

# CURRICULUM VITAE

## Phillip Carl Desrochers

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### EDUCATION

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Aug 2015 – October 2019	<b>DOCTOR OF PHILOSOPHY</b> <i>Kinesiology - Cognitive and Motor Neuroscience</i> Michigan State University East Lansing, MI  <b>Dissertation:</b> Desrochers, P.C. (2019). Bimanual Interference and Neuromotor Control in Healthy Individuals and Those with Cervical Dystonia. Ph.D. Michigan State University.
Sept 2008 - Dec 2012	<b>BACHELOR OF SCIENCE</b> <i>Psychology</i> University of Massachusetts Amherst Amherst, MA

### EMPLOYMENT

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Sept 2019 – Present	<b>POST-DOCTORAL FELLOW</b> Sargent College of Health and Rehabilitation Sciences Boston University Boston, MA PI: Dr. Simone Gill, Ph.D., OTR
Aug 2015 – Aug 2019	<b>GRADUATE TEACHING ASSISTANT</b> Department of Kinesiology PI: Dr. Florian Kagerer, PhD Michigan State University East Lansing, MI
Jan 2013 - Jul 2015	<b>LAB MANAGER</b> Cognition and Action Laboratory PI: Dr. Rebecca Spencer, PhD University of Massachusetts Amherst Amherst, MA
May 2011 - Dec 2012	<b>LAB MANAGER</b> Learning Laboratory PI: Dr. Jennifer McDermott, PhD University of Massachusetts Amherst Amherst, MA

### RESEARCH EXPERIENCE

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Aug 2010 - May 2011	<b>RESEARCH ASSISTANT</b> UMass Eyetracking Laboratory PI: Dr. Adrian Staub, PhD University of Massachusetts Amherst Amherst, MA
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### FELLOWSHIPS AND AWARDS

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**Clinical & Translational Science Institute Mini-Sabbatical Award (\$4,460)** – March 2020, *Boston University*

**Research Enhancement Award (\$1,200)** – August 2019, *Michigan State University*, Graduate School

**Summer Research Fellowship (\$6,000)**– April 2018, *Michigan State University*, Dept. of Kinesiology

**Dykstra Family Research Endowment in Education Fellowship (\$5,000)** – March 2017, *Michigan State University*, College of Education

**Summer Research Support Fellowship (\$2,500; runner up)** - April 2016, *Michigan State University*, Dept. of Kinesiology

**Kinesiology Practicum Support Fellowship (\$2,915)** – March 2016, *Michigan State University*, Dept. of Kinesiology

### PUBLICATIONS

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**Desrochers, P.C.**, Kim, D., Keegan, L., Gill, S.V. (in press). Association between the Functional Gait Assessment and spatiotemporal gait parameters in individuals with obesity compared to normal weight controls: A proof-of-concept study. *Journal of Musculoskeletal and Neuronal Interactions*.

Kim, D., **Desrochers, P.C.**, Lewis, C.C., Gill, S.V. (in press). Effects of obesity on walking adaptation. *Applied Sciences*.

**Desrochers, P.C.**, Brunfeldt, A., Sidiropoulos, C., & Kagerer, F. (2019). Sensorimotor Control in Dystonia. *Brain Sciences*, 9(4), 79. <https://doi.org/10.3390/brainsci9040079>

**Desrochers, P. C.**, Brunfeldt, A. T., & Kagerer, F. A. (2020). Neurophysiological Correlates of Adaptation and Interference during Asymmetrical Bimanual Movements. *Neuroscience*, 432, 30–43. <https://doi.org/10.1016/j.neuroscience.2020.01.044>

Cremone, A., Jong, D. M. de, Kurdziel, L. B. F., **Desrochers, P.C.**, Sayer, A., LeBourgeois, M. K., Spencer, R. M. C., & McDermott, J. M. (2018). Sleep Tight, Act Right: Negative Affect, Sleep and Behavior Problems During Early Childhood. *Child Development*, 89(2), e42–e59. <https://doi.org/10.1111/cdev.12717>

de Jong, D., M, D., Cremone, A., Kurdziel, L. B. F., **Desrochers, P.C.**, LeBourgeois, M. K., Sayer, A., Ertel, K., & Spencer, R. M. C. (2016). Maternal Depressive Symptoms and Household Income in Relation to Sleep in Early Childhood. *Journal of Pediatric Psychology*, 41(9), 961–970. <https://doi.org/10.1093/jpepsy/jsw006>

