

Geoffrey Thor Desmoulin, Ph.D., R. Kin.

Curriculum Vitae

Corporate: gtdscientific.com

Personal: geoffdesmoulin.com

Education

Institution	Degree/ Certification	Major	Specialty
University of Calgary (UofC)	PhD.	Mechanical Engineering	Repetitive impact injury biomechanics and novel treatment
Wayne State University (WSU)	MS.	Biomechanical Engineering	Injury Biomechanics
Simon Fraser University (SFU)	MSc.	Kinesiology	In-vivo biomechanics of low back pain
Simon Fraser University	BSc. (Hons.)	Kinesiology	Limb biomechanics of peripheral nerve stimulation for neural rehabilitation
Southern Alberta Institute of Technology (SAIT)	EMT -A	Health Sciences	Emergency Medical Technician - Ambulance
Southern Alberta Institute of Technology	Systems Technician	Building Technology	Building systems technology and design

Court Qualifications, Professional Registration and Appointments

- Qualified Expert in *Biomechanics, Biomechanical Engineering, Biomechanical Testing, and Biomechanical Accident Reconstruction* in U.S. Federal Court, Eastern District of Pennsylvania, 9th District of California, District Court of Delaware and the Supreme Court of British Columbia.
- *British Columbia Association of Kinesiologists*: Registered Member #2012080.
- Appointed *Honorary Lieutenant-Colonel* (D45 862 697) to the 39 Signal Regiment (UIC 6710) by National Defence Headquarters Director General Military Careers in Ottawa (May 25, 2015 – May 24, 2018).
- *Former Adjunct Professor* at the University of British Columbia (UBC); Duties included teaching Injury Biomechanics and assist with the development and implementation of UBC STAR Survive and Thrive Applied Research Initiative.

Career History

President and Senior Biomechanist GTD Scientific Inc. (May '09-present)
Provide leadership to the company and world-class evidence based solutions for clients. Our forensic services specialize in injury biomechanics, incident reconstruction, and physical testing to determine product safety and injury causation. Our applied services specialize in product testing and research to evaluate existing products or aid our clients in new product development. We design, build, bend, break, crash, shoot, deconstruct and reconstruct while measuring critical information to provide objective answers. Our experience has garnered us court qualifications and an extensive international client list making GTD your first choice when looking for the highest quality results.

Television Host and Engineering Advisor Viacom Media Networks (May '07-Feb '12)
A high-profile position assessing engineering aspects, injury potential, and overall battlefield effectiveness of weapons used by warriors throughout history, for a television series. The series, "Deadliest Warrior" has filmed thirty-three episodes (1-hour format) to date highlighting sixty-four warriors including S.W.A.T. officers and former C.I.A. operatives. Deadliest Warrior re-runs continue to air throughout the world in over sixteen countries, thirty-two different languages, and is available in over 96-million homes in the United States alone. This position required technical knowledge combined with strong public relations skills.

Associate Research Director Optima Health Solutions (Nov '05-May '12)
Leading, coordinating and implementing international collaborative clinical research and product development (R&D) that support the objectives of Optima Health Solutions on a contract basis. The primary product, the Khan Kinetic Treatment™, is a class II non-invasive treatment of spine related pain. Being a visionary, strategist and tactician were imperative to success.

Teaching Assistant Simon Fraser University (Jan'04-Dec'05)
Conducted lecture style tutorials and facilitated group discussions of complex scholastic material. Courses included: Kinesiology 306, 311, 205 and 143. Clear explanation and impartiality were emphasized.

Research Kinesiologist NeuroStream Technologies Inc. (May'01-Jan'04)
Executed pre-clinical and clinical R&D of class IV neural rehabilitation medical devices. Operations were carried out to achieve product approvals from the Medical Device Bureau of Canada and the Food and Drug Administration of the United States of America. Dynamic role requiring a high level of diplomacy and technical research ability.

Research Assistant Simon Fraser University (Sept'99-April'01; Jan'04-Dec'05)
Studied neural control of spine mechanics using ultrasound imaging to greater understand low back pain. Re-designed force sensitive gloves for surgical education during corrective scoliosis procedures at the B.C. Children's Hospital (Department of Orthopedic Surgery). Creative problem solving and an ability to meet deadlines were paramount.

Fire Fighter Canmore Emergency Services (June'94-May'97)
Responded to fires, medical emergencies, motor vehicle accidents, and other rescue operations. Learned to work well under pressure in a team environment. Training was conducted by the Alberta Fire Training School, City of Calgary Fire Department, British Columbia Justice Institute, Southern Alberta Institute of Technology as well as in house training services.

Consultancies

- July 18, 2018 Consulting Contract with U.S. City Attorney's Office to perform a forensic injury biomechanics investigation of a stabbing homicide. On-going.
- July 9, 2018 Consulting Contract with U.S. Law Firm to investigate a police use of force incident from a biomechanical safety vantage point. On-going.
- June 9, 2018 Consulting Contract with Canadian Medical Assessments Firm to biomechanically investigate causation of a spiral fracture of the humerus in a person residing in a care home.
- Apr 9, 2018 Consulting Contract with U.S. Municipality to perform a biomechanical and human factors assessment on a Police Officer use of force with a less-lethal control implement causing lacerations. On-going.
- Mar 13, 2018 Consulting Contract with U.S. Municipality to perform an incident reconstruction of a bicycle-on-bicycle collision resulting in catastrophic brain injury. On-going.
- Feb 22, 2018 Consulting Contract with U.S. Municipality to perform a biomechanical assessment of the cause of an individual's fall from a bicycle that resulted in brain injury. On-going.
- Feb 13, 2018 Consulting Contract with Canadian Law Firm to perform a biomechanical assessment of a mountain bike maneuver resulting in fork failure. On-going.
- Dec 21, 2017 Consulting Contract with U.S. Blast Mitigation Company to perform an injury audit of deflagration explosion experiments utilizing novel technology. Complete.
- Nov 28, 2017 Consulting Contract with Canadian Law Firm to perform a biomechanical reconstruction of an incident involving two (2) motorcycles. Resolved.
- Nov 16, 2017 Consulting Contract with Canadian Law Firm to perform a biomechanical assessment of a slip and fall matter. Resolved.
- Oct 24, 2017 Consulting Contract with Canadian Law Firm to perform a biomechanical assessment in order to identify the time at which an injury occurred during an emergency landing of an airplane. Resolved.
- Jul 7, 2017 Consulting Contract with U.S. Law Firm to perform a biomechanical design review of an airbag impact attenuator that is implicated in a matter involving a double ankle fracture. Resolved.

- Jun 28, 2017 Consulting Contract with U.S. Municipality to perform a biomechanical reconstruction in order to identify causation of a fall from a bicycle resulting in brain injury. On-going.
- May 27, 2017 Consulting Contract with U.S. Law Firm to determine if a reality television game show set was unreasonably unsafe with respect to a shoulder injury that occurred during a fall while filming. Resolved.
- Apr 24, 2017 Consulting Contract with Canadian Recreational Facility to perform materials testing on foam intended for impact attenuation applications. On-going.
- Apr 18, 2017 Consulting Contract with Canadian Law Firm to perform a biomechanical assessment of a slip and fall incident causing brain injury. On-going.
- Jan 16, 2017 Consulting Contract with Canadian Law Firm to perform a biomechanical and materials assessment on a trampoline park matter causing a catastrophic spinal cord injury. Resolved.
- Jan 11, 2017 Consulting Contract with Canadian Police Department to perform a mechanism of injury assessment involving suspicious fractures in a toddler. Resolved.
- Jan 6, 2017 Consulting Contract with Canadian Law Firm to perform a biomechanical tissue injury assessment of a chain saw incident in order to confirm or deny conflicting discovery statements of opposing parties. On-going.
- Nov 29, 2016 Consulting Contract with Canadian Law Firm to perform a biomechanical and materials assessment on a trampoline park matter causing a catastrophic spinal cord injury. On-going.
- Sept 20, 2016 Consulting Contract with Canadian Law Firm to perform a human factors lighting evaluation on a slip and fall matter. On-going.
- Sept 14, 2016 Consulting Contract with Canadian Municipality to perform a Use of Force evaluation on an incident involving a Police Officer. Resolved.
- Sept 5, 2016 Consulting Contract with U.S. Law Firm to perform a children's playground product design review and evaluation from an injury biomechanics perspective. Resolved.
- Aug 2, 2016 Consulting Contract with U.S. Law Firm to biomechanically investigate the cause of and mechanism of injury for a bilateral patellar tendon rupture in a recreation facility. Resolved.
- June 29, 2016 Consulting Contract with U.S. Municipality to investigate movement of a person wielding a weapon of opportunity during an Officer Involved Shooting incident. Resolved.
- June 28, 2016 Consulting Contract with U.S. Law Firm to biomechanically investigate a falling incident causing severe orthopedic injury on a large water vessel. Resolved.
- April 20, 2016 Consulting Contract with Canadian Fitness Company to evaluate the by-law violations, if any, as it related to persistent complaints within the surrounding community. Resolved.
- March 21, 2016 Consulting Contract with Canadian Law Firm to perform a surreptitious investigation regarding evaluation of standards compliance and operations of a gymnastics facility. On-going.

- March 8, 2016, Consulting Contract with U.S. Company to perform a human injury study within a blast environment in order to assess effectiveness of new mitigation technology. On-going.
- Feb 22, 2016, Consulting Contract with U.S. Municipality to perform a human factors and biomechanical assessment of an Officer Involved Shooting incident. Resolved.
- Jan 13, 2016, Consulting Contract with U.S. Municipality to perform a biomechanical assessment of a police officer takedown resulting in assailant injury. On-going.
- Dec 4, 2015, Consulting Contract with Canadian Law Firm to perform an aviation incident reconstruction, crashworthiness assessment, and forensic biomechanical analysis of sustained injuries. Resolved.
- Nov 24 2015, Consulting Contract with Canadian Law Firm to perform a forensic biomechanical analysis of a pedestrian versus vehicle incident. Resolved.
- Nov 4, 2015, Consulting Contract with U.S. Law Firm to create a biomechanical injury report on findings for an incident causing a closed head injury. On-going.
- Aug 23, 2015, Consulting Contract with Canadian Municipality to investigate occupant injuries of vehicle incident with Government Ambulance. Resolved.
- June 25, 2015, Consulting Contract with U.S. Law Firm to perform materials tests and impact tests as it related to injury probability with a rebound device. On-going.
- May 15, 2015, Consulting Contract with Canadian foot health company to perform mechanical and biomechanical assessments of several internal products and competitors. Complete.
- Apr 17, 2015, Consulting Contract with Canadian Law Firm to perform a forensic biomechanical reconstruction of a construction incident causing death of a worker. Complete.
- Mar 06, 2015, Consulting Contract with U.S. Law Firm to perform a forensic mechanical engineering investigation including materials testing in a product liability case. On-going.
- Feb 05, 2015, Consulting Contract with U.S. company to perform a mechanical and biomechanical engineering focused presentation of GTD Engineering generated product testing results to potential clients. Complete.
- Jan 28, 2015, Consulting Contract with U.S. Law Firm to perform a forensic biomechanical reconstruction and causation analysis of an exercise equipment failure leading to brain injury. On-going.
- Oct 30, 2014, Consulting Contract with U.S. company to perform vertical blast wall protection designs. Complete.
- Oct 28, 2014, Consulting Contract with U.S. Law Firm to perform causation analysis involving a foot injury and associated toe fracture. Resolved.
- Aug 20, 2014, Consulting Contract with International Manufacturer in collaboration with large U.S. Municipal Police Department for testing the effectiveness of less-lethal weapons currently carried by officers. Complete.

- June 25, 2014, Consulting Contract with U.S. Municipality Law Office to perform a forensic biomechanical assessment of a rear-end vehicle collision resulting in dash impingement and lower back injury. Resolved.
- June 11, 2014, Consulting Contract with U.S. Incorporation to experimentally obtain material properties for a newly developed proprietary explosive. Resolved.
- May 5, 2014, Consulting Contract with U.S. self defense corporation for publication of sponsored product development. Complete.
- April 16, 2014, Consulting Contract with Canadian Municipality Law Office to perform a forensic biomechanical assessment of a serious slip and fall incident resulting in catastrophic spinal cord injury. Resolved.
- April 14, 2014, Consulting Contract with U.S. company to perform blast mitigation testing for the purposes of assessing three undercarriage vehicle blast protection designs and two vertical blast protection designs. Complete.
- April 8, 2014, Consulting Contract with U.S. Municipality Law Office to perform forensic biomechanical reconstruction, head injury causation analysis and helmet testing for a bicycle incident. Resolved.
- February 7, 2014, Consulting Contract with Canadian Municipality Law Office to perform a forensic biomechanical reconstruction of applied tactics and techniques during a “hands-on” incident involving a Police Officer. On going.
- February 7, 2014, Consulting Contract with Canadian Municipality Law Office to perform a forensic biomechanical reconstruction of a Police Service Dog bite. On going.
- February 4, 2014, Consulting Contract with Canadian reality based training products manufacturer to perform a biomechanical engineering assessment of a product design and summarize it in video format. Complete.
- October 24, 2013, Consulting Contract with U.S. Law Firm to perform vehicle-pedestrian forensic biomechanical accident reconstruction of sprint car (racing version) collision resulting in bilateral lower leg amputations. Resolved.
- October 9, 2013, Consulting Contract with U.S. Municipality Law Office to perform a forensic biomechanical reconstruction of evolving human movement patterns during an Officer Involved Shooting. Resolved.
- August 26, 2013, Consulting Contract with Canadian Medical Device Company to develop an additional product to their existing product line. Complete.
- August 2, 2013, Consulting Contract with Canadian Medical Device Company to demonstrate their primary products scientific ability on film. Complete.
- July 29, 2013, Consulting Contract with U.S. based Self-Defense Firm to develop a product based on their training methodology. Complete.
- July 23, 2013, Consulting Contract with U.S. based Hardware Company to determine blast mitigation effectiveness of primary product. Complete.
- June 22, 2013, Consulting Contract for an International Baton Manufacturer on the effectiveness of specific baton designs (hands on course and design consultation). Complete.
- June 11, 2013, Consulting Contract with a U.S. Municipality Law Office for injury potential of weapons of opportunity in an Officer Involved Shooting. On-going.

- February 21, 2013, Consulting Contract with Canadian Police Department to perform kinesiology and forensic biomechanical assessment of homicide. Resolved.
- January 4, 2013, Consulting Contract with U.S. Law Firm to perform a forensic biomechanical accident reconstruction via mathematical modeling software to determine risk of concussion during zip line incident. Resolved.
- December 4, 2012, Case Materials Review request from U.S. Law Firm on an adventure park incident causing closed head injuries. Resolved.
- December 3, 2012, Consulting Contract with U.S. Law Firm to perform a vehicle accident reconstruction involving a heavy truck and car resulting in passenger ejection and eventual death. Resolved.
- November 26, 2012, Consulting Contract with U.S. Law Firm to perform a forensic biomechanical accident reconstruction involving a recreational sporting event that resulted in spinal fracture. Resolved.
- May 15, 2012, Consulting Contract with U.S. Self-Defense Firm to scientifically validate training methodologies. Firm caters to law enforcement and special warfare operator communities. Complete.
- April 5, 2012, Consulting Contract with U.S. Law Firm to perform biomechanical modeling and safety systems assessment of a sports facility accident causing catastrophic injury and eventual death. Resolved.
- March 22, 2012, Consulting Contract with International Law Firm to perform a dynamic biomechanical assessment of an event that led to injury. Resolved.
- January 25, 2012, Consulting Contract with U.S. Law Firm to perform scientific tests on conducted electrical weapon. Resolved.
- July 26, 2011, consulted to Canadian Police Department (Tactical Unit) on use of two-person v. single-person door rams when breaching. Complete.
- June 1, 2010, Consulting Contract with U.S. Law Firm to biomechanically investigate a catastrophic neck injury caused by a rebound device. Resolved.
- December 23, 2010, consulted to Canadian Police Department regarding forensic biomechanical assessment of a homicide crime scene and related injuries. Resolved.
- October 7, 2010, Consulting Contract with Watson St. Pictures to film opinions of self-defense and engineering aspects of knives used as weapons for documentary on Vince Li incident. Documentary entitled “Heart of Ice”. Complete.

Patents and Trademarks

Inventors: **Desmoulin** G. T., and Hunter C. J.; *Title:* Non-Invasive Method of Spinal Intervention and Use of Devices Effective for Spinal Intervention; *International (PCT) Publication #:* WO/2011/145069. Priority Date: 19 May, 2010.

Owner: **Desmoulin** G. T.; *Word Mark:* “GTD” (logo); *Mark Description:* The mark consists of the literal elements “GTD” wherein the letter T is in the shape of Thor’s Hammer as shown in the mark; *Status:* Registered, Date: 7/3/2012 (SN 85230818); *Int’l Class Code(s):* 025 and 042 - Engineering consulting, research and development

in the field of biomechanical engineering, injury biomechanics, mechanical engineering, and sports biomechanics; and clothing: namely, t-shirts, hats, and coats.

Owner: Desmoulin G. T.; Word Mark: "THE SCIENCE OF VIOLENCE"; Status: Registered, Date: 1/24/2012 (SN 85975800); Int'l Class Code: 042 - Scientific research and development in the field of injury, violence, treatment, and prevention.

Publications

1. **Desmoulin** G.T. and Nolette M.A. "Application of Biomechanical Modeling to Police Shooting Reconstruction." Submitted, 2019.
2. **Desmoulin** G.T., Nolette M.A., and Bird K.G. "Contribution of Injury Biomechanics to Traffic Collision Reconstructions: A Case Report." Submitted, 2019.
3. **Desmoulin** G.T., Bird K.G., MacIntosh A.R. "The Influence of Energy Attenuating Aircraft Seats on Lumbar Spine Burst Fractures: An Incident Reconstruction." Submitted, 2019.
4. **Desmoulin** G.T., Nolette M.A., Bird K.G., Cepus E. "Timing and Mechanism of Seat-Restraint Failure and Anterior Wedge Fracture during an Emergency Landing of a Single Engine General Aviation Aircraft" Submitted, 2019.
5. **Desmoulin** G.T., Nolette M.A., Rabinoff M. "Injury Analysis and Prevention Strategies in Recent Recreational Facilities utilizing Airbags and Foam Pits." Submitted, 2019.
6. **Desmoulin** G.T., Pradham V., Milner T.E. "Mechanical Aspects of Intervertebral Disc Injury and Implications on Biomechanics." Submitted, 2019.
7. MacIntosh A.R. and **Desmoulin** G.T. "Police Officer Performance and Perception using Light, Medium and Heavy Weight Tactical Batons." Applied Ergonomics, 2019, 75:178-183.
8. **Desmoulin** G.T. and Nolette M-A. "Novel Tactical Ballistic Shield Technology: A Blast Injury Mitigation Evaluation." Advances in Military Technology, 2018, 13(2): 249-264.
9. **Desmoulin** G. T. and Doslikova K. "Event Dynamics and Injury Reconstruction of a Zip-Line Incident using MADYMO Software: a Case Study." International Journal of Forensic Engineering, 2017, 3(3): 181-194.
10. **Desmoulin** G. T. and Rabinoff M. "Biomechanical Assessment of the Connection between Risk of Galeazzi Fracture and the Dumbbell Chest Press Performed on an Exercise Ball." International Journal of Forensic Engineering, 2015, 2(4): 253-264.

- 11. Desmoulin G. T., Rashid N, Meitz J, Ropchan C, Upadhyaya K, Yan, S.M.** “A New Approach to Fracture Simulations: The Electromagnetic Breakable and Reusable Human Lower Limb Model.” *Journal of Forensic Biomechanics*, 2015, 6(2): 1-6.
- 12. Desmoulin G. T., Rabinoff M., Stolz B., Gilbert M.** “A Biomechanical Method for Reconstruction of Tumbling Trampoline- Associated Cervical Spine Injuries using Human and Anthropometric Test Dummy Data.” *Journal of Forensic Biomechanics*, 2014, 5(1): 101-7.
- 13. Desmoulin G. T.** “Elementary Physics for Lawyers: Applications to Complex Injury Litigation.” *Proceedings of Engineering Evidence in Civil Litigation by the Continuing Legal Education Society of British Columbia*, January 2014. Paper 3.1, pp. 3.1.1 to 3.1.11.
- 14. G. T. Desmoulin,** “Tissue Injury and the Effects of Applied Vibration on the Intervertebral Disc.” Doctor of Philosophy Thesis, Mechanical and Manufacturing Engineering, University of Calgary, April 2013.
- 15. Desmoulin G. T., Enns-Bray W. S., Hewitt C. R., Hunter C. J.** “Multi-unit sustained vibration loading platform for biological tissues: design, validation, and experimentation.” *Journal of Biomechanics*. 2013, 46(1): 116-21.
- 16. Desmoulin G. T., Larkin T.** “Effectiveness of Slow Rate Practice Techniques.” White Paper, 2012.
- 17. Desmoulin G. T., Dionne J. P.** “Blast Mitigation Status of Police Crowd Management Ensembles.” White Paper, 2012.
- 18. Desmoulin G. T., Szostek J., Khan A., Hunter C., Bogduk N.** “Spinal Intervention Efficacy on Correcting Cervical Vertebral Axes of Rotation and the Resulting Improvements in Pain, Disability and Psychosocial Measures.” *Journal of Musculoskeletal Pain*. 2012, 20(1): 31-40.
- 19. Lee J. K., Desmoulin G. T., Khan A. H., Park E. J.** “A portable inertial sensing-based spinal motion measurement system for low back pain assessment.” [Research Support, Non-U.S. Gov't]. *Conf Proc IEEE Eng Med Biol Soc*, 2011, 4737-4740.
- 20. Lee J., Desmoulin G. T., Khan A., Park E.** "Comparison of 3D Spinal Motions during Stair-climbing between Individuals With and Without Low Back Pain." *Gait & Posture*. 2011, (34): 222–226.
- 21. Desmoulin G. T., Anderson G. S.** “Method to Investigate Contusion Mechanics in Living Humans.” *Journal of Forensic Biomechanics*. 2011, 2(1): 1-10.

- 22. Desmoulin G. T., Reno C.R., Hunter C.J.** “Disc strain and resulting positive mRNA expression from application of a non-invasive treatment.” *Spine*. 2011, 36(14): E921–E928.
- 23. Desmoulin G. T., Reno C.R., Hunter C.J.** “Free axial vibrations at 0 to 200 Hz positively affect extracellular matrix messenger ribonucleic acid expression in bovine nucleus pulposi.” *Spine*. 2010, 35(15):1437-1444.
- 24. Desmoulin G. T., Dionne J-P.** “Blast-Induced Neurotrauma: Surrogate Use, Loading Mechanisms, and Cellular Responses.” *J Trauma*. 2009, 67(5):1113-1122.
- 25. Hill T.E., Desmoulin G.T., Hunter C.J.** “Is vibration truly an injurious stimulus in the human spine?” *J Biomech*. 2009, 42(16):2631-2635.
- 26. Hall R. H., Desmoulin G. T., Milner T. E.** “A Technique for Conditioning and Calibrating Force Sensing Resistors for Repeatable and Reliable Measurement of Compressive Force.” *J Biomech*. 2008 41:3492-3495.
- 27. Desmoulin G., Khan A.** “Spinal mechanisms of chronic pain.” *AJPM*. 2007 Jan;17(1):27-43.
- 28. Desmoulin G. T., Yasin N. I., Chen D. W.** “Spinal mechanisms of pain control.” *Clin J Pain*. 2007 23(7):576-585.
- 29. Desmoulin G. T., Milner T. E.** “Lumbar mechanics from ultrasound imaging.” *Can Acoust*. 2007 Jun;35(2):61-8.
- 30. Desmoulin G. T., Yasin N. I., Chen D. W.** “Initial results using Khan Kinetic Treatment™ as a low back pain treatment option.” *J Musculoskel Pain*. 2007 15(3):91-102.
- 31. Desmoulin G., Hoffer J. A.** “Selective Control of Leg Muscle Activation Patterns and Ankle Forces Using a Multi-Chambered Stimulation Cuff Implanted on the Sciatic Nerve” *Int’l Functional Electrical Stimulation Soc., 12th Ann. Conf., Philadelphia, USA, 10-14 Nov 2007. Vodovnik Student Paper Award Nominee.*
- 32. G. T. Desmoulin,** “Lumbar mechanics from ultrasound imaging.” *Master of Science Thesis, Simon Fraser University, Fall 2005.*
- 33. Hoffer J. A., Baru M., Bedard S., Calderon E., Desmoulin G., Dhawan P., Jenne G., Kerr J., Whittaker M., Zwimpher T. J.** “Initial results with fully implanted Neurostep™ FES system for foot drop.” *Int’l Functional Electrical Stimulation Soc., 10th Ann. Conf., Montreal, Canada, pp. 53-55, 5-9 July 2005.*

34. G. T. Desmoulin, “Characterization of Neurocuff™ stimulation using electromyography and 2D forces.” Undergraduate Honors Thesis, Simon Fraser University, October 2002.

Abstracts

- Chao J, Khera R, Kirker J, Langelier K, Nagib H. “Instrumented Drop Tower” 2016-17 Capstone Design Fair, Mechanical Engineering, University of British Columbia, April 18, 2017. Project Sponsor: **GTD Engineering**.
- **Desmoulin** G.T. “Your Life. Our Duty: Assessment of New Blast Eliminating Technology.” Lightweight Tactical Vehicle Summit, Institute for Defense and Government Advancement, Detroit, Michigan, USA, March 16-18, 2015.
- Meitz J, Rashid N, Ropchan C, Upadhyaya K, Yan, S.M. “Breakable and Reusable Human Joint Model and Prototype” 2014 Schulich Capstone Design Fair, Schulich School of Engineering, University of Calgary, April 8, 2014. Project Sponsor: **GTD Engineering**; Sponsor Partner: Target Focus Training Group.
- **Desmoulin** G.T., Hunter J.H., Hewitt R.C., Bogduk N., Al-Ameri O.S. “Novel Intervention Affects Biomechanics and Disc Genes for Long-term Spinal Health.” 8th Interdisciplinary World Congress on Low Back & Pelvic Pain. Dubai, UAE, 27-31 October, 2013.
- Abbasi M.A., **Desmoulin** G.T., Ferrie F.P., Khan A.H. “Semi-automation of mean axis of rotation analysis using computer vision.” Proceedings of the 11th International Symposium, Computer Methods in Biomechanics and Biomedical Engineering, Salt Lake City, Utah, USA, 3-7 April, 2013.
- **Desmoulin** G.T., Hunter C.J., Hewitt C.R., Bogduk N., Al-Ameri O.S. “Non-invasive Intervention Corrects Biomechanics and Up-Regulates Disc Genes for Long-term Spinal Health.” World Forum on Spine Research – The intervertebral disc, Helsinki, Finland, 18-21 June 2012. Global Spine J. 2012; 02 DOI: 10.1055/s-0032-1318607.
- **Desmoulin** G., Yasin N., Chen D. “Initial results using Khan Kinetic Treatment™ as a low back pain treatment option.” The First International Congress of Chinese Orthopaedic Association, (Podium presentation) Beijing, China, 12-15 November 2006.
- **Desmoulin** G., Anderson G. “Contusion mechanics: a minimum tolerance test.” Northwest Biomechanics Symposium, (Abstract) Vancouver, Canada, 12-13 May 2006.
- **Desmoulin** G., Yasin N., Chen D. “Early results using Khan Kinetic Treatment™.” Northwest Biomechanics Symposium, (Poster presentation) Vancouver, Canada, 12-13 May 2006.
- **Desmoulin** G., Lessoway V., Rohling R., Milner T. “Lumbar mechanics from ultrasound imaging.” Northwest Biomechanics Symposium, (Podium presentation) Seattle, U.S.A., 13-14 May 2005.
- **Desmoulin** G., Lessoway V., Rohling R., Milner T. “Lumbar mechanics from ultrasound imaging.” 2005 Injury Biomechanics Symposium, (Poster presentation) Ohio, U.S.A., 20 May 2005.

Acknowledgments

- D. E. Raymond, “Biomechanics of Blunt Ballistic Temporo-Parietal Head Impact.” PhD Thesis, Wayne State University, April 2008.
- R.R. caballes de Guzman, “Nerve regeneration strategies: Delivery of Glial cell-line derived neurotrophic factor from microencapsulated cells and utilization of electrospun basal lamina nanofibers.” PhD Thesis, Wayne State University, April 2008.
- Milner T. E., Dhaliwal S. S. “Activation of intrinsic and extrinsic finger muscles in relation to the fingertip force vector.” *Exp. Brain Res.* 2002 Sep; 146(2): 197-204.
- R. H. Hall, “Design of a Force Sensing Glove for Ergonomic Evaluation.” MSc. Thesis, Simon Fraser University, April 2001.

Invited Speaker

1. Invited Speaker, United States District Attorney’s Office/City Attorney’s Office/Municipal Police Departments Homicide Team, US Municipality, 2017. *Topic: Biomechanical Applications to Complex Injury Litigation and Case Review for Litigation Support.*
2. Invited Speaker, Military Medicine Summit, Institute for Defence and Government Advancement, Arlington, Virginia, USA, 2015. *Topic: SIM and SAVE – Utilizing MADYMO to Successfully Protect Our Nations Warfighters.*
3. Invited Speaker, Trial Lawyers Association of British Columbia, Personal Injury Seminar. Prove It!: Building a Credible Argument, Vancouver, British Columbia, Canada, 2015. *Topic: Biomechanical Applications to Complex Injury Litigation.*
4. Featured Speaker, Lightweight Tactical Vehicle Summit, Institute for Defense and Government Advancement, Detroit, Michