My research uses techniques from biomechanics, physiology and neuroscience to understand the principles underlying movement and the application of these principles. At a fundamental level, my work towards a more complete understanding of movement has provided insight into the behavior, ecology and evolution of animals. At a more applied level, my research aids in the design of robots, prosthetics, exoskeletons and other wearable technologies. In the past six years, my most significant contributions are:

**Energy Optimization**. We have found that energetic cost is not just an outcome of movement, but also continuously shapes it. Through a series of experiments that involve the development of new experimental devices and protocols, we have shown that people readily adapt established movement patterns to minimize energy use, converging on new energetic optima within minutes, even for remarkably small calorie savings. We have begun to illuminate the underlying energy sensing systems, and the computational algorithms by which the nervous system accomplishes optimization. This research has resulted in 11 publications in the last six years. This includes a high-impact paper in *Current Biology* that has been cited 140 times in the last four years by disciplines as diverse as nutrition, psychology, and robotics [1]. I suspect that its central finding that nervous systems can continuously optimize movements to minimize energetic cost is among the most important in our field over the last decade. Our very recent follow-on paper uses a combination of experiments and computational modeling to understand some of the mechanisms the nervous system uses to perform this optimization [2]. We published this 13-page paper in the *Journal of Experimental Biology,* and I consider it to be one of the most important of my career. The excitement and importance of these discoveries have led me to make this research program the primary focus of my lab. This work is best characterized as belonging to the field of motor learning, which is a new field to me.

[1] J. C. Selinger, S. M. O’Connor, J. D. Wong, and J. M. Donelan, “Humans Can Continuously Optimize Energetic Cost during Walking.,” *Curr Biol*, vol. 25, no. 18, pp. 2452–2456, Sep. 2015.

[2] J. C. Selinger, J. D. Wong, S. N. Simha, and J. M. Donelan, “How humans initiate energy optimization and converge on their optimal gaits,” *Journal of Experimental Biology*, vol. 222, no. 19, p. jeb198234, Oct. 2019.

**Determinants of Walking’s Energetic Cost**. We have shown that there are three main contributors to walking’s energetic cost—the muscle mechanical work required for redirecting the center of mass from one pendular arc to the next during the transition between steps, the muscle force required to actively swing the legs, and the muscle control required for lateral balance. This work has resulted in 14 peer-reviewed publications, including in the *Proceedings of the Royal Society*, and 3 review papers. The top five papers have received more than 2,500 citations, including more than 200 in 2018 alone. While most of the original research was performed early in my career, the collective work continues to have a strong impact. It has become the dominant framework for understanding the link between mechanics and energetics in walking, and now appears in undergraduate and clinical textbooks on the subject. Researchers continue to use it to understand the development of walking, gait disorders, and comparative biomechanics, as well as to design prosthetics, exoskeletons and robots. In the last six years, we have described this work in a review book chapter aimed at roboticists [3], and extended it to understand pentapedal walking in kangaroos [4] as well as split-belt walking in humans [5].

[3] J. D. Wong and J. Maxwell Donelan, “Principles of Energetics and Stability in Legged Locomotion,” in *Humanoid Robotics: A Reference*, A. Goswami and P. Vadakkepat, Eds. Dordrecht: Springer Netherlands, 2016, pp. 1–28.

[4] S. M. O’Connor, T. J. Dawson, R. Kram, and J. M. Donelan, “The kangaroo’s tail propels and powers pentapedal locomotion,” *Biology Letters*, vol. 10, no. 7, p. 20140381, Jul. 2014.

[5] N. Sánchez, S. N. Simha, J. M. Donelan, and J. M. Finley, “Taking advantage of external mechanical work to reduce metabolic cost: the mechanics and energetics of split-belt treadmill walking,” *The Journal of Physiology*, vol. 597, no. 15, pp. 4053–4068, 2019.

**Biomechanical Energy Harvesting**. Based on the fundamental work described above, my colleagues and I invented a technology that captures mechanical energy normally wasted during movement and converts it into electrical energy to power portable devices. We published the first paper describing this work in the journal *Science* [6]. It is still having an academic impact with greater than 400 citations in the last six years. This research has resulted in three additional publications, seven issued patents, and a successful university spin-off company that currently employs 15 and is actively developing products for military, first responder, and biomedical customers. This research captures the imagination of many—I still frequently give public talks and interviews about energy harvesting and its translation into our society.

