

# Matthew James Slopecki

Ph.D. Candidate / Research Assistant



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A self-driven individual (shown through management of multiple professional and academic projects) who thrives working as part of a larger, multi-disciplinary team in a fast-paced environment, reflected through work and research in elite sports science.



## Skills

Isokinetic Dynamometers (Cybex, Biodex)

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Excellent

3D motion capture systems (**VICON**, Cortex)

■ ■ ■ ■ ■  
Excellent

Force plates (**AMTI**, Kistler, PASCO)

■ ■ ■ ■ ■  
Excellent

Inertial measurement units (**Xsens Dot**, Xsens MVN, Physiolog)

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Excellent

Electromyography (surface and intramuscular) systems (**Delsys Trigno**)

■ ■ ■ ■ ■  
Excellent

**Scholarship & grant application writing**

■ ■ ■ ■ ■  
Excellent

**Management of academic funds**

■ ■ ■ ■ ■  
Excellent



## Software

**Python** (PyCharm, Anaconda, Matplotlib, GUI, device I/O)

■ ■ ■ ■ ■  
Excellent

**MATLAB**

■ ■ ■ ■ ■  
Excellent

Statistical Software (**R Studio**, IBM SPSS)

■ ■ ■ ■ ■  
Excellent

Office Suites (Microsoft, Google, Apple)

■ ■ ■ ■ ■  
Excellent

Motion Capture (**VICON Nexus**, Cortex, Biomechzoo)

■ ■ ■ ■ ■  
Excellent

**Data Visualization** (MATLAB, R, Matplotlib, Seaborn)

■ ■ ■ ■ ■  
Excellent

**Machine Learning** (Keras, Tensorflow)

■ ■ ■ ■ ■  
Good

Database (**SQL**, MySQL)

■ ■ ■ ■ ■  
Good



## Work History

2020-10 - Current

### Research Assistant

*Institut national du sport du Québec, Montréal, Quebec*

- Converting software from MATLAB to Python.
- Data science/programming role to innovate in-house MATLAB application for athlete testing (improving UI and code integration with databases)
- Developed performance testing application **utilized by Team Canada** (Short-Track Speed Skating, Water Polo and numerous other athletes).
- Implemented **version control** using GitHub.

2020-01 - Current

### Teaching Assistant

*McGill University, Montréal, Canada*

- **Lecturing, grading, and administration** of EDKP 444 – Ergonomics (Fall 2020); EDKP 208 – Biomechanics and Motor Control (Winter 2020).
- Recorded grades for coursework and tests in online reporting system.

2019-11 - 2020-08

### Research Assistant

*Institut national du sport du Québec, Montréal, Quebec*

- Aided PI with **IMU data collection** for national team water polo athletes.
- **Data processing** for water polo machine learning project.

2020-01 - 2020-04

### Grader

*McGill University, Montréal, Canada*

- **Grading assignments** for EDKP 433 – Research Methods

2017-07 - 2018-06

### Biomechanics Intern

*Sports Surgery Clinic, Dublin, Ireland*

- 1-year Biomechanics internship in a **3D motion capture lab** focused on ACL, Groin and Shoulder rehabilitation, performance testing and research
- Tested patients, ranging from **amateur to world-class athletes**
- Experience: 350+ hours of experience using a 12-camera (**VICON**) 3d optical motion capture lab with AMTI force plates
- Extensive experience performing a range of isokinetic dynamometry tests; including knee, ankle, and shoulder movements

- Developed proficiency in processing data in VICON Nexus and MATLAB, developing novel, custom-written codes when necessary for academic research use



## Education

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2020-09 - Current

### Ph.D.: Kinesiology Sciences

McGill University - Montreal, QC

- Received **Mitacs accelerate doctoral fellowship** 2022 - 25 (funded by Swimming Canada).
- Received **Fonds de Recherche du Québec (Santé) doctoral training scholarship** 2022 - 26.
- Awarded international fee waiver (merit based) 2021 - 22.
- Elected to Vice President of Communication for Kinesiology and Physical Education Graduate students association in 2020 - 21.
- Elected to Vice President of Academics for Kinesiology and Physical Education Graduate students association in 2021 - 22.

