat, T., et al. (2015). Le site de référence du Partenariat européen d'innovation pour un vieillissement actif et en bonne santé MACVIA-LR (contre les maladies chroniques pour un vieillissement en bonne santé en Languedoc-Roussillon). *La Presse Médicale*, 44(1), 6-22.

13. Roerdink, M., Daffertshofer, A., Marmelat, V., Beek, P.J. (2015). How to sync to the beat of a persistent fractal metronome without falling off the treadmill? *PLoS ONE* 10(7): e0134148. doi:10.1371.

2014

14. Blain, H., Abecassis, H., Adnet, P.A., et al. (2014). Living Lab Falls-MACVIA-LR: The falls prevention initiative of the European Innovation Partnership on Active and Healthy Ageing (EIP on AHA) in Languedoc-Roussillon. *European Geriatric Medicine*, 5(6), 416-425.
15. Bousquet, J., Bourquin, C., Augé, P., et al. (2014). MACVIA-LR, Reference site of the European Innovation Partnership on Active and Healthy Ageing (EIP on AHA) in Languedoc-Roussillon. *European Geriatric Medicine*, 5(6), 406-415.
16. Marmelat, V., Torre, K., Beek, P.J., Daffertshofer, A. (2014). Persistent fluctuations in stride intervals under fractal auditory stimulation. *PLoS ONE* 9(3): e91949. doi:10.1371/journal.pone.0091949.
17. Marmelat, V., Delignières, D., Torre, K., Beek, P.J., Daffertshofer, A. (2014). 'Human paced' walking: Followers adopt stride time dynamics of leaders. *Neuroscience Letters*, 564, 67-71.
18. Delignières, D., Marmelat, V. (2014). Strong anticipation and long-range cross-correlation: Application of Detrended Cross-Correlation Analysis to human behavioral data. *Physica A*, 394, 47-60.

2013

19. Torre, K., Varlet, M., Marmelat, V. (2013). Predicting the biological variability of environmental rhythms: Weak or Strong Anticipation for sensorimotor synchronization? *Brain & Cognition*, 83, 342-350.
20. Delignières, D., Marmelat, V. (2013). Degeneracy and long-range correlation. *Chaos*, 23(4), 043109.
21. Delignières, D., Marmelat, V. (2013). Theoretical and methodological issues in serial correlation analysis. *Advances in Experimental Medicine and Biology*, 782, 127-148.

2012

22. Delignières, D., Marmelat, V. (2012). Fractal fluctuations and complexity: Current debates and future challenges. *Critical Reviews in Biomedical Engineering*, 40(6), 485-500.
23. Marmelat, V., Delignières, D. (2012). Strong anticipation: complexity matching in interpersonal coordination. *Experimental Brain Research*, 222, 137-148.
24. Marmelat, V., Delignières, D. (2012). Relative roughness: An index for testing the suitability of the monofractal model. *Frontiers in Physiology/ Fractal Physiology*, 3, 208. doi:10.3389/fphys.2012.00208.

2011

25. Marmelat, V., Delignières, D. (2011). Complexity, coordination, and health: avoiding pitfalls and erroneous interpretations in fractal analyses. *Medicina* (Kaunas), 47(7), 393-398.

Books

1. Marmelat, V. (2014). Synchronization with fractal rhythms: Complexity matching of statistical structure. Doctoral thesis, Ede: GVO printers & designers B.V.

Book Chapters

1. Delignières, D., Marmelat, V. (2012). Theoretical and methodological issues in serial correlation analysis. In M. Riley, K. Schockley & M. Richardson (eds.), Progress in Motor Control: Neural, Computational and Dynamic Approaches. New York, NY: Springer.

Published Refereed Abstracts

1. Decker, L., Roy, C., Marmelat, V., Torre, K., Dalla Bella, S. (2014). Optimisation de la stimulation auditive rythmique en vue d'améliorer la rééducation de la fonction locomotrice. Abstract in *Clinical Neurophysiology*, 44(1), 136-137.

2. Marmelat, V., Delignières, D., Beek, P.J. (2011). Strong anticipation: complexity matching in interpersonal coordination. *Proceedings of the European Project SKILLS conference*, Montpellier (France).
3. Delignières, D., Marmelat, V., Torre, K. (2011). Degeneracy and long-range correlation: a simulation study. *Proceedings of the European Project SKILLS conference*, Montpellier (France).

Publications for non-professional audiences

1. Marmelat, V. Take a step in time: more effective metronomes for gait rehabilitation to modify gait variability. Blog for the International Society of Posture and Gait Research. http://www.ispgr.org/blogs/take-a-step-in-time-more-effective-metronomes-for-gait-rehabilitation-to-modify-gait-variability.