[6] J. M. Donelan, Q. Li, V. Naing, J. A. Hoffer, D. J. Weber, and A. D. Kuo, “Biomechanical energy harvesting: generating electricity during walking with minimal user effort.,” *Science*, vol. 319, no. 5864, pp. 807–810, Feb. 2008.

**Scaling of Sensorimotor Control.** My trainees and I use anatomical, electrophysiological and computational techniques to understand the scaling of peripheral nerves, spinal reflex pathways, and movement performance in animals across a wide size range—from shrews to elephants. We have discovered that such different-sized animals are constructed from essentially the same-sized cells, resulting in time delays that are relatively longer in large animals due to long conduction delays. To compensate, large animals rely on prediction to control their movement as the time delays for thinking are relatively short, and the consequences of falling are large. In the past six years, we have published 3 papers—including one in the *Proceedings of the Royal Society [7]*—and a book chapter on this subject. We also have one more manuscript in review [8].

[7] H. L. More and J. M. Donelan, “Scaling of sensorimotor delays in terrestrial mammals,” *Proc Biol Sci*, vol. 285, no. 1885, p. 20180613, Aug. 2018.

[8] S. Thangal and J. M. Donelan, “Scaling of inertial delay in terrestrial mammals,” *PloS one*, In review.

**Wearable Technologies**. In addition to the energy harvesting technology described above, my trainees and I developed and commercialized algorithms for accurate step counting, for accurate walking speed estimation, and most originally, for the automatic control of running speed and intensity. The latter leveraged a fundamental and new finding from our lab to build a closed-loop control system that improved by 8-fold a runner’s natural pacing abilities, and that regulated their heart rate within 1 bpm of the target intensity. Working with an industry partner, we built and sold a smart phone app with these abilities. It was downloaded more than 30,000 times, and users logged more than 500,000 km with its use. This research resulted in several conference presentations, two issued patents [9, 10], two more under examination, and a spin-off company. It also resulted in an industry position as CSO at a 100+ employee sports technology company for a PhD student.

[9] M. Snaterse, S. J. Chang, and J. M. Donelan, “Methods and systems for control of human locomotion,” US20130110266A1, 02-May-2013.

[10] M. Snaterse, S. J. Chang, and J. M. Donelan, “Methods and systems for control of human locomotion,” CA2839182C, 27-Nov-2018.

Additional information on contributions (3,000 characters, Form)

**Publication Strategy and Impact**: My 45 published papers have been cited 5,600 times, averaging about 125 citations per publication. This relatively low number of papers and relatively high impact reflects a conscious strategy to collaborate with a small team of high-quality trainees, on important and diverse problems, and publish the results in impactful journals. I publish in both generalist journals as well as leading specialist journals. I chose generalist journals to increase public reach and benefit trainee career trajectories. My publications are major efforts that often combine modeling with experiments, involve the invention of new research techniques, and depend on the design, fabrication, and testing of new devices. This strategy often results in long papers. For a typical paper, I work closely with one of my trainees who will be first author and I will be last author. I will usually take the lead on modeling, and my trainee will take the lead on data collection. Together we will design experiments, write analysis code, perform analysis, interpret results, and write the manuscript. In the past 6 years, only one paper is not NSE [2 from CCV].

**Collaborations**: I favour interdisciplinary collaborations with early career researchers. For example, Dr. James Finely (USC) is a clinically oriented neuroscientist, Dr. Kat Steele (U Washington) is a biomedical engineer, and Drs. Tom Libby (Stanford Research Institute) and David Remy (U Stuttgart) are roboticists. I find providing mentorship to be rewarding, and I enjoy working on interdisciplinary problems. Senior authorship on collaborative work indicates the professor responsible for the majority of the intellectual contribution.

**Knowledge Mobilization**: I endeavour to develop discoveries so they can directly benefit society. This means that in addition to writing research papers, I also write patents. (I am the primary inventor of seven US patents, and six international patents.) In addition to writing grants, I help raise money from investors and write research contracts. And in addition to running my university research lab, I start companies, manage employees, and work with industry partners. These efforts are partly synergistic with my fundamental research efforts, but they also take time. I am constantly rebalancing my research and translation efforts to both capitalize on advances in each arena, and to reflect the interests of my trainees. I consider my knowledge mobilization contributions to be as important as my academic publishing record.