2019-09 - 2020-08

### Master of Science: Biomechanics And Neuroscience

McGill University - Montreal, QC

- **Fast-tracked in Kinesiology Sciences Ph.D.** program after first year of M.Sc.

2015-09 - 2019-08

### Bachelor of Science (Honours): Sports, Health And Exercise Sciences

Brunel University London - London, UK

- **Specialization in Human Performance.**
- Completed **1-year internship in Biomechanics** at the Sports Surgery Clinic.



## Publications

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**Slopecki, M.**, Hasanbarani, F., Yang, C., Bailey, C., Côté, J. N. (Accepted). Uncontrolled manifold analysis of the effects of different fatigue locations on kinematic coordination during a repetitive upper-limb task. *Accepted for publication in Motor Control*.

Bailey, C., Hasanbarani, F., **Slopecki, M.**, Yang, C., Côté, J. N. (In Revision). Uncontrolled manifold analysis of sex and age effects during a fatiguing, repetitive upper-limb task. *In revision with Journal of Motor Behavior*.

Hasanbarani, F., Yang, C., Bailey, C. A., **Slopecki, M.**, & Cote, J. N. (2021). Sex-specific effects of a repetitive fatiguing task on stability: Analysis with Motor Equivalence model. *Journal of Biomechanics*, 110769. <https://doi.org/https://doi.org/10.1016/j.jbiomech.2021.11076>

**Slopecki, M.,** Messing, K., & Côté, J. N. (2020). Is sex a proxy for mechanical variables during an upper limb repetitive movement task? An investigation of the effects of sex and of anthropometric load on muscle fatigue. *Biology of sex differences*, 11(1). <https://doi.org/10.1186/s13293-020-00336-1>



## Publications (In Progress)

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**Slopecki, M.,** Fanning, C., Daniels, K., (In Progress). Biomechanical upper-extremity joint position sense tests in collision and contact athletes. No journal/anticipated submission date currently.



## Conference and Symposium Oral Presentations

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**Slopecki, M.** (2022) *The effect of different fatigue locations on repetitive pointing task performance: What novel information can we gain from uncontrolled manifold analyses?* Oral presentation (15 minutes) at the International Society of Electrophysiology and Kinesiology 2022 Congress, Quebec City, Canada.

**Slopecki, M.,** Hasanbarani, F., Bailey, C., Yang, C., Côté, J. N. (2021). *Uncontrolled manifold analysis of effects of different fatigue locations on coordination during a repetitive pointing task.* Oral presentation (10 minutes) at the 12th Symposium on Motor Control at the 28th Congress of the International Society of Biomechanics, Stockholm, Sweden (Online).

Bailey, C., Hasanbarani, F., **Slopecki, M.,** Yang, C., Côté, J. N. (2021). *Size and structure of joint angle variability in young and old adults performing a fatiguing repetitive reaching task.* Oral presentation at 28th Congress of the International Society of Biomechanics, Stockholm, Sweden (Online).

**Slopecki, M.** (2021). *Motor Variability of the Shoulder: Advanced Metrics.* Oral presentation (10 minutes) at the 1st Virtual Symposium on Upper Limb Fatigue. Montreal, Canada (Online).



## Conference Poster Presentations

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Hasanbarani, F., Yang, C., Bailey, C., **Slopecki, M.,** Côté, J. N. (2021). *Sex differences and fatiguing movement effects on task-specific stability.* Poster presented at 28th Congress of the International Society of Biomechanics, Stockholm, Sweden (Online).

**Slopecki, M.,** Côté, J. N. (2021). *Conventional measures overestimate sex differences in kinematics during fatiguing upper-limb repetitive pointing.* Poster presented at 21st Biennial Meeting of Canadian Society of Biomechanics, Montreal, Canada (Online).  
<http://dx.doi.org/10.13140/RG.2.2.29974.27204>

**Slopecki, M.,** Côté, J. N. (2020). *Interaction effect of anthropometric load and sex on the progression of fatigue during an upper limb repetitive movement task.* Poster accepted for presentation to 11th Annual International Conference of Applied Human Factors and Ergonomics (Online), San Diego, USA.