PRESENTATIONS

Invited lectures

Local

1. Marmelat, V. (2020, January 31). Moving in time from sensorimotor synchronization to locomotor control and social motor coordination. Invited lecture at the *Division of Biomechanics*, University of Nebraska at Omaha, Omaha, NE (U.S.).
2. Marmelat, V. (2019, January 30). Behavioral and neural entrainment with auditory rhythms: what makes us move to music? Invited lecture at the *Department of Neurological Sciences*, Movement Disorders team, University of Nebraska Medical Center, Omaha, NE (U.S.).
3. Marmelat, V. (2018, October 25). Music, Movement and the Brain. Coffee and Conversation and Fitness & Beyond, Omaha, NE (U.S.).
4. Marmelat, V. (2018, May 30). Nonlinear analysis of gait variability in people with Parkinson's disease: Theoretical foundations and clinical implications. Invited lecture at the *Department of Neurological Sciences*, University of Nebraska Medical Center, Omaha, NE (U.S.).
5. Marmelat, V. (2018, March 14). What can Biomechanics do to prevent and treat rhythmic impairments in Parkinson's disease? Invited presentation for the Parkinson's Foundation Center of Excellence Site visit at UNMC, Omaha, NE (U.S.).
6. Marmelat, V. (2017, December 1). What can Biomechanics do to prevent and treat rhythmic impairments in Parkinson's disease? Invited lecture at the *Veteran Affairs Office*, Omaha, NE (U.S.).
7. Marmelat, V. (2017, October 14). Gait Biomechanics in Parkinson's disease: beyond what the eye can see. Invited lecture at *Parkinson's Support Group*, Parkinson's Nebraska office, Omaha, NE (U.S.).
8. Marmelat, V. (2017, September 22). A journey through complexity: Healthy behavior is not normal. Invited lecture at the *Division of Biomechanics*, University of Nebraska at Omaha, Omaha, NE (U.S.).
9. Marmelat, V. (2017, July 26). Nonlinear analysis of behavioral time series: Potential for the detection and treatment of movement disorders. Invited lecture at the *Department of Neurological Sciences*, University of Nebraska Medical Center, Omaha, NE (U.S.).
10. Marmelat, V. (2017, May 25). Walking with Parkinson's disease: step-by-step research to improve detection, rehabilitation and quality of life. Invited talk at the Parkinson's Nebraska office, Omaha, NE (U.S.).
11. Marmelat, V. (2016, January). Beyond homeostasis: healthy behavior is not normal. Invited lecture at the *Department of Neurological Sciences*, University of Nebraska Medical Center, Omaha, NE (U.S.).

National

12. Marmelat, V. (2016, April). Complexity matching effect in human performances: Including variability for improving efficiency? Invited lecture at the *Department Cognitive*

Sciences, University of California, Merced, Merced, CA (U.S.).

13. Marmelat, V. (2016, March). Fractal fluctuations in human locomotion: Theoretical implications for the detection and treatment of movement disorders. Invited lecture at the *Department of Kinesiology*, The University of North Carolina at Greensboro, Greensboro, NC (U.S.).
14. Marmelat, V. (2016, February). Fractal fluctuations, Complexity and Health: ongoing investigations and future challenges. Invited lecture at the *Division of Sleep Medicine*, Harvard Medical School, Boston, MA (U.S.).
15. Marmelat, V. (2016, February). Healthy behavior is not normal: Detection and treatment of disorders using movement variability. Invited lecture at the *Health, Physical Education and Recreation*, Utah State University, Logan, UT (U.S.).

Symposium

1. Marmelat, V. (2015, June). Variability for stability: use of fractal auditory metronome to enhance gait dynamics. 'From Mathematical Theory to Practical Application: Using the Dynamical Systems Approach to Develop Clinical Assessments and Rehabilitative Techniques' Symposium at the *2015 World Congress of the International Society of Posture and Gait Research (ISPGR),* Seville (Spain).
2. Marmelat, V. (2014, October). Complexity matching in acoustically-paced treadmill walking: Perspectives for rehabilitation. 'Auditory-motor synchronization' Symposium at *4th International Congress on Complex Systems in Sports and Healthy Ageing (ICCSS & HA)*, Groningen (Netherlands).
3. Marmelat, V., Torre, K., Daffertshofer, A., Beek, P.J., Delignières, D. (2013, July). Preservation of fractal gait dynamics using non-isochronous metronomes. 'Variability and fractality' Symposium at the *17th International Conference on Perception and Action (ICPA)*, Estoril (Portugal).

Podium presentations

Local

1. Prusia, M., Meltz, S., Bhatti, D., Bertoni, J., Marmelat, V. (2020, March 06 Locomotor control in people with Parkinson's disease: step-to-step randomness increases during dual-task walking, *UNO Research and Creative Activity Fair*, Omaha, NE (U.S.A).
2. Meidinger, R., Bhatti, D., Bertoni, J., Marmelat, V. (2020, March 06). Longitudinal analysis of gait in people with Parkinson's disease to improve the detection of risk of falls, *UNO Research and Creative Activity Fair*, Omaha, NE (U.S.A).
3. Meidinger, R., Marmelat, V. (2020, March 06). Frequency tagging of periodic metronome presents the most prominent peak cortical frequency as compared to variable metronomes, *UNO Research and Creative Activity Fair*, Omaha, NE (U.S.A).
4. Meltz, S., Bhatti, D., Bertoni, J., Marmelat, V. (2019, May 16). Effect of dual-task walking on long-range correlations in people with Parkinson's disease. *4th Annual Human Movement Variability Conference*, Omaha, NE (U.S.A).
5. Marmelat. V., Duncan, A., Jaravata, D., Bhatti, D. (2018, April 20). Relationship between gait variability and obstacle avoidance. *128th Annual Spring Meeting of the Nebraska Academy of Sciences*, Lincoln, NE (U.S.A).
6. Jaravata, D., Bhatti, D., Marmelat, V. (2018, April 20). Effect of the usage of handrails on gait dynamics in people with Parkinson's disease. *128th Annual Spring Meeting of the Nebraska Academy of Sciences*, Lincoln, NE (U.S.A).
7. Duncan, A., Mukherjee, M., Hunt, N., Siu, K.C., Bhatti, D., Marmelat, V. (2018, March 2). Bridging the gap: individual relationships between long-range correlations and dexterity in walking. *UNO Research and Creative Activity Fair*, Omaha, NE (U.S.A).
8. Duncan, A., Marmelat, V., Hellman, A. (2017, April 21). Optimizing gait in Parkinson's disease patients using fractally structure auditory stimulation. *127th Annual Spring Meeting of the Nebraska Academy of Sciences*, Lincoln, NE (U.S.A).

