

Samuel Thomas Nemanich, PhD

Assistant Professor
Department of Occupational Therapy
Marquette University
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Education

Ph.D., Movement Science	Washington University in St. Louis Advisor: Gammon Earhart, PhD, PT	8/22/2016
M.S., Clinical Investigation (MSCI)	Washington University in St. Louis	8/22/2016
B.S., Biomedical Engineering	Illinois Institute of Technology	5/15/2010

Academic Appointments

Current

Marquette University
Assistant Professor of Occupational Therapy June 2020-present

Previous

University of Minnesota, Twin Cities
Postdoctoral Associate 2016-2020
Research Associate 2019-2020

Other professional employment

Research Assistant, Washington University in St. Louis 2010-2012

Honors and Awards

University of Minnesota

Travel Award, Center for Neuroengineering 2019
Best Poster Award (3rd place), MnDRIVE Brain Conditions Retreat 2018
Career Development Award, UMN Post-doctoral Association 2017 and 2018
Travel Award, Center for Neurobehavioral Development 2017

External Sources

Best Poster Award (2 nd place), Carolina Neurostimulation Conference	2018
Travel Award, Carolina Neurostimulation Conference	2018
Poster Highlights Oral Presentation, NYC Neuromodulation	2017
Neuromuscular Plasticity Scholar, University of Florida	2013
Travel Award, Parkinson's Disease Foundation	2014

Research and Scholarship

External Grants and Contracts (completed)

National Center of Neuromodulation for Rehabilitation (NCNM4R) Pilot Project Grant
Role: Co-Principal Investigator
PI: Bernadette Gillick, PhD, MSPT, PT
"Comparing two montages of transcranial direct current stimulation in unilateral cerebral palsy"
Direct costs: \$34,244
Competitive Supplement: \$7,500
Salary and research support
07/01/2018-05/31/2020

NIH StrokeNet Regional Coordinating Center
Role: Post-doctoral Fellow
PI: Mustapha Ezzedine, MD; Co-PI: Kamakshi Lakshminarayan, MBBS, PhD, MS
University of Minnesota
2019-2020
Salary and travel

Post-doctoral Associate
PI: Bernadette Gillick, PhD, MSPT, PT
Australian Cerebral Palsy Alliance
Perinatal Stroke: Understanding Brain Reorganization through Infant Neuroexcitability and Neuroimaging", 3/2016-3/2017
Direct Costs: \$100,000
Salary and research support

Post-doctoral Associate
PI: Bernadette Gillick, PhD, MSPT, PT
NIH/NICHHD: K01 HD078484-01A1
"Novel Neuromodulatory Intervention in the Rehabilitation of Pediatric Hemiparesis", 9/2014-8/2019
Salary and research support

TL1 pre-doctoral fellow
PI: Bradley Evanoff, MD
NIH/NCATS (UL1TR000449 and TL1TR000448)
"Washington University Institute of Clinical and Translational Science", 5/2014-4/2016
Stipend and research support

Pre-doctoral trainee

PI: Gammon Earhart, PhD, PT

NIH/NICHHD: T32HD007434

“Doctoral Training Program in Movement Science”, 4/2014-4/2016

Stipend and research support

Graduate Assistant

PI: Gammon Earhart, PhD, PT

NIH/NINDS: R01NS077959

“Exercise and Parkinson’s Disease: Comparing Interventions and Exploring Neural Mechanisms”, 8/2012-7/2017

Stipend and research support

Co-PI

PI: Gammon Earhart, PhD, PT

Parkinson’s and Movement Disorders Foundation

“Gaze Behavior and Locomotion in Parkinson Disease”, 2013-2015

Direct costs: \$5000

0% stipend support

Internal Funding (completed)

Co-Principal Investigator

PI: Bernadette Gillick, PhD, MSPT, PT

University of Minnesota Medical School/University of Minnesota Foundation

“Comparing two montages of transcranial direct current stimulation in unilateral cerebral palsy”, 06/01/2018-05/31/2019

\$15,000 direct costs

Post-doctoral fellowship

PI: Samuel Nemanich, PhD, MSCI

Minnesota’s Discovery, Research and Innovation Economy (MnDRIVE)

“Effects of transcranial direct current stimulation and bimanual training on motor learning and motor cortex connectivity in children with cerebral palsy”, 6/2017-7/2018

Direct costs: \$59,230

Salary and travel support

Additional record of external grantsmanship during post-doctoral position

I significantly contributed to the design and writing of the following funded or pending funding grants