Spencer, R. M. C., Campanella, C., de Jong, D. M., **Desrochers, P.C.**, Root, H., Cremone, A., & Kurdziel, L. B. F. (2016). Sleep and behavior of preschool children under typical and nap-promoted conditions. *Sleep Health*, 2(1), 35–41. <https://doi.org/10.1016/j.sleh.2015.12.009>

**Desrochers, P. C.**, Kurdziel, L. B. F., & Spencer, R. M. C. (2015). Delayed benefit of naps on motor learning in preschool children. *Experimental Brain Research*, 234, 763–772. <https://doi.org/10.1007/s00221-015-4506-3>

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### PUBLICATIONS UNDER REVIEW

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**Desrochers, P.C.**, Brunfeldt, A.T., Kagerer, F.A., (revise and resubmit). Visuomotor information drives interference between the hands more than dynamic motor information during bimanual reaching. *European Journal of Neuroscience*.

Brunfeldt, A.T., **Desrochers, P.C.**, Kagerer, F.A. (revise and resubmit). Interference during asymmetrical bimanual movements increases when reaching against resistance. *Neuroscience*.

**Desrochers, P.C.**, Gill, S.V. (under review). Temporal accuracy of gait across multiple levels of practice. *Human Movement Science*.

Gill, S.V., Shin D., Ayoub M., Keegan, L., **Desrochers, P.C.**, Helfrich, C.A. (under review). Pivoting in context: Using the FAIRR model to collaborate during COVID-19. *American Journal of Occupational Therapy*

### PUBLICATIONS IN PREPARATION

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Shin, D., Keegan, L., **Desrochers, P.C.**, Gill, S.V. (in prep). Employing Therapeutic Use of Self in Recruitment and Retention in Rehabilitation Research. *American Journal of Occupational Therapy*.

**Desrochers, P.C.**, Park, C., Mishra R.K., Gill, S.V., Najafi, B. (in prep). Wearable sensor technology and applications in obesity: a review.

**Desrochers, P.C.**, Brunfeldt, A.T., Kagerer, F.A. (in prep). Manipulation of reference frames in a dynamic perturbation and its effect on interference between the hands.

**Desrochers, P.C.**, Brunfeldt, A.T., Kagerer, F.A. (in prep). Bimanual interference and underlying brain dynamics in cervical dystonia.

Torgimson, S.J., **Desrochers, P.C.**, McDermott, J.M. (in prep). Neural correlates of executive function in young children: Differences in alpha modulation as a function of task demands.

### RESEARCH TALKS

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**Desrochers, P.C.** (2019). *Bimanual interference and neuromotor control in healthy individuals and those with cervical dystonia*. Dissertation presented to Department of Kinesiology, East Lansing, MI.

**Desrochers, P.C.** (2019). *Neuromotor control and interference during asymmetrical bimanual movements in healthy and impaired individuals*. Dissertation proposal presented to Department of Kinesiology, East Lansing, MI.

**Desrochers, P.C.** (2016). *Electrophysiological correlates of interference during discrete bimanual coordination*. Research talk presented at MSU Kinesiology departmental practicum meeting, East Lansing, MI.

**Desrochers, P.C.** (2015). *Delayed benefit of naps on motor learning in preschool children*. Research talk presented at the New England Sequencing and Timing Annual Meeting, Amherst, MA.