**Public Outreach**: I consider conveying my knowledge, findings, and excitement about science to the public as one of my academic responsibilities. I have given a few hundred interviews, and stories about my research have appeared online, in print, on TV, and in textbooks. I also embrace opportunities to speak publicly about my research, and have given invited public talks for TEDx, Georgia Tech Frontier in Science series, and the BC Year of Science.

This is a conscious decision.

For example, they attract entrepreneurial trainees and industry partners, they build a network of technical staff, and they help me understand the application of my basic ideas which, in turn, helps with funding competitiveness.

I have contributed to general interest books both here in Canada (e.g. The Daily Planet Book of Cool Ideas by Jay Ingram, Penguin Canada) and internationally (e.g. Science Reader by Cleary et al, Macmillan Language House), and I wrote a piece for the Washington Post.

In determining researcher excellence, my hope is that NSERC considers my contributions to knowledge mobilization in addition to my contributions to fundamental knowledge.

media ranging from the CBC National News, BBC National News, and CNN, to Cosmopolitan and Oprah. I am particularly proud of front-page stories in the Vancouver Sun and Globe and Mail, a personal profile in The New York Times, a full-page article in The Economist, and an article in KNOW magazine for kids (I grew up reading this). My research often sparks world-wide interest—The New York Times, for example, has covered seven different research projects.

References

### 2. Research Contributions and Practical Applications

### Articles in Refereed Publications - Published or Accepted (36 total)

1. **J.D. Wong, S.M. O'Connor, J.C. Selinger,** and J.M. Donelan. Contribution of blood oxygen and carbon dioxide sensing to the energetic optimization of human walking*. Journal of Neurophysiology* *[2.7]*. 118(2) pp. 1425-1433**,** 2017. (**ARO**). I supervised experiment design, data collection, data analysis, modeling and manuscript writing.
2. **R.S. Maeda**, **S.M. O'Connor,** J.M. Donelan, and D.S. Marigold. Foot placement relies on state estimation during visually guided walking. *Journal of Neurophysiology [2.7]*. 117(2) pp. 480-491**,** 2017. (**NSERC Discovery**). I contributed to computational modeling, experimental design, data analysis and manuscript writing.
3. **S.M. O'Connor, J.D. Wong,** and J.M. Donelan. A generalized method for controlling end-tidal respiratory gases during nonsteady physiological conditions*. Journal of Applied Physiology* *[3.0]*. 121(6) pp. 1363-1378, 2016. (**ARO**). I supervised experiment design, data collection, data analysis, modeling and manuscript writing.
4. **J.C. Selinger** and J.M. Donelan. Myoelectric Control for Adaptable Biomechanical Energy Harvesting. *IEEE Trans on Neural Systems and Rehabilitation Engineering [2.6].* 24(3) pp. 364-73, 2016. (**NSERC Discovery**). I supervised experiment design, data collection, data analysis, modeling and manuscript writing.
5. **J.C. Selinger, S.M. O’Connor, J. D. Wong,** and J.M. Donelan. Humans can continuously optimize energetic cost during walking. *Current Biology [9.0]*. 25, pp. 2452-2456, 2015. (**ARO**). I supervised experiment design, data collection, data analysis, modeling and manuscript writing.
6. W. Felt, **J.C. Selinger,** J.M. Donelan, and C.D. Remy. “Body-In-The-Loop”: Optimizing device parameters using measures of instantaneous energetic cost. *PLoS One [3.1]*. 10(8), 2015. (**ARO**). I contributed to experimental design, data analysis and manuscript writing.
7. **J.C. Selinger** and J.M. Donelan. Estimating instantaneous energetic cost during non-steady-state gait. *Journal of Applied Physiology [3.0]*. 117(11) pp. 1406-15, 2014. (**ARO**). I supervised experiment design, data collection, data analysis, modeling and manuscript writing.
8. **R. Pagliara, M. Snaterse,** and J.M. Donelan. Fast and slow processes underlie the selection of   
   both step frequency and walking speed. *Journal of Experimental Biology [*2.9*]*. 217(16) pp. 2939-46, 2014**.** (**ARO**). I supervised experiment design, data collection, data analysis, and manuscript writing.
9. **S.M. O’Connor**, R. Kram, T. Dawson and J.M. Donelan. The kangaroo’s tail propels and powers pentapedal locomotion. *Biology Letters* *[*2.8*]*. 10(7) pp. 20140381, 2014. (**NSERC Discovery**). I supervised experiment design, data collection, data analysis, modeling and manuscript writing.
10. **H.L. More, S.M. O’Connor,** E. Brøndum, T. Wang, M. Bertelsen, C. Grøndahl, K. Kastberg, A.ørlyck, J. Funder and J.M. DonelanSensorimotor responsiveness and resolution in the giraffe. *Journal of Experimental Biology [*2.9*]*. 216(6) pp. 1003-11, 2013. (**NSERC Discovery**). I contributed to experimental design, data analysis and manuscript writing.
11. **K. Hatz**, K. Mombaur and J.M. Donelan. Control of ankle extensor muscle activity in walking cats. *Journal of Neurophysiology [2.7]*. Epub Aug 29, 2012. (**NSERC Discovery**). I performed the experiments, co-supervised the data analysis and wrote the manuscript.
12. **K.L. Snyder, M. Snaterse** and J.M. Donelan. Running perturbations reveal general strategies for step frequency selection. *Journal of Applied Physiology [3.0]*. 112(8) pp. 1239-47, 2012. (**NSERC Discovery**). I supervised experiment design, data collection, analysis, modeling and writing.
13. **S.M. O’Connor** and J.M. Donelan. Fast visual prediction and slow optimization of preferred walking speed. *Journal of Neurophysiology [2.7]*. 107(9) pp. 2549-59, 2012. (**NSERC Discovery**). I supervised experiment design, data collection, data analysis, modeling and manuscript writing.
14. **C.H. Soo** and J.M. Donelan. Coordination of push-off and collision determine the mechanical work of step-to-step transitions when isolated from human walking. *Gait & Posture [2.3]*. 35(2) pp. 292-7, 2012. (**CIHR Operating**). I supervised experiment design, data analysis and manuscript writing, and was primarily responsible for modeling.