NIH (NICHD) R01

“Perinatal Stroke: Longitudinal Assessment of Infant Brain Organization and Recovery through Neuroexcitability, Neuroimaging and Motor Development”

PI: Bernadette Gillick, PhD, MSPT, PT

Role: Research Associate; Assisted with study design, wrote, edited, developed pilot data

Submitted February 2020 (pending funding)

NIH (NICHD) R21

“Perinatal Stroke: Identifying targets for Neuromodulation Interventions through Multi-Modal Cortical Excitability Mapping”

PI: Bernadette Gillick, PhD, MSPT, PT

Role: Intricately involved with study design, writing, editing of proposal

8/1/2019-7/30/2021

Publications

Impact Analytics

<i>h</i> -Index	Total Publications	First/Last Author Publications	Total Citations	First/Last Author Citations
6	25	13	103	39

Peer-Reviewed Publications

*indicates co-first authorship

Book Chapters

1. Chen M, Cline CC, Frost KL, Kimberley TJ, **Nemanich ST**, ...Lim KO, He B. “Advances and Challenges in Transcranial Magnetic Stimulation (TMS) Research on Motor Systems” In Book: Engineering in Medicine. January 2019

Original Research Articles

1. Keller-Ross M, Chantigian DP, **Nemanich S**, Gillick BT. “The Influence of Combined Transcranial Direct Current Stimulation and Bimanual Training on Blood Pressure and Heart Rate in Children with Cerebral Palsy Due to Perinatal Stroke.” Pediatr Phys Ther. In Press, 2020
2. Nawshin T, Behan M, **Nemanich S***, Kowalski J, Sutter E, Francis S, Dubinsky J, Freese R, Rudser K, Gillick B. “A Crossed-Disciplinary Evaluation of Parental Perceptions Surrounding Pediatric Non-Invasive Brain Stimulation Research.” Int J Pharm Healthcare Market. In Press, 2020
3. Rich TL, **Nemanich ST***, Chen CY, Sutter EN, Feyma T, Krach LE, Gillick BT. “Ipsilateral corticospinal tract excitability contributes to the severity of mirror movements in unilateral cerebral palsy: A case series” Clin EEG Neurosci. 51(3): 185-190, PMID: 31912767
Impact Factor: 1.822 Times Cited: 0
4. Kowalski JK, **Nemanich ST**, Nawshin T, Chen M, Peyton C, Zorn E, Hickey E, Rao R, Georgieff M, Rudser K, Gillick BT. “Motor Evoked Potentials as Potential Biomarkers of Early Corticospinal Development and Diagnosis of Cerebral Palsy in Infancy.” J Clin Med. 2019. 13; 8(8). PMID: 31412592
Impact Factor: 5.688 Times Cited: 2
5. **Nemanich ST**, Mueller BA, Gillick BT. “Neurite orientation dispersion and density imaging (NODDI) quantifies corticospinal tract microstructural organization in children with unilateral cerebral palsy”. Hum Brain Mapp. 2019. 40(17): 4888-4900. PMID: 31355991
Impact Factor: 4.927 Times Cited: 2
6. **Nemanich ST**, Chen CY, Chen M, Zorn E, Mueller B, Peyton C, Elison J, Stinear J, Rao R, Georgieff M, Menk JS, Rudser KD, Gillick BT. “Safety and feasibility of transcranial magnetic stimulation as an exploratory assessment of corticospinal connectivity in infants after perinatal brain injury: an observational study”. Phys Ther. 2019. 99(6), 689-700. PMID: 30806664
Impact Factor: 3.043 Times Cited: 3