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### POSTER PRESENTATIONS

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- Desrochers, P.C.**, Keegan, L., Kim, D., Shin, D., Ayoub, M., Gill., S.V. (2020). Association between the Functional Gait Assessment and spatiotemporal gait parameters in individuals with obesity compared to normal weight controls. *Video presentation for the 2020 North American Society for the Psychology of Sport and Physical Activity Virtual Conference.*
- Desrochers, P.C.**, Brunfeldt, A.T., Irwin, K.G., Kagerer, F.A. (2019). Concurrent visuomotor and dynamic perturbations of one hand and contralateral interference in a bimanual task. Poster presented at the Neural Control of Movement Annual Meeting, Toyama, Japan.
- Desrochers, P.C.**, Brunfeldt, A.T., Irwin, K.G., Kagerer, F.A. (2018). Simultaneous visuomotor and kinetic perturbations of one hand and their effects in a bimanual interference task. Poster presented at the Society for Neuroscience Annual Meeting, San Diego, CA.
- Desrochers, P.C.**, Brunfeldt, A.T., Kagerer, F.A. (2018). Quantitative assessment of sensorimotor control in humans with GNAO1 gene mutations: a case study. Poster presented at the Progress in Clinical Motor Control I: Rehabilitation meeting, State College, PA.
- Brunfeldt, A.T., **Desrochers, P.C.**, Haughn, A., Kagerer, F.A. (2018). Effects of symbolic and direct cuing on interference in a bimanual reaching task. Poster presented at the Society for Neuroscience Annual Meeting, San Diego, CA.
- Brunfeldt, A.T., **Desrochers, P.C.**, Kagerer, F.A. (2018). The contribution of motor adaptation on interference in asymmetrical hand movements. Poster presented at Progress in Clinical Motor Control I: Rehabilitation, State College, PA.
- Kagerer, F.A., Brunfeldt, A.T., **Desrochers, P.C.** (2018). Deep brain stimulation in a patient with dystonia modulates spatiotemporal control within hands, but not between hands: a case study. Poster presented at the Neural Control of Movement Annual Conference, Santa Fe, NM.
- Desrochers, P.C.**, Brunfeldt, A.T., Kagerer, F.A. (2017). Interactions between hands after force field perturbation of one hand. Poster presented at the Society for Neuroscience Annual Meeting, Washington, D.C.
- Brunfeldt, A.T., **Desrochers, P.C.**, Kagerer, F.A. (2017). Bimanual task dynamics affect spatial but not temporal movement characteristics. Poster presented at the Society for Neuroscience Annual Meeting, Washington, D.C.
- Desrochers, P.C.**, Brunfeldt, A.T., Kagerer, F.A. (2016). Electrophysiological correlates of interference during discrete bimanual coordination. Poster presented at the Society for Neuroscience Annual Meeting, San Diego, CA.
- Brunfeldt, A.T., **Desrochers, P.C.**, Kagerer, F.A. (2015). Interference in a bimanual task is not reflected in intercortical inhibition. Poster presented at the Society for Neuroscience Annual Meeting, Chicago, IL.

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### POSTER PRESENTATIONS (CONTINUED)

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**Desrochers, P.C.**, Cremone, A.M., Peterson, B., Spencer, R.M.C. (2015). Novel actigraphic measures demonstrate greater sleep disturbances in young children with symptoms of ADHD. Poster presented at American Association of Sleep Meeting, Seattle, WA.

**Desrochers, P.C.**, Kurdziel, L., Spencer, R. (2015). Benefits of naps on procedural memories in preschool children are evident after overnight sleep. Poster presented at Society for Research on Child Development Biennial Meeting, Philadelphia, PA.

McDermott, J., Torgirson, S.J., Anzuoni, K., **Desrochers, P.C.** (2014). Alpha suppression and action monitoring in young children. Poster presented at the Cognitive Neuroscience Society annual meeting, Boston, MA

**Desrochers, P.C.**, Lugo, W., Kurdziel, L., Ertel, K., Alhassan, S., Spencer, R. (2013). The relationship between sleep and daytime activity in preschool children. Poster presented at the International Conference on Ambulatory Monitoring of Physical Activity and Movement, Amherst, MA.

Lugo, W, **Desrochers, P.C.**, Kurdziel L., Spencer, R. (2013). The relationship between sleep and behavior in preschool children. Poster presented at the annual UMass Amherst Postbaccalaureate Research Education Program Meeting, Amherst, MA.