9. Rock, C.G., Marmelat, V., Yentes, J., Takahashi, K.Z. (2017, April 21). Efficient variability: Linking fractal walking patterns with metabolic energy savings. *127th Annual Spring Meeting of the Nebraska Academy of Sciences*, Lincoln, NE (U.S.A).
10. Duncan, A., Mukherjee, M., Marmelat, V. (2017, March 3). Bridging the gap: Individual relationships of gait variability and adaptability. *UNO Research and Creative Activity Fair*, Omaha, NE (U.S.A).
11. Rock, C.G., Marmelat, V. Yentes, J., Takahashi, K.Z. (2017, March 3). Efficient variability: Linking fractal walking patterns with metabolic energy savings. *UNO Research and Creative Activity Fair*, Omaha, NE (U.S.A).
12. Marmelat, V. (2016, June). Scale invariance in human performances. *Annual Human Movement Variability Conference*, Omaha, NE (U.S.A).
13. Marmelat, V., Torre, K., Daffertshofer, A., Delignières, D., Beek, P. (2013, May). Synchronization with fractal metronome in walking. *9th Annual Day of the Ecole Doctorale 'Sciences du Mouvement Humain'*, Montpellier (France).

National

14. Marmelat, V. (2015, February). Variability for stability: use of fractal auditory metronome to enhance gait dynamics. *14th SOFAMEA congress (Société Francophone d'Analyse du Mouvement chez l'Enfant et l'Adulte)*, Geneva (Switzerland).
15. Marmelat, V., Delignières, D. (2011, October). Strong anticipation: complexities matching during interpersonal coordination. *14th congress of Sports and Physical Activities Researchers Association (ACAPS)*, Rennes (France).
16. Decker, L., Roy, C., Marmelat, V., Torre, K., Ramdani, S., Dalla Bella, S. (2013, December). Optimisation de la stimulation auditive rythmique en vue d'améliorer la rééducation de la fonction locomotrice. *20th SOFPEL congress (Société Francophone Posture, Equilibre et Locomotion),* Geneva (Switzerland).

International

17. Duncan, A., Marmelat, V. (2017, August 11-13). Individual relationships between locomotor dexterity and stride-to-stride dynamics. *27th Annual International Conference of the Society for Chaos Theory in Psychology & Life Sciences*, Cincinnati, OH (USA).
18. Marmelat, V., Reynolds, N., Jaravata, D., Hellman, A. (2017, August 11-13). Fractal analysis of gait in people with Parkinson's disease: is 3 minutes enough? *27th Annual International Conference of the Society for Chaos Theory in Psychology & Life Sciences*, Cincinnati, OH (USA).
19. Delignières, D., Marmelat, V., Torre, K. (2011, July). Theoretical and methodological issues in serial correlation analysis. *Progress in Motor Control VIII*, Cincinnati, OH (U.S.A.).

Poster Presentations

2019

1. Hart, G., Marmelat, V. (2019, September 20). Neural mechanisms underlying sensorimotor synchronization with fractal rhythms. Teacher-Researcher Partnership Program, University of Nebraska at Omaha, Omaha, NE (USA).
2. Meidinger, R.L., Marmelat, V. (2019, June 18). Neural mechanisms underlying sensorimotor synchronization with different forms of rhythms. *2019 Rhythm Perception and Production Workshop*, Traverse City, MI (U.S.A).
3. Marmelat, V., Meltz, S., Meidinger, R., Duncan, A., Hellman, A. (2019, June 18). Effect of fractal music and metronome on gait in people with Parkinson's disease. *2019 Rhythm Perception and Production Workshop*, Traverse City, MI (U.S.A).
4. Meidinger, R.L., Marmelat, V. (2019, May 16). Neural mechanisms underlying sensorimotor synchronization with different forms of rhythms. *4th Annual Human Movement Variability Conference,* Omaha, NE (U.S.A).