### Articles in Refereed Publications - Submitted Refereed Papers (2 total)

1. **H.L. More** and J.M. Donelan. Scaling of sensorimotor delays in terrestrial mammals. *Proceedings of the Royal Society, B [4.9]*. (**NSERC Discovery**).
2. **J.C. Selinger, J. D. Wong, S. Simha** and J.M. Donelan. Reinforcement learning of energy optimal gaits. *Nature Human Behaviour [n/a]*. (**ARO**).

### Articles in Refereed Publications – Invited Editorials (1 total)

1. J.M. Donelan. Motor Control: No Constant but Change. *Current Biology [9.0]*. 26(20), pp. 915-R918, 2016.

### Articles in Refereed Publications – Book Chapters (1 total)

1. **J.D. Wong** and J.M. Donelan. Principles of energetics and stability in human locomotion. *Humanoid Robotics: A Reference*. Springer, 2016.

**Other Refereed Contributions – Abstracts & Conference Proceedings** (91 Total)

For the sake of brevity, I have elected to not list the 26 refereed abstracts from the past six years. Of these abstracts, all but one had a trainee as a co-author, and all but three had a trainee as first author. Undergrad researchers presented 6 of the abstracts. 20 abstracts were presented at international conferences.

### Contributions to Practical Applications of Knowledge - Spin-Off Companies (2 total)

I spun *Bionic Power Inc* (www.bionic-power.com) out of SFU in 2007. I founded it to develop energy harvesting technologies to power military, first responder, biomedical and consumer devices. Serving as Chief Science Officer until 2012, I helped hire many of the 15 current employees. I am now on the scientific advisory board. Corporate capitalization includes funding from private investors and multiple defense contracts totaling greater than $10M. Annual revenue in recent years is ~$3M.

I spun *Control Freak Technologies* out of SFU in 2018. I founded it to develop technology that automatically controls the pace and intensity of walking, running, and cycling. I am the CEO and chairman of the board. We have two employees—most of the development is performed by contractors under our supervision. Company funding is entirely from a strategic partner, and there is no annual revenue.

### Practical Applications of Knowledge – Technology Transfer (2 total)

My PhD student, Mark Snaterse, and I developed a technology for the real-time control of speed and intensity during running. With the help of the SFU Innovation Office and an NSERC Interaction grant, we licensed this technology to Wahoo Fitness Inc (Atlanta), a world leader in interfacing sensors to smart phones. Based on our underlying technology, we co-developed and released a smart phone app to improve running performance and enjoyment. Mark and I also developed and licensed algorithms for accurately counting steps during walking and running from accelerometer data, and its efficient storage.

### Contributions to Practical Applications of Knowledge - Patents (5 total)

Additional applications are under examination in Canada, Australia, Europe and China. These additional applications describe the same inventions as the US applications below so I have not included them here.

1. **M. Snaterse, I. Chang**, and J.M. Donelan. Methods and Systems for Human Locomotion Control. *United States*, Feb 07, 2011. US 61/362,170. *Under Examination*. This invention describes how to automatically control the speed and intensity of walking and running.
2. J.M. Donelan, A.D. Kuo, **Q. Li**, J.A. Hoffer, and D.J. Weber. Methods and Apparatus for Harvesting Biomechanical Energy. *United States,* Jul 16, 2013. US8487456. This invention describes control methods for selectively engaging energy harvesting from joint motion to accomplish generative braking.
3. J.M. Donelan, A.D. Kuo, **Q. Li**, J.A. Hoffer, and D.J. Weber. Methods and Apparatus for Harvesting Biomechanical Energy I. United States Patent #8,299,634. This invention describes apparatus and methods for non-selectively harvesting energy from joint motion. (Issued Oct 30, 2012).

### 3. Other Evidence of Impact and Contributions

### Selected Awards, Honors, Scholarships

* New Investigator Award, Canadian Institutes for Health Research, $300,000 (2007-2012)
* Career Investigator Award, Michael Smith Foundation for Health Research, $480,000 (2006-2012)
* Top 50 Inventions of the Year, TIME Magazine (2008)
* Year in Ideas, New York Times (2008)
* Outstanding Young Scientist Award, American Society of Biomechanics (2002)

Keynote and Invited Presentations (26 total + 26 dept. seminars and 42 conference presentations)

1. *AMP Lab inauguration*. Keynote Speaker. Seattle, USA. **2018**
2. *American Society of Biomechanics*. Invited Speaker. Boulder, USA. **2017**.
3. *Neural Control of Movement*. Invited Speaker. Dublin, Ireland. **2017**.
4. *Nike Global Research Symposium*. Invited Speaker. Beaverton, USA. **2016**.
5. *Biomechanics and Neural Control of Movement.* Invited Speaker. Ohio, USA. **2016**.
6. *Int. Society of Biomechanics Footwear Symposium*. Keynote Address. Liverpool, UK. **2015**.
7. *Adaptive Motion of Animals and Machines*. Invited Speaker. Boston, USA. **2015**.
8. *MedTech*. Invited Speaker. Anaheim, USA. **2015**.
9. *Georgia Tech Frontiers in Science*. Invited Public Lecture. Atlanta, USA. **2014**.
10. *World Congress of Biomechanics*. Invited Speaker. Boston, USA. **2014**.
11. *Nike Sport Research Lab*. Invited Speaker. Beaverton, USA. **2014**.
12. *Asian Pacific Conference on Biomechanics*. Plenary Lecture. Seoul, South Korea. **2013**.
13. *NSF Workshop: Locomotor Systems Science*. Invited Speaker. Arlington, USA. **2012**.

**Leadership**

* Associate Editor, IEEE Transactions on Neural Systems and Rehab Engineering (2018-current)
* Scientific Board Member, Nike Inc. (2016-current)
* Advisory Board Member, Stanford University’s Mobilize NIH Center of Excellence (2016-current)
* Advisory Board Member, Faculty of Design, Kwantlen Polytechnic Institute (2016-current)
* Member, NSERC Discovery Grant Evaluation Committee (2016-current)
* Scientific Board Member, Bionic Power Inc. (2012-current)
* Scientific Board Member, Dynamic Walking Annual Meeting (2007 – current)
* Executive Board Member*,* Canadian Society for Biomechanics (2012-2014)
* Associate Editor, Scientific Reports - Nature Publishing Group (2012-2013)
* Invited Editor, Proceedings of the National Academy of Sciences (2013)
* Program Chair, Canadian Society of Biomechanics Annual Meeting (2012)

**Public Outreach**

I consider conveying my knowledge, findings, and excitement about science to the public as one of my academic responsibilities. I have given a few hundred interviews, and stories about my research have appeared in media ranging from the CBC National News, BBC National News, and CNN, to Cosmopolitan and Oprah. I am particularly proud of front-page stories in the Vancouver Sun and Globe and Mail, a personal profile in The New York Times, a full-page article in The Economist, and an article in KNOW magazine for kids (I grew up reading this). My research often sparks world-wide interest—The New York Times, for example, has covered seven different research projects. I embrace opportunities to speak publically about my research, and have given invited public talks for TEDx, Georgia Tech Frontier in Science series, and the BC Year of Science, among others. I have contributed to general interest books both here in Canada (e.g. The Daily Planet Book of Cool Ideas by Jay Ingram, Penguin Canada) and internationally (e.g. Science Reader by Cleary et al, Macmillan Language House), and I wrote a piece for the Washington Post.