### MANUSCRIPT REVIEWER

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*Neuroscience*

*Journal of Neurophysiology*

*Plos One*

### PROFESSIONAL SOCIETIES

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North American Society for the Psychology of Sport and Physical Activity: 2020-Present  
Society for the Neural Control of Movement: 2018-Present  
Movement Disorders Society: 2018-Present

Society for Neuroscience: 2016-Present  
Cognitive Neuroscience Society: 2014-2015  
American College of Sleep Medicine: 2014-2016  
Sleep Research Society: 2014-2016

### TEACHING EXPERIENCE

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#### Lecturer

##### Michigan State University

Fall 2018 – Spring 2019: Biomechanics of Physical Activity (KIN 330)

Spring 2018: Measurement in Kinesiology (KIN 250)

Summer 2017: Measurement in Kinesiology (Online; KIN 250)

Spring 2016, Spring 2017: The Healthy Lifestyle (KIN 121)

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### Lab Instructor

#### Michigan State University

Fall 2016 – Spring 2019: Principles of Human Movement (Course designer; KIN 251)

Fall 2016: Foundations of Kinesiology (KIN 173)

### Graduate Student Advising and Mentoring

#### Boston University

Daekyoo Kim – Doctor of Philosophy (2020): *“Gait Stability and Adaptation in Young Adults with Different BMI Classifications”*

Danny Shin – Doctor of Philosophy (not yet defended): *“Context dependent interactions between gait, balance, and self-efficacy in people living with chronic conditions”*

#### Michigan State University

David Ptashnik – Master of Science (2019): *“Co-Contractile Differences During Adaptation to Abrupt and Gradual Dynamic Perturbations”*

### Honors Thesis/Undergraduate Student Advising and Mentoring

#### Michigan State University

- Kayley Irwin: Spring 2019, “Visuomotor perturbation plays a greater role than dynamic perturbation during a bimanual interference task”  
Spring 2018, “Does simultaneous visuomotor and force perturbation affect interference in bimanual movements?”
- Bradley Miller: Spring 2019, “Effects of a bimanual interference task on EEG brain dynamics”  
Spring 2018, “Coherence between brain regions in a bimanual interference task”  
Spring 2016, “Joystick kinematics influence interference between the hands during bimanual movements”
- Lexi Janson: Spring 2019, “Interference resulting from the manipulation of reference frames in a reaching task”  
Spring 2018, “Motor learning in visuomotor adaptation tasks across the lifespan”
- Jennifer Brand: Spring 2018, “Motor assessment of GNAO1 mutation in humans”  
Spring 2017, “Movement related cortical potentials during a bimanual coordination task”
- Kate Cavataio: Spring 2018, “How deep brain stimulation affects deterioration and recovery of motor performance in dystonia: A case study
- Julia Porter: Spring 2016, “Joystick kinematics influence interference between the hands during bimanual movements”

#### University of Massachusetts Amherst

Sean O'Connor: Spring 2015, “Sleep-Related Changes in Delay Discounting”

### SERVICE

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2018-2019	Faculty Advisory Committee – MSU Kinesiology Graduate Student Organization
2016-2018	Teaching Committee Chair - MSU Kinesiology Graduate Student Organization
2013	Volunteer - International Conference on Ambulatory Monitoring for Physical Activity and Movement

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### REFERENCES

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- Dr. Simone Gill, Ph.D., OTR      Associate Professor  
Sargent College of Health and Rehabilitation Sciences  
Boston University  
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- Dr. Florian Kagerer, Ph.D.      Associate Professor  
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Michigan State University  
fkagerer@msu.edu
- Dr. Rajiv Ranganathan, Ph.D.      Associate Professor  
Department of Kinesiology  
Michigan State University  
rrangana@msu.edu
- Dr. Christos Sidiropoulos, M.D.      Physician, Associate Professor  
Department of Neurology and Ophthalmology  
Michigan State University  
Christos.Sidiropoulos@hc.msu.edu
- Dr. Rebecca Spencer, Ph.D.      Professor  
Department of Psychological and Brain Sciences  
University of Massachusetts Amherst  
rspencer@psych.umass.edu