7. **Nemanich ST**, Rich TL, Chen CY, Menk JS, Rudser K, Chen M, Meekins G, Gillick BT. "Influence of combined transcranial direct current stimulation and motor training on corticospinal excitability in children with unilateral cerebral palsy". Front Hum Neurosci. 2019. 13:137. PMID: 31105541
Impact Factor: 2.871 Times Cited: 1
8. **Nemanich ST**, Rich TL, Gordon AG, Friel K, Gillick BT. "Bimanual skill learning after transcranial direct current stimulation in children with unilateral cerebral palsy: a brief report". Dev Neurorehabil. 2019. Apr 3: 1-5, [Epub ahead of print]. PMID: 30943373
Impact Factor: 2.05 Times Cited: 1
9. **Nemanich ST**, Kowalski JL, Chen M, Zorn E, Georgieff M, Gillick BT. "Longitudinal Assessment of Cortical Excitability in an Infant with Perinatal Brain injury". Brain Stimul. 2019. 12(2), e56-e57.
Impact Factor: 6.120 Times Cited: 0
10. Rich TL, **Nemanich ST**, Chen M, Friel K, Feyma T, Krach L, Nawshin T, Meekins G, Gillick BT. "Transcranial direct current stimulation (tDCS) paired with occupation-centered bimanual training in children with unilateral cerebral palsy: A preliminary study." Neural Plasticity. 2018. PMCID: 30627151
Impact Factor: 3.161 Times Cited: 4
11. Gillick BT, Rich TL, **Nemanich ST**, Chen CY, Menk JS, Mueller BA, Chen M, Ward M, Meekins G, Feyma T, Krach LE, Rudser KD. "Transcranial direct current stimulation and constraint-induced therapy in cerebral palsy: a randomized, blinded, sham-controlled, phase 1 trial" Eur J Pediatr Neurol. 2018; 22(3): 358-368. PMCID: 5899638.
Impact Factor: 2.013 Times Cited: 23
12. **Nemanich ST**, McNeely ME, Earhart GM, Norris SA, Black KJ. A case of apparent upper-body freezing in Parkinsonism while using a wheelchair. Frontiers in Neurology. 2017; 8:205 PMCID: 5431276
Impact Factor: 3.184 Times Cited: 0
13. **Nemanich ST** and Earhart GM. Freezing of gait is associated with increased saccade latency and variability in Parkinson's disease. Clin Neurophysiol. 2016; 127(6): 2394-2401. PMCID: 4867191
Impact Factor: 3.477 Times Cited: 13
14. Devanathan S, Whitehead TD, Fettig N, Gropler RJ, **Nemanich ST**, Shoghi KI. Sexual dimorphism in myocardial acylcarnitine and triglyceride metabolism. Biol Sex Differ. 2016;7:25. PMCID: 4866274.
Impact Factor: 3.237 Times Cited: 6
15. **Nemanich ST** and Earhart GM. Reduced after-effects following podokinetic adaptation in people with Parkinson's disease and freezing of gait. Parkinsonism Relat Disord. 2016; 22: 93-7. PMCID: 4695217
Impact Factor: 3.899 Times Cited: 3
16. **Nemanich ST** and Earhart GM. How do age and nature of motor task influence visuomotor adaptation? Gait and Posture. 2015; 42(4)L 564-8. PMCID 4651796
Impact Factor: 2.864 Times Cited: 4
17. **Nemanich ST** and Earhart GM. Prism adaptation in Parkinson disease: Comparing reaching to walking and freezers to non-freezers. Exp Brain Res. 2015;233(8):2301-10. PMCID: 4513667
Impact Factor: 2.368 Times Cited: 2
18. Devanathan S, **Nemanich ST**, Kovacs A, Fettig N, Gropler RJ, Shoghi KI. Genomic and metabolic disposition of non-obese type 2 diabetic rats to increased myocardial fatty acid metabolism. PLoS One. 2013;8(10):e78477. PMCID: 3804536.
Impact Factor: 2.806 Times Cited: 12
19. **Nemanich ST**, Rani SD, Shoghi KI. In vivo multi-tissue efficacy of peroxisome proliferator-activated receptor-gamma therapy on glucose and fatty acid metabolism in obese type 2 diabetic rats. Obesity (Silver Spring). 2013;21(12):2522-9. PMCID: 3695080.
Impact Factor: 3.535 Times Cited: 7
20. **Nemanich ST**, Duncan RP, Dibble LE, Cavanaugh JT, Ellis TD, Ford MP, et al. Predictors of gait speeds and the relationship of gait speeds to falls in men and women with Parkinson disease. Parkinsons Dis. 2013;2013:141720. PMCID: 3687488.
Impact Factor: 2.222 Times Cited: 16
21. Rani SD, **Nemanich ST**, Fettig N, Shoghi KI. Kinetic analysis of FDG in rat liver: Effect of dietary intervention on arterial and portal vein input. Nucl Med Biol. 2013;40(4):537-46. PMCID: 3652984.
Impact Factor: 2.299 Times Cited: 3

22. Whitehead TD, ***Nemanich ST**, Dence C, Shoghi KI. A PET-compatible tissue bioreactor for research, discovery, and validation of imaging biomarkers and radiopharmaceuticals: system design and proof-of-concept studies. *J Nucl Med*. 2013;54(10):1812-9. PMID: 3971724
Impact Factor: 5.795 Times Cited: 1
23. Whitehead TD, **Nemanich ST**, Shoghi KI. Artificial tissue bioreactor (ATB) for biological and imaging applications. *Conf Proc IEEE Eng Med Biol Soc*. 2012;2012:2420-3.
Impact Factor: N/A Times Cited: 0

Presentations

Invited Oral Presentations at National Professional Meetings, Conferences, etc.