**4. Delays in Research Activity**

n/a.

**5. Contributions to the Training of Highly Qualified Personnel (HQP)**

My primary objective in training is to help my students and postdocs become leaders in their field of choice. Towards this goal, I nurture a productive and innovative research environment that trains biologists and engineers in the integrative nature of scientific research. I have established a human gait lab, an animal research lab equipped for acute and chronic surgeries, and a shared neuromechanics lab designed to facilitate student and professor collaboration. I also developed our departmental seminar series to broaden the education of our trainees and increase interactions between trainees and faculty. This formal seminar series complements informal weekly “chalk talks” for our Neuromechanics Research Group. This group comprises six research labs that collaborate to test ideas and train students. We accomplish this training through co-supervision on mutual projects as well as a two-semester intensive graduate course co-taught by the six professors and focusing on topics ranging from comparative bone biomechanics to neuroprostheses. I have a number of international collaborators from diverse fields including mathematics, engineering, and paleontology. These collaborators, some of whom visit frequently and help mentor trainees, bring a wealth of expertise that further extends the breadth and depth of my lab’s research environment. I am also one of the founding scientific board members of Dynamic Walking, an annual meeting of roboticists and physiologists interested in the fundamental principles underlying legged locomotion. We design the annual meeting to be focused on trainee education, splitting the attendance roughly equally between students and professors and including tutorials on simulation techniques for walking and the construction and testing of walking robots. I was also Program Chair of the 2012 Canadian Society of Biomechanics meeting. In addition to the important training that all scientific meetings provide, I designed this program to include symposia organized and presented by students, and a student-focused academic mentorship session.

It is within this active and vibrant research environment that I have directly supervised 6 undergraduate students, 8 PhD students, 4 postdoctoral fellows and 1 technician over the past six years. I have also co-supervised several graduate students, including PhD students from Berkeley, Colorado and Heidelberg University. In addition to my academic supervision, I contributed to the training of five full-time engineers in my past role as Chief Science Officer of Bionic Power Inc. I have attracted some of my academic trainees from international centres of excellence including from Harvard, the Free University of Amsterdam, the Tata Institute of Fundamental Research, and Berkeley. My trainees have been successful in fellowship competitions from NSERC, MSFHR and CIHR including a prestigious Alexander Graham Bell fellowship and two Vanier awards. With my encouragement and equipment, one student has used her L'Oréal-UNESCO for Women in Science Scholarship to travel to Nunavut and teach biomechanics to schoolchildren. I work closely with my team of trainees, and in the past six years, my students and postdocs have contributed to all my published work, including most as first author, and are co-inventors on 3 patent applications. Some of these projects have gained significant attention from the media, and I coach my students in the public communication of their findings, and give them the opportunity to speak directly with the press. I support my trainees to present at about 2 conference presentations per year, usually with one at a student-focused conference and the other at a larger international conference. I find this to be a nice balance between sharpening presentation skills in a low risk environment, and exposure to high-level science and networking opportunities. They often win best-poster and best-talk awards.

My trainees frequently go on to leadership positions in academia and industry. My research program is diverse with projects that range from fundamental biology to applied health to high-tech engineering. In this environment, HQP quickly gain skills that are immediately transferrable to academic and industry settings, including intellectual property protection, scientific communication, and grant writing. Many of the undergrads have continued in academia; two are now medical doctors, one completed a PT degree and runs a pediatric gait lab, and three are in grad school including one who is doing his PhD in applied math at Princeton. My graduate students have continued to leadership positions—one, for example, is chief science officer at a medium-sized wearable tech company, and another is a postdoctoral fellow at Stanford and will shortly begin a tenure-track position at Queen’s. My most recent postdoc is interviewing for positions, another has moved on to another postdoc position in a complementary field. My first postdoc is now a tenured NSERC-funded mechanical engineering professor at Queen’s and the second is a tenure-track kinesiology professor at San Diego State University.