5. Meltz, S., Bhatti, D., Bertoni, J., Marmelat, V. (2019, May 16). Effect of dual-task walking on long-range correlations in people with Parkinson's disease. *4th Annual Human Movement Variability Conference,* Omaha, NE (U.S.A).
6. Yoksh, L., Meidinger, R.L., Jaravata, D., Bhatti, D., Marmelat, V. (2019, May 16). Effect of treadmill walking with handrails on gait dynamics in people with Parkinson's disease. *4th Annual Human Movement Variability Conference,* Omaha, NE (U.S.A).
7. Hoffmann, A., Duncan, A., Meltz, S., Marmelat, V. (2019, May 16). Effect of motion capture sampling frequency on fractal fluctuations during treadmill walking. *4th Annual Human Movement Variability Conference,* Omaha, NE (U.S.A).
8. Wicks, C., Meltz. S., Marmelat, V. (2019, May 16). Daily activity in people with Parkinson's disease present less regular patterns. *4th Annual Human Movement Variability Conference,* Omaha, NE (U.S.A).
9. Hellman, A., Duncan, A., Meltz, S., Meidinger, R., Marmelat, V. (2019, May 4-10). The effect of metronome and music on gait variability in people with Parkinson's disease. 2019 American Academy of Neurology Annual Meeting, Philadelphia, PA (U.S.A).
10. Meidinger, R.L., Marmelat, V. (2019, March 1). Neural mechanisms underlying sensorimotor synchronization with different forms of rhythms. *UNO Research and Creative Activity Fair*, Omaha, NE (U.S.A).
11. Meltz, S., Bhatti, D., Bertoni, J., Marmelat, V. (2019, March 1). Effect of dual-task walking on long-range correlations in people with Parkinson's disease. *UNO Research and Creative Activity Fair*, Omaha, NE (U.S.A).
12. Yoksh, L., Meidinger, R.L., Jaravata, D., Bhatti, D., Marmelat, V. (2019, March 1). Effect of treadmill walking with handrails on gait dynamics in people with Parkinson's disease. *UNO Research and Creative Activity Fair*, Omaha, NE (U.S.A).
13. Hoffmann, A., Duncan, A., Meltz, S., Marmelat, V. (2019, March 1). Effect of motion capture sampling frequency on fractal fluctuations during treadmill walking. *UNO Research and Creative Activity Fair*, Omaha, NE (U.S.A).

2018

14. Duncan, A., Marmelat, V. (2018, May 17). Bridging the gap: Individual relationships between long-range correlations and dexterity in walking. *3rd Annual Human Movement Variability Conference*, Omaha, NE (USA).
15. Jaravata, D., Bhatti, D., Marmelat, V. (2018, May 17). Effect of the usage of handrails on gait dynamics in people with Parkinson's disease. *3rd Annual Human Movement Variability Conference*, Omaha, NE (USA).
16. Jaravata, D., Bhatti, D., Marmelat, V. (2018, March 2). Effect of the usage of handrails on gait dynamics in people with Parkinson's disease. *UNO Research and Creative Activity Fair*, Omaha, NE (U.S.A).

2017

17. Daley, S., Marmelat, V. (2017, August 11-13). The effects of Levodopa on postural complexity in Parkinson's disease. *27th Annual International Conference of the Society for Chaos Theory in Psychology & Life Sciences*, Cincinnati, OH (USA).
18. Duncan, A., Hellman, A., Marmelat, V. (2017, August 11-13). Altering Stride Dynamics of Parkinson's Disease Patients utilizing Fractally Structured Auditory Stimulation. *27th Annual International Conference of the Society for Chaos Theory in Psychology & Life Sciences*, Cincinnati, OH (USA).
19. Marmelat, V. 2017, August 11-13). Periodic versus variable pacing of gait: continuous coupling versus discrete error correction. *27th Annual International Conference of the Society for Chaos Theory in Psychology & Life Sciences*, Cincinnati, OH (USA).
20. Kent, J.A., Takahashi, K.Z., Marmelat, V., Stergiou, N. (2017, August 8-11). Velocity-based control of postural sway in people with a unilateral transtibial amputation. *41st Annual Meeting of the American Society of Biomechanics* (ASB), Boulder, CO (U.S.A).

21. Reynolds, N., Wicks, C., Hellman, A., Marmelat, V. (2017, June 25-29). Reliability of daily motor activity variability recorded over 7-days. *2017 World Congress of the International Society of Posture and Gait Research (ISPGR),* Fort Lauderdale, FL (U.S.A).
22. Duncan, A., Hartley, R., Wiens, C., Schieber, M., Denton, W., Marmelat, V., Myers, S. (2017, June 25-29). Comparison of stride dynamics during fixed speed and self-paced treadmill walking. *2017 World Congress of the International Society of Posture and Gait Research (ISPGR),* Fort Lauderdale, FL (U.S.A).
23. Marmelat, V., Jaravata, D., Reynolds, N., Hellman, A. (2017, June 25-29). Do shorter gait trials 'stitched' together provide the same information as longer trials in people with Parkinson's disease? *2017 World Congress of the International Society of Posture and Gait Research (ISPGR),* Fort Lauderdale, FL (U.S.A).
24. Wicks, C., Reynolds, N., Hellman, A., Marmelat, V. (2017, June 1). Between-day reliability of daily activity fluctuations in patients with Parkinson's disease. *2nd Annual Human Movement Variability Conference*, Omaha, NE (USA).
25. Jaravata, D., Reynolds, N., Hellman, A., Marmelat, V. (2017, June 1). Do shorter gait trials 'stitched' together provide the same information as longer trials in people with Parkinson's disease? *2nd Annual Human Movement Variability Conference*, Omaha, NE (USA).
26. Nimtz, K., Reynolds, N., Marmelat, V., Knarr, B.A. (2017, June 1). Variability of activity behavior from activity monitoring across seven days. *2nd Annual Human Movement Variability Conference*, Omaha, NE (USA).
27. Reynolds, N., Marmelat, V. (2017, June 1). Influence of neuromuscular fatigue on the reliability of gait variability measures. *2nd Annual Human Movement Variability Conference*, Omaha, NE (USA).
28. Duncan, A., Marmelat, V. (2017, June 1). Individual relationships between locomotor dexterity and stride-to-stride variability. *2nd Annual Human Movement Variability Conference*, Omaha, NE (USA).
29. Daley, S., Marmelat, V. (2017, June 1). The effects of Levodopa on Postural Complexity in Parkinson's disease. *2nd Annual Human Movement Variability Conference*, Omaha, NE (USA).
30. Wiens, C., Denton, W., Schieber, M., Hartley, R. Marmelat, V., Myers, S., Yentes, J. (2017, May 14-17). Reliability of a feedback-controlled treadmill algorithm dependent on the user's behavior. *16th Annual IEEE International Conference on Electro Information Technology (eit2017)*, Lincoln, NE (U.S.A.).
31. Kent, J.A., Takahashi, K.Z., Marmelat, V., Stergiou, N. (2017, April). Postural sway during quiet standing in people with an amputation: investigating velocity-based control with a unilateral sensory deficit. *7th annual regional meeting of the Rocky Mountain American Society of Biomechanics*, Estes Park, CO (U.S.A).
32. Rock, C.G., Marmelat, V., Yentes, J., Takahashi, K.Z. (2017, April). Relationship between step-to-step variability and metabolic cost of transport in human walking. *7th annual regional meeting of the Rocky Mountain American Society of Biomechanics*, Estes Park, CO (U.S.A).
33. Nimtz, K., Marmelat, V., Knarr, B.A. (2017, March 3). Non-linear analysis of vector magnitude and step count from activity monitor data. *UNO Research and Creative Activity Fair*, Omaha, NE (U.S.A).
34. Reynolds, N., Marmelat, V. (2017, March 3). Influence of neuromuscular fatigue on the reliability of gait variability measures. *UNO Research and Creative Activity Fair*, Omaha, NE (U.S.A).
35. Wicks, C., Reynolds, N., Marmelat, V. (2017, March 3). Between-day reliability of daily activity fluctuations in young adults at baseline and 6-months follow-up. *UNO Research and Creative Activity Fair*, Omaha, NE (U.S.A).
36. Hartley, R., Wiens, C., Shieber, M., Denton, W., Marmelat, V. (2017, March 3). Comparison of self-paced, fixed-speed and over-ground walking. *UNO Research and Creative Activity Fair*, Omaha, NE (U.S.A).

37. Daley, S., Marmelat, V. (2017, March 3). The effect of happy vs. sad music on gait variability. *UNO Research and Creative Activity Fair*, Omaha, NE (U.S.A).
38. Bischoff, B., Reynolds, N., Catlett, M., Marmelat, V. (2017, March 3). Stitching together short gait trials for understanding stride-to-stride organization over time. *UNO Research and Creative Activity Fair*, Omaha, NE (U.S.A).

2016

39. Reynolds, N., Marmelat, V. (2016, October). Reliability of daily motor activity variability recorded over 7 days. *Symposium on Biomechanics, Nebraska Research + Innovation Conference,* Omaha, NE (U.S.A).
40. Hartley, R., Wiens, C., Shieber, M., Denton, W., Marmelat, V. (2016, October). Comparison of self-paced, fixed-speed and over-ground walking. *Symposium on Biomechanics, Nebraska Research + Innovation Conference,* Omaha, NE (U.S.A).
41. Daley, S., Marmelat, V. (2016, October). The effect of happy vs. sad music on gait variability. *Symposium on Biomechanics, Nebraska Research + Innovation Conference,* Omaha, NE (U.S.A).
42. Bischoff, B., Reynolds, N., Catlett, M., Marmelat, V. (2016, October). Stitching together short gait trials for understanding stride-to-stride organization over time. *Symposium on Biomechanics, Nebraska Research + Innovation Conference,* Omaha, NE (U.S.A).
43. Rock, C.G., Marmelat, V., Yentes, J., Takahashi, K.Z. (2016, October). Relationship between metabolic cost of transport and stride-to-stride variability. *Symposium on Biomechanics, Nebraska Research + Innovation Conference,* Omaha, NE (U.S.A).
44. Marmelat, V., Reynolds N., Daffertshofer, A., Beek, PJ, Delignières, D. (2016, August). Periodic versus variable pacing of gait: Continuous coupling versus discrete error correction. *40th Annual Meeting of the American Society of Biomechanics (ASB)*, Raleigh, NC (U.S.A).
45. Catlett, M., Bischoff, B., Marmelat, V. (2016, August). Stitching together short gait trials for understanding stride-to-stride organization over time. *40th Annual Meeting of the American Society of Biomechanics (ASB)*, Raleigh, NC (U.S.A).
46. Worster, K., Yentes, J., Marmelat, V. (2016, August). Does scale invariance persist for subsections of long walking trials? *40th Annual Meeting of the American Society of Biomechanics (ASB)*, Raleigh, NC (U.S.A).
47. Den Hartig, R.J.R., Marmelat, V., Cox, R.F.A. (2016, July). Fractal scaling and complexity matching in ergometer rowing. *14th European Workshop on Ecological Psychology (EWEP)*, Groningen (Netherlands).
48. Rock, C.G., Marmelat, V., Yentes, J., Takahashi, K.Z. (2016, June). Metabolic Cost of Transport and the Persistence of Stride-to-Stride Fluctuations in Human Walking. *Annual Human Movement Variability Conference*, Omaha, NE (U.S.A).
49. Reynolds, N., Bischoff, B., Worster, K., Marmelat, V. (2016, June). Influence of epochs length on scale invariant properties of daily motor activity. *Annual Human Movement Variability Conference*, Omaha, NE (U.S.A).
50. Bischoff, B., Reynolds, N., Catlett, M., Marmelat, V. (2016, June). Stitching together short gait trials for understanding stride-to-stride organization over time. *Annual Human Movement Variability Conference*, Omaha, NE (U.S.A).
51. Worster, K., Yentes, J., Marmelat, V. (2016, June). Is scale invariance persistent for subsections of long walking trials? *Annual Human Movement Variability Conference*, Omaha, NE (U.S.A).
52. Rock, C.G., Marmelat, V., Yentes, J., Takahashi, K.Z. (2016, April). Metabolic Cost of Transport and the Persistence of Stride-to-Stride Fluctuations in Human Walking. *6th annual regional meeting of the Rocky Mountain American Society of Biomechanics*, Estes Park, CO (U.S.A).
53. Worster, K., Yentes, J., Marmelat, V. (2016, March). Is 15 minutes of human walking data the same as 1 hour? *UNO Research and Creative Activity Fair*, Omaha, NE (U.S.A).

2013

54. Delignières,D., Marmelat, V. (2013, June). Complexity, degeneracy and long-range correlations. *Inaugural Conference of the Euromov Centre (Montpellier-1 University), Health in Motion*, Montpellier (France).
55. Delignières,D., Marmelat, V. (2013, June). Detrended Cross-Correlation Analysis: simulation studies. *Inaugural Conference of the Euromov Centre (Montpellier-1 University), Health in Motion*, Montpellier (France).
56. Delignières,D., Marmelat, V. (2013, June). Coordination processes and Detrended Cross-Correlation Analysis. *Inaugural Conference of the Euromov Centre (Montpellier-1 University), Health in Motion*, Montpellier (France).
57. Marmelat, V., Torre, K., Delignières, D., Daffertshofer, A., Beek, P.J. (2013, June). 1/f cueing vs isochronous cueing: two different dynamics of stride intervals. *Inaugural Conference of the Euromov Centre (Montpellier-1 University), Health in Motion*,Montpellier (France).
58. Delignières, D., Marmelat, V., Sallagoïty, I., Mottet, D. (2013, June). Degeneracy, long-range correlations and accuracy constraints. *Inaugural Conference of the Euromov Centre (Montpellier-1 University), Health in Motion,* Montpellier (France).
59. Delignières,D., Marmelat, V. (2013, June). Bimanual coordination, inter-personal coordination, and time scales. *Inaugural Conference of the Euromov Centre (Montpellier-1 University), Health in Motion*, Montpellier (France).
60. Decker, L.M., Roy, C., Marmelat, V., Torre, K., Ramdani, S., Dalla Bella, S. (2013, June). Seeking an optimality criterion for gait improvement via rhythmic auditory stimulation (RAS): A matter of perception*? Inaugural Conference of the Euromov Centre (Montpellier-1 University), Health in Motion*, Montpellier (France).

2012

61. Marmelat, V., Daffertshofer, A., Beek, P.J., Delignières, D. (2012, June). Influence of Hurst exponent of different auditory signals on temporal structure of inter-stride intervals. *8th Annual Day of the Ecole Doctorale 'Sciences du Mouvement Humain',* Montpellier (France).

2011

62. Marmelat, V., Delignières, D., Beek, P.J. (2011, December). Strong anticipation: Complexity matching in interpersonal coordination. *Conference of the SKILLS European Project*, Montpellier (France).
63. Delignières, D., Marmelat, V., Torre, K. (2011, December). Degeneracy and long-range correlation: A simulation study. *Conference of the SKILLS European Project*, Montpellier (France).

2010

64. Delignières, D., Marmelat, V., Torre, K. (2010, May). Examples of interpretations for 1/f noise in human behaviour. *6th Annual Day of the Ecole Doctorale 'Sciences du Mouvement Humain'*, Montpellier (France).

TEACHING & ADVISING

Dissertation Committees

Committee Chair

TBD

Meidinger, Ryan (UNO, Exercise Science)

In progress

Committee Member

Advanced Computational Approaches for the Analysis of Mobility Data in Assessing Health Conditions and Advancing Data-Driven Healthcare

Rastegari, Elham (UNO, College of Information System and Technology)

COMPLETED (July 30, 2019)

Master Thesis Committees

Committee Chair

Effect of dual-task walking on long-range correlations in people with Parkinson's disease
Meltz, Shane (UNO, Biomechanics)
COMPLETED (June 7, 2019)

Bridging the gap: individual relationships of gait variability and adaptability
Duncan, Austin (UNO, Health Physical Educ & Recreation)
COMPLETED (June 22, 2018)

Influence of fatigue on the reliability of gait variability measures.
Reynolds, Nicholas (UNO, Health Physical Educ & Recreation)
COMPLETED (November 20, 2017)

Committee Member

Cortical activity during walking with variable external cueing devices
Rowen, Douglas (UNO, Health Physical Educ & Recreation)
COMPLETED (August 16, 2019)

The effects of visual feedback scale size on single leg balance in healthy individuals
Chamberlin, Claressa (UNO, Health & Kinesiology)
COMPLETED (April 12, 2019)

Isolating aspects of gait through the use of pacing signals
Sommerfield, Joel (UNO, Biomechanics)
COMPLETED (April 3, 2019)

The relationship between linear and nonlinear analysis of activity data and how they relate to clinical measures in older adults
Nimtz, Katlyn (UNO, Health Physical Educ & Recreation)
COMPLETED (March 30, 2018)

Metabolic cost of transport and fractal scaling during human walking.
Rock, Chase (UNO, Health Physical Educ & Recreation)
COMPLETED (August 2, 2017)

Comparison of noise signals on locomotor-respiratory coupling.
Wiens, Casey (UNO, Health Physical Educ & Recreation)
COMPLETED (August 9, 2016).

Advising

Postdoctoral Research Associates
Katy Worster, UNO (2015- 2016)

Doctoral
Ryan Meidinger, UNO (2018-)

Masters
Shane Meltz, UNO (2018-)
Austin Duncan, UNO (2016-2018)
Shawn Daley, UNO (2016- 2017)
Nicholas Reynolds, UNO (2016-2017)
Mike Hough, UNO (2015)

Undergraduate Students
Rylee Stevenson, UNO, Biomechanics (2020-)
Matt Spieker, UNO, Biomechanics (2020-)
Colleen Vogel, UNO, Atheltic Training (2020-)
Elizabeth Giese, UNO, Kinesiology (2020-)
Shivam Avinash Gaikwad, UNO, Biology (2020-)
Johanna Bustamante-Salgado, UNO, Biomechanics (2020-)
Duelly Baxter, UNO, Neuroscience & Cognitive Psychology (2020-)
Rebecca Wagner, UNO, Psychology and Cognitive Science (2019-)

Meghan Prusia, UNO, Biomechanics (2019-)
Colt Goodwin, UNO, Biomechanics (2019-)
Dylan Christenham, UNO, Exercise Science (2019-)
Connor Wicks, UNO, Mathematics & Physics (2016-)
Lauren Yoksh, UNO, Neuroscience & Statistics (2018-2019)
Allan Hoffmann, UNO, Neuroscience (2018-2019)
Joshua Lohr, UNO, Biotechnology (2018-2019)
Kiara Vicens, Creighton, Exercise Science (2018-2019)
Daniel Jaravata, UNO, Biomechanics (2017-2018)
Ryan Hartley, UNO, Exercise Science & Biomechanics (2016-2017)
Michael Schnuelle, UNO, Exercise Science (2016)
Brandon Bischoff, UNO, Exercise Science (2015-2017)
Megan Catlett, UNO, Exercise Science (2015- 2016)

Teaching activity

2020 (Spring)	**Neuromechanics of Human Movement** (BMCH 4650)	
	University of Nebraska at Omaha	9 students
2019 (Fall)	**Analytical Methods in Biomechanics** (BMCH 2200)	
	University of Nebraska at Omaha	23 students
2019 (Summer)	**Biomechanics** (BMCH 4630)	
	University of Nebraska at Omaha	37 students
2019 (Spring)	**Neuromechanics of Human Movement** (BMCH 4650)	
	University of Nebraska at Omaha	6 students
2018 (Spring)	**Advanced Biomechanics 2** (BMCH 9460)	
	University of Nebraska at Omaha	11 students
2017 (Spring)	**Advanced Biomechanics 2** (BMCH 9460)	
	University of Nebraska at Omaha	10 students
2011-2012 (Fall)	**Neurosciences**	
	University of Montpellier	40+ students/sem
2011-2012 (Fall)	**Anatomy**	
	University of Montpellier	40+ students/sem
2011-2012 (Fall)	**Information Technology**	
	University of Montpellier	20+ students/sem
2011-2012 (Fall)	**Psychology & Human Sciences**	
	University of Montpellier	40+ students/sem
2012 (Fall)	**University Working Methodologies**	
	University of Montpellier	20+ students
2011 (Fall)	**Biomechanics**	
	University of Montpellier	40+ students

Other Teaching Activities

2019 (Summer)	**Nonlinear Analysis Workshop** (PE9101)	12 students
	Invited Lecturer	
	University of Nebraska at Omaha	Omaha, NE (U.S.A)
2018 (Summer)	**Nonlinear Analysis Workshop** (PE9101)	12 students
	Invited Lecturer	
	University of Nebraska at Omaha	Omaha, NE (U.S.A)
2017 (Summer)	**Nonlinear Analysis Workshop** (PE9101)	12 students
	Invited Lecturer	
	University of Nebraska at Omaha	Omaha, NE (U.S.A)
2017 (Spring)	**Motor Learning and Parkinson's disease**	12 students
	Invited Lecturer	
	University of Nebraska at Omaha	Omaha, NE (U.S.A)

2017 (Spring)	**Introduction to Matlab**	5 students
	Volunteered training for Graduate Assistants	
	University of Nebraska at Omaha	Omaha, NE (U.S.A)
2016 (Summer)	**Nonlinear Analysis Workshop** (PE9101)	15 students
	Invited Lecturer	
	University of Nebraska at Omaha	Omaha, NE (U.S.A)

Teaching grants

Sherwood Foundation – Teacher-Researcher Partnership Program (June 1 – July 15, 2020)
Interpersonal synchronization, empathy and hormones in people with Parkinson's disease and caregivers
PI: Marmelat V
Total Award: $8,500

Sherwood Foundation – Teacher-Researcher Partnership Program (June 1 – July 15, 2019)
Neural mechanisms underlying sensorimotor synchronization with fractal rhythms.
PI: Marmelat V
Total Award: $8,500

Sherwood Foundation – Teacher-Researcher Partnership Program (June 1 – July 15, 2018)
The effect of metronome and music on human gait.
PI: Marmelat V
Total Award: $8,500

SERVICE

SERVICE IN THE UNIVERSITY

Committee Chair

2017-2018 Faculty Search Committee, Department of Biomechanics, UNO

Committee Member

2019- Reappointment, Promotion, and Tenure Committee, College of Education, UNO
2019-2020 Conference Planning Committee, 5th Annual Human Movement Variability Conference & 1st Annual Great Plains Biomechanics Conference
2019-2020 Faculty Search Committee, Department of Biomechanics, UNO
2018-2019 Conference Planning Committee, 4th Annual Human Movement Variability Conference
2016-2019 Academic Freedom & Tenure Committee, UNO
2017-2018 Reappointment, Promotion, and Tenure Committee, Department of Biomechanics, UNO
2016-2018 Graduate Program Committee, Department of Biomechanics, UNO
Fall 2016 Faculty Review Panel, GRACA grants, UNO
Fall 2016 Faculty Review Panel, FUSE grants, UNO
2015-2017 Management Committee, Department of Biomechanics, UNO
2015-2016 Faculty Search Committee, Department of Biomechanics, UNO
2011-2012 Conference Planning Committee, 8th day of the Doctoral School 'Human Movement Sciences', Montpellier (France)
2010-2011 Conference Planning Committee, International conference of the EC FP6 SKILLS European Project, Montpellier (France)

SERVICE IN THE PROFESSION

Academic Journal Editor

2016-2017 Lead Guest Editor

Special Issue for Computational and Mathematical Methods in Medicine (not enough submissions for publication)

Academic Journal Reviewer

2020- Motor Control
2019- Multiple Sclerosis and Related Disorders
2019- Brain Sciences
2019- Neuroscience Letters
2019- Journal of Gerontology: Medical Sciences
2018- Journal of Biomechanics
2018- Sensors
2018- Complexity
2018- Computers in Biology and Medicine
2018- Annals of Biomedical Engineering
2018- PeerJ
2017- Journal of Experimental Psychology: General
2017- Physica A
2017- PLoS ONE
2017- Journal of Motor Behavior
2017- Journal of Applied Biomechanics
2016- Scientific Reports
2016- Journal of Medical and Biological Engineering
2016- Topics in Cognitive Science
2016- Smart Materials and Structures
2016- Entropy
2016- Nonlinear Dynamics, Psychology, and Life Sciences
2016- Journal of Rehabilitation Medicine
2016- Journal of the Neurological Sciences
2016- Computer Methods and Programs in Biomedicine
2015- Gait and Posture
2015- Journal of Experimental Psychology: Human Perception and Performance
2014- Experimental Brain Research
2011- Human Movement Science

Federal Review Process

2019 National Science Foundation
2018 Parkinson's UK

Conference Proposals review

2017 2nd Annual Human Movement Variability Conference
2017 Regional Conference of the American Society of Biomechanics

Societies & Memberships

2018- Society for the Neural Control of Movement (NCM), Member
2018- International Society of Posture and Gait Research (ISPGR) Communications Committee, responsible for Twitter section
2018- International Society of Posture and Gait Research (ISPGR) Communications Committee (Blog and Social Media), Member
2017- Society for Chaos Theory in Psychology and Life Sciences (SCTPLS), Member
2016-2017 American Society of Biomechanics (ASB), Member
2015-2017 Text and Academic Authors Association (TAA), Member
2014- International Society of Posture and Gait Research (ISPGR), Member

SERVICE IN THE COMMUNITY

Guest lecturer

Marmelat, V. (2018, October 25). Music, Movement and the Brain. Coffee and Conversation and Fitness & Beyond, Omaha, NE (U.S.).

Marmelat, V. (2017, October 14). Gait Biomechanics in Parkinson's disease: beyond what the eye can see. Invited lecture at *Parkinson's Support Group*, Parkinson's Nebraska office, Omaha, NE (U.S.).

Marmelat, V. (2017, May 25). Walking with Parkinson's disease: step-by-step research to improve detection, rehabilitation and quality of life. Invited talk at the Parkinson's Nebraska office, Omaha, NE (U.S.).

Skype a Scientist – Online program that matches scientists with classrooms around the world
July 30, 2019 - Sue Luus, MindPlus Wakatipu Regional Lead Teacher, New Zealand

Volunteer

2018	Judge, Science Fair Nebraska Junior Academy of Science, Nebraska Wesleyan, April 19, 2018
2017-	STEM professional volunteer Assist student researchers with their projects
2016	Judge, Science Fair Strategic Air & Space Museum, March 31, 2016

Executive board member

2012-2014	Secretary - Languedoc-Roussillon League of Rowing (France)
2011-2012	Treasurer - DocSMH Association (PhD students Association of the Doctoral School)