**Slopecki, M.,** Daniels, K., Fanning, E., Falvey, E. (2018, September). *The role of torque in shoulder joint position sense*. Poster presented at Royal College of Surgeons Ireland – Return to Play: The Shoulder, Dublin, Ireland. <http://dx.doi.org/10.13140/RG.2.2.20175.82083>



## Other Presentations

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- Prospective Student Webinar (McGill University – Department of Kinesiology and Physical Education) (11/2021)
- Student Perspectives Panel (McGill University - Research Methods EDKP 605) (11/2021)
- Continuous Relative Phase: Introductory Lecture (Brunel University London - Biomechanics of Human Movement SP2801) (11/2021)
- Biomechanics in Ergonomics Lecture (McGill University - Ergonomics EDKP 444) (11/2020)
- Linear and Angular Kinematics (McGill University – Motor Control EDKP 208) (11/2020)
- Center for Interdisciplinary Research in Rehabilitation – Talking Research series: “Is sex a proxy for anthropometric variables during fatiguing, upper-limb repetitive movement: What researchers and clinicians should know” (10/2020)



## Accomplishments

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### Academic Funding

#### Fellowships and Scholarships:

- Mitacs Accelerate Doctoral Fellowship – 2022-2025
- Fonds de Recherche Québec (Santé) – Doctoral Training Scholarship 2022-2026
- Canadian Institutes of Health Research (CIHR) Team for Gender Considerations in Knowledge Transfer Interventions – Scholarship For Knowledge Sharing 2020

#### Awards:

- MSK Network Conference Travel Award 2022
- CSB Conference Travel Award 2022
- McGill University GREAT Travel Award 2022
- Canadian Society of Biomechanics (CSB) NACOB Travel Award 2022
- McGill University Department of Education Graduate Student Society (EGSS) – Professional and Research Development Award 2021
- International Society of Biomechanics Motor Control Group – ISB Sponsored Motor Control Group Student Award 2021
- International Society of Biomechanics (ISB) – International Travel Grant 2021
- McGill University Department of Kinesiology and Physical Education – Differential Fee Waiver 2021-22
- McGill University Graduate & Postdoctoral Studies – Virtual Mobility Award 2021
- McGill University Postgraduate Students Society Travel Award 2021
- Mitacs GlobalLink Research Award Abroad 2021 (Declined due to COVID-19 pandemic)
- McGill University Graduate Excellence Award 2020 – 2022
- McGill University Graduate Excellence Award 2020
- McGill University GREAT Travel Award 2020

- REPAR Travel Award - Support for Students for Presentation in Scientific Events 2019-2020
- McGill University Department of Kinesiology and Physical Education Recruitment Award 2019 - 2020

**Stipends (Received: \$57,300 | Declined: \$14,000):**

- Research Stipend from Dr. Julie N. Côté's Natural Sciences and Engineering Research Council of Canada Grant 2022 - 2023 (Declined due to external funding)
- Research Stipend from Dr. Julie N. Côté's Natural Sciences and Engineering Research Council of Canada Grant 2021 - 2022
- Research Stipend from Dr. Julie N. Côté's McGill Sports Science Research Grant 2020 - 2021
- Research Stipend from Dr. Julie N. Côté's Natural Sciences and Engineering Research Council of Canada Grant 2020 - 2021
- Research Stipend from Dr. Julie N. Côté's Natural Sciences and Engineering Research Council of Canada Grant 2019-2020



## Service Experience

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- **Independent reviewer** for Applied Ergonomics, Current Research in Physiology, Kinesiology
- **Conference organizing committee member** - Minds in Motion 2022 (Department of Kinesiology and Physical Education, McGill University)



## Mentorship

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- Undergraduate Students: **16-week summer internship** in BOS laboratory. Funded by **NSERC USRA** program



## Affiliations

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- **International Society of Biomechanics in Sports (Student Member)** – 01/2022 - Present
- **Sport Scientist Canada (Student Member)** – 02/2021 - Present
- **International Society of Biomechanics (Student Member)** - 12/2020 – Present
- **Quebec Rehabilitation Research Network (Student Member)** - 09/2019 – Present
- **Center for Interdisciplinary Research in Rehabilitation (Student Member)** - 12/2019 – Present
- **Canadian Institutes of Health Research - MSK Network (Student Member)** - 12/2019 – Present