1. "Advancing Neurorehabilitation for children and infants with stroke: Non-invasive brain stimulation to assess and modulate the developing brain." University of Wisconsin-Madison, Department of Kinesiology, Graduate Seminar. March 6th, 2020. (as Postdoctoral Associate)
2. "Advancing Neurorehabilitation for children and infants with stroke: Non-invasive brain stimulation to assess and modulate the developing brain." University of Iowa, PT Research Day. April 20th, 2018. (as Postdoctoral Associate)

Invited Oral Presentations at Local and Regional Professional Meetings, Conferences, etc.

1. "Stroke during infancy: Neuroimaging as a biomarker of motor system recovery and development". University of Minnesota Physicians and Fairview Health Services 2019 Evening Radiology Conference. November, 6th, 2019. (as Postdoctoral Associate)
2. "Perinatal Stroke and Neuromodulation". Child Neurology Grand Rounds Presentation. Mayo Clinic, Rochester, MN. October 11th, 2017. Co-presenter: Bernadette Gillick, PhD, MSPT, PT (as Postdoctoral Associate)
3. "Dysfunctional motor control in Parkinson's disease and freezing of gait". Alzheimer's Disease Research Center Seminar. Washington University School of Medicine in St. Louis. March 8th, 2016. (as Predoctoral Trainee)

Peer-reviewed Oral Presentations at Professional Meetings, Conferences, etc.

*Indicates presenting author

1. **Nemanich ST***, Ferre CL*, and Papedelis C*. "Progress in multimodal brain imaging for neurorehabilitation research in children with cerebral palsy: towards reproducible and open science" Breakfast Seminar, American Academy of Cerebral Palsy and Developmental Medicine Annual Meeting (virtual), 2020.
2. Kowalski J, **Nemanich S**, Nawshin T, Sutter E, Chen M, Peyton C, Zorn E, Hickey E, Rao R, Georgieff M, Gillick B*. "Corticospinal connectivity patterns and motor outcome in infants with early brain injury". European Academy of Childhood Disability, May 24, 2019. Paris, France.
3. Nawshin T, Behan M*, **Nemanich S**, Kowalski J, Sutter E, Boxrud, M, Dubinsky J, Gillick B. "Perceived high-risk brain research: Understanding parental perceptions regarding safety of non-invasive brain stimulation". European Academy of Childhood Disability, May 25, 2019. Paris, France
4. **Nemanich ST***, Rich TL, Mueller BA, Opitz A, Gillick BT. "Multimodal neurophysiologic and neuroanatomic assessment of brain connectivity in pediatric stroke" American Academy of Cerebral Palsy and Developmental Medicine, Cincinnati, OH, 2018. Accepted.
5. **Nemanich S**, Chen CY, Chen M, Peyton C, Rao R, Stinear J, Georgieff M, Gillick B*. "Non-invasive brain stimulation in infants at high risk for cerebral palsy: a case series". Australasian Academy of Cerebral Palsy and Developmental Medicine, Auckland, New Zealand, 2018.
6. Rich T, **Nemanich S**, Feyma T, Krach L, Chen M, Nawshin T, Friel K, Gillick B*. "Partnering with Children: Non-surgical brain stimulation and occupation-centered bimanual training in unilateral cerebral palsy". Australasian Academy of Cerebral Palsy and Developmental Medicine, Auckland, New Zealand, 2018.

7. Gillick B*, Rich T; Chen CY, **Nemanich S**, Rudser, Menk J, Ward M, Meekins G, Krach L, Feyma T. "Combined transcranial direct current stimulation and constraint-induced movement therapy intervention in children with unilateral cerebral palsy: Behavioral and neurophysiological findings from a randomized clinical trial". American Academy of Cerebral Palsy and Developmental Medicine Annual Meeting. Montreal, Quebec, Canada, 2017.
8. Rich T*, Krach L, Chen CY, **Nemanich S**, Meekins G, Ward M, Feyma T, Gillick B. "Safety and feasibility of a synergistic non-invasive brain stimulation and constraint-induced movement therapy clinical trial in children with unilateral cerebral palsy". American Academy of Cerebral Palsy and Developmental Medicine Annual Meeting. Montreal, Quebec, Canada, 2017.
9. **Nemanich ST***, Rich T, Lixandrao M, Chen CY, Meekins G, Feyma T, Ward M, Krach L, Gillick B. "Changes in hand function and motor cortex excitability in children following tDCS and CIMT therapy in children with unilateral cerebral palsy with different patterns of corticospinal organization" Poster Highlights Presentation. New York City Neuromodulation, New York, NY. 2017
10. **Nemanich ST***, Whitehead TD, Shoghi KI "PET quantification of artificial tissue bioreactor imaging". Society for Nuclear Medicine (SNM) Annual Meeting. Miami, Florida, 2012.
11. **Nemanich ST***, Sharp T, Finck B, Shoghi KI "Validating a simplified model for [¹¹C]palmitate kinetics in rodents." Society for Nuclear Medicine (SNM) Annual Meeting, San Antonio, Texas, 2011.

Poster Abstract Presentations at Professional Meetings, Conferences, etc.

*Indicates Presenting author

1. Sutter E*, Dougherty S*, Gilray E*, Helberg D*, Van Beek N*, **Nemanich ST**, Gillick BT. "Reliability of Manual Brain Lesion Segmentation and Association with Function in Individuals with Cerebral Palsy" Combined Sections Meeting of the American Physical Therapy Association, February 2020, Denver, CO
2. **Nemanich S***, Zewdie E, Kuo HC, Francis S, MacKinnon C, Meekins G, Kirton A, Gillick B. "Atypical motor evoked potentials from single-pulse transcranial magnetic stimulation in children with hemiparetic cerebral palsy." American Society of Neurorehabilitation Annual Meeting, October 17-18, 2019. Chicago, IL
3. Kowalski J,* **Nemanich S**, Nawshin T, Chen M, Peyton C, Hickey M, Rao R, Georgieff M, Gillick B. "Transcranial magnetic stimulation as a potential early diagnostic tool for infants with perinatal stroke". American Academy of Cerebral Palsy and Developmental Medicine Annual Meeting. September 19th, 2019. Anaheim, CA.
4. **Nemanich S**, Sutter E, Kowalski J, Nawshin T, Francis S, Krach L, Feyma T, Gillick B*. "Targeted applications of tDCS based on corticospinal connectivity patterns in children with hemiparesis: study protocol and preliminary results". European Academy of Childhood Disability, May 24th, 2019. Paris, France.
5. **Nemanich S***, Sutter E, Kowalski J, Nawshin T, Francis S, Krach L, Feyma T, Gillick B. "Targeted applications of tDCS based on corticospinal connectivity patterns in children with hemiparesis". Minnesota Neuromodulation Symposium, 2019.
6. Sutter EN*, **Nemanich ST**, Mueller BA, Chen M, Georgieff, Elison J, Gillick BT. "Brain Reorganization and Corticospinal Connectivity in Infancy: A Comparison of Perinatal Stroke and Typical Development" American Physical Therapy Association Combined Sections Meeting, Washington D.C., 2019.
7. Sutter EN, Dougherty S*, Gilray E*, Helberg D*, Van Beek N*, **Nemanich ST**, Mantell K, Opitz A, Gillick BT. "Computational Modeling of Non-Invasive Brain Stimulation in Children and Adolescents with Cerebral Palsy: A Case Study". American Physical Therapy Association Combined Sections Meeting, Washington D.C., 2019.
8. Mantell KE*, **Nemanich ST**, Gillick BT, Opitz A. "Identification of noninvasive neuromodulation targets for pediatric stroke rehabilitation." Society for Neuroscience Annual Meeting, San Diego, CA. 2018.
9. Kowalski JL*, **Nemanich ST**, Mueller BA, Rao R, Georgieff M, Menk J, Rudser K, Gillick BT. "Understanding Longitudinal Brain Reorganization in Infants After Perinatal Stroke". American Academy of Cerebral Palsy and Developmental Medicine Annual Meeting. Cincinnati, OH. 2018.

10. **Nemanich ST**, Kowalski JL*, Chen M, Zorn E, Georgieff M, Gillick BT. "Longitudinal assessment of cortical excitability in an infant with perinatal brain injury". North American Neuromodulation Society, New York, NY. 2018
11. Kowalski JL*, **Nemanich ST**, Rao R, Georgieff M, Zorn E, Menk J, Rudser K, Gillick BT. "Recruitment Challenges in Infant Stroke and Non-Invasive Brain Stimulation Research: Demographics and Factors". North American Neuromodulation Society, New York, NY. 2018.
12. Mantell K*, **Nemanich ST**, Sutter E, Gillick BT, Opitz A. "Pipeline Verification for the Identification of Noninvasive Neuromodulation Targets for Pediatric Stroke Rehabilitation". North American Neuromodulation Society, New York, NY. 2018.
13. **Nemanich ST***, Rich TL, Gillick BT. "Bimanual skill acquisition during combined bimanual training and transcranial direct current stimulation in pediatric unilateral cerebral palsy". Carolina Neurostimulation Conference, 2018. Chapel Hill, NC.
14. Nawshin T*, Rich TL, **Nemanich ST**, Gillick BT. "Effect of transcranial direct current stimulation on cortical excitability among children with distinct sub-types of unilateral cerebral palsy". Minnesota Neuromodulation Symposium, 2018. Minneapolis, MN
15. Kowalski JL*, **Nemanich ST**, Rao R, Georgieff MK, Menk J, Rudser K, Gillick BT. "Recruitment Challenges in Infant Stroke and Non-Invasive Brain Stimulation Research: Demographics and Factors" Minnesota Neuromodulation Symposium, 2018. Minneapolis, MN
16. Kowalski JL*, **Nemanich ST**, Georgieff MK, Gillick BT. "Understanding longitudinal brain reorganization after perinatal stroke. Mayo Young Investigators Research Symposium. 2018, Rochester, MN.
17. Sutter E*, Rich T, **Nemanich ST**, Chen M, Gillick B. "Reliability of visual and graphical methods for measurement of the cortical silent period in cerebral palsy". Mayo Young Investigators Research Symposium. 2018, Rochester, MN.
18. Nawshin T*, **Nemanich ST**, Kowalski J, Sutter E, Dubinsky J, Behan M, Rich T, Gillick B. "Factors influencing parents and caregivers decisions to enroll children in pediatric neuromodulation research that is perceived to be high-risk". Mayo Young Investigators Research Symposium. 2018, Rochester, MN.
19. **Nemanich ST***, Chen CY, Chen M, Peyton P, Rao R, Stinear J, Georgieff MK, Gillick BT. "Non-invasive brain stimulation in infants at high risk for cerebral palsy: a case series". Mayo Young Investigators Research Symposium. 2018, Rochester, MN.
20. **Nemanich ST***, Mueller BA, Rich TL, Chen C-Y, Gillick BT "Corticospinal Tract Integrity and Motor Function in Children with Unilateral Cerebral Palsy Following a Transcranial Direct Current Stimulation and Motor Training Intervention". American Society for Neurorehabilitation, 2017 Baltimore, MD.
21. **Nemanich S***, Rich T, Chen CY, Lixandrao M, Meekins G, Feyma T, Ward M, Krach L, Gillick B. "Changes in cortical excitability following a combined transcranial direct current stimulation and rehabilitation intervention in children with unilateral cerebral palsy." Minnesota Neuromodulation Symposium 2017. Minneapolis, MN.
22. **Nemanich S***, Rich T, Lixandrao M, Chen CY, Meekins G, Feyma T, Ward M, Krach L, Gillick B. "Changes in hand function and motor cortex excitability in children following tDCS and CIMT therapy in children with unilateral cerebral palsy with different patterns of corticospinal organization" New York City Neuromodulation, 2017. New York, NY.
23. **Nemanich ST*** and Earhart GM. "Oculomotor Dysfunction in Parkinson's Disease and Freezing of Gait." Association for Clinical and Translational Science Meeting, 2016. Washington, D.C.
24. **Nemanich ST*** and Earhart GM. "Prism adaptation during reaching and walking: effects of task and aging on adaptation rate and after-effects." Neural Control of Movement Annual Meeting, 2015. Charleston, SC.
25. **Nemanich ST*** and Earhart GM. "After effects following stepping on a rotating treadmill in people with Parkinson disease and freezing of gait." Association for Clinical and Translational Science Meeting, 2015. Washington, D.C.
26. **Nemanich ST*** and Earhart GM. "Differences between two prism adaptation tasks in people with Parkinson disease with and without freezing of gait." Society for Neuroscience Annual Meeting, 2014. Washington, D.C.
27. **Nemanich ST*** and Earhart GM. "Gaze Behavior During Natural Viewing of Human Locomotion". Gordon Research Conference: Eye Movements (2013). Easton, MA.

28. **Nemanich ST***, Duncan RP, Cavanaugh JT, Dibble LE, Ellis TD, Ford MP, Foreman KB, Earhart GM. "Predictors of walking speeds and differences between preferred and fast as possible walking speeds in peoples with Parkinson's disease. International Congress of Parkinson's Disease and Movement Disorders; Sydney, Australia; June 16-21, 2013. *Mov Disord.* 28, Suppl 1, 2013, p. S320
29. Devanathan S*, **Nemanich ST**, Fettig N, Shoghi KI. "Alterations in fatty acid metabolism in muscle, liver and heart of non-obese diabetic rats". Society for Nuclear Medicine Annual Meeting; St. Louis, MO; June 7-11, 2014 *J NUCL MED MEETING ABSTRACTS.* 2014; 55 (Supplement 1): 1696.
30. Whitehead T*, Schweitzer G, Rani S, Devanathan S, Fettig N, **Nemanich S**, Finck B, Shoghi K. "Early-stage deficiencies in insulin signaling in an animal model of non-obese type 2 diabetes (T2DM)". Society for Nuclear Medicine Annual Meeting; St. Louis, MO; June 7-11, 2014. *J NUCL MED MEETING ABSTRACTS* 2014; 55(Supplement 1): 1707.
31. Whitehead TD, **Nemanich ST**, Rani SD, Dence C, Fettig N and Shoghi KI*. "A PET compatible tumor bioreactor (TBR) for imaging research". Society for Nuclear Medicine Annual Meeting; Vancouver, Canada; June 8-12, 2013. *J Nucl Med.* 2013; 54 (Supplement 2): 1132.
32. Rani SD*, **Nemanich ST** and Shoghi KI. "Efficacy of PPAR γ therapy on glucose and fatty acid metabolism in muscle, brown adipose tissue, heart, and liver of obese type 2 diabetic rats". Society for Nuclear Medicine Annual Meeting; Vancouver, Canada; June 8-12, 2013 *J Nucl Med.* 2013; 54 (Supplement 2): 1123.
33. **Nemanich ST***, Whitehead TD, Shoghi KI. "PET quantification of artificial tissue bioreactor imaging". Society for Nuclear Medicine Annual Meeting; Miami, Florida, June 9-13, 2012. *J Nucl Med.* 2012; 53(Supplement 1):613.
34. **Nemanich ST**, Rani SD, Shoghi KI*. "Multi-Tissue Metabolic Imaging of Glucose and Fatty Acid Metabolism in an Animal Model of Type-2 Diabetes Mellitus". *Mol Imaging Bio.* Proceedings of the 2012 World Molecular Imaging Congress, 2012. Dublin, Ireland. September 5-8, 2012. S1521.
35. **Nemanich ST***, Sharp T, Finck B, Shoghi KI. "Validating a simplified model for [¹¹C]palmitate kinetics in rodents". Society for Nuclear Medicine Annual Meeting; San Antonio, TX; June 4-8, 2011. *J Nucl Med.* 2011; 52(Supplement 1):256.
36. **Nemanich ST***, Sharp T, Fettig N, Gropler R and Shoghi KI. "Longitudinal evaluation of myocardial substrate metabolism in Goto-Kakizaki (GK) rats as an animal model of type 2 diabetes mellitus (T2DM). Society for Nuclear Medicine Annual Meeting; San Antonio, TX; June 4-8, 2011. *J Nucl Med.* 2011; 52(Supplement 1):1092.
37. Whitehead TD, **Nemanich ST**, Shoghi KI*. "Artificial Tissue Bioreactor for PET Imaging Studies. World Molecular Imaging Congress, 2011. San Diego, CA.
38. Fettig N, Rani SD, Roth AJ, Morris M, Strong L, Stroncek A, **Nemanich ST**, Shoghi KI*. "Differences in arterial and portal-vein (PV) blood profile in metabolic imaging of the liver". World Molecular Imaging Congress, 2011. San Diego, CA.
39. **Nemanich ST**, Su Y, Shoghi KI*. "Polar-map quantification of small animal PET images". World Molecular Imaging Congress, 2011. San Diego, CA.

Teaching

Marquette University

OCTH7500: Evidence-based Practice: Professional Reasoning and Inquiry (2.0 credits, Fall 2020)

Role: Course Instructor

Department of Occupational Therapy

University of Minnesota

RSC5200: Introduction to Neuromodulation (3.0 credits, Fall 2018, 10 students)

Role: Course Instructor

Division of Rehabilitation Science

PT6282: Scientific Foundations II: Neuromotor Control (3.0 credits, Spring 2018, 2019; avg. 51 students)

Role: Course Instructor

Division of Physical Therapy

PT6288: Pediatric Rehabilitation (Summer 2017, 51 students)

Role: Guest Lecturer

Division of Physical Therapy

PT1002: Orientation to Physical Therapy (Fall 2017, Spring 2018, avg. 35 students)

Role: Guest Lecturer

College of Biological Sciences

Washington University in St. Louis

PT605: Neuroscience (Fall 2014/2015, avg 82 students.)

Role: Teaching Assistant/Lecturer

Program in Physical Therapy

IPMS 5610: Biocontrol Mechanisms (Fall 2015, 8 students)

Role: Guest Lecturer

Movement Science Program

Illinois Institute of Technology

BME 100: Introduction to Profession (Fall 2009, 32 students) and BME 200: MATLAB

Programming for Biomedical Engineers (Spring 2010, 26 students)

Role: Teaching Assistant

Department of Biomedical Engineering

Curriculum Development

OCTH7500: Evidence-based Practice: Professional Reasoning and Inquiry

Full course design for new OTD program

PT6282: Scientific Foundations II: Neuromotor Control

Developed final didactic project, Spring 2018

RSC5200: Introduction to Neuromodulation,

Course re-structuring and development, Fall 2018

Advising and Mentoring

Faculty Advisor, Department of Occupational Therapy

Class of 2023: Monali Adhikari, Amandeep Kaur, Madisen Kobus, Connor O'Keefe, Hailey Witthun, Alexandra Woytych

Mentoring Activities

Doctor of Physical Therapy Research Group (PT8193: Research Problems)

Post-doctoral preceptor

Class of 2020: Sarah Dougherty, Emily Gilray, Darion Helberg, Nicole Van Beek, Ellen Sutter

Class of 2021: Crystal Jiang, Keri Rogan, Anthony Rikberg

Service and Outreach

Current Membership and Offices in Professional Organizations

American Society of Neurorehabilitation	2017-Present
American Occupational Therapy Association	2020-Present

Editorships/Journal Reviewer Experience

Ad-Hoc Reviewer (number of reviews)

1. Experimental Brain Research, 2020 (1)
2. Disability and Rehabilitation, 2019 (1), 2020 (1)
3. European Journal of Cancer Care, 2019 (1)
4. Developmental Neurobiology, 2019 (1)
5. Parkinsonism and Related Disorders, 2019 (1)
6. Journal of Motor Behavior, 2017-2019 (3)
7. Journal of Pediatric Rehabilitation Medicine, 2018 (1), 2020 (1)
8. Journal of Neuroscience Methods, 2018 (1)
9. Gait and Posture, 2017 (1)
10. PLOS One, 2017 (1), 2018 (2)
11. Journal of Neurology, Neurosurgery, and Psychiatry, 2016 (1)
12. Neuromodulation: Technology at the Neural Interface, 2016 (1)
13. Physiotherapy Theory and Practice, 2017 (1)
14. Journal of Neurophysiology, 2020 (1)
15. Brain Structure and Function, 2020 (1)
16. Brain Connectivity, 2020 (1)

Service to the University/Department

University of Minnesota (post-doc)

Department/Unit Service

1. Member of Center for Neurobehavioral Development, University of Minnesota, 2017-present
2. Speaker/presenter at University of Minnesota Program in Physical Therapy 75th anniversary event, September 17th, 2016

University-wide Service

1. President, UMN Postdoctoral Association, July 2019-June 2020
2. Steering Committee member, UMN Postdoctoral Association, November 2018-June 2020
3. Graduate School U-wide Writing Initiative Advisory Committee member, 2019-June 2020

Community Outreach Activities

1. Minnesota State Fair, Research Study. "Would you take a ride on the giant 'brain research' slide?" August 23rd, 2018.
2. Master of Ceremonies, Minnesota State Brain Bee, February 7th, 2018
3. Speaker, MnDRIVE Brain Conditions Booth, Minnesota State Fair, September 3rd, 2017
4. Judge, Minnesota State Brain Bee, February 8th, 2017

Washington University in St. Louis (graduate student)

University-wide Service

1. Graduate Research Symposium judge. February 23, 2016.
2. Student representative to the Graduate School Council. September 2015-April 2016
3. Student representative to the Graduate Student Senates. September 2013-April 2014

Community Outreach Activities

1. Speaker, St. Louis chapter of American Parkinson's Disease Association support group
February 19th, 2013, January 20th, 2015
2. Judge, Saint Louis City Science Fair, April 24th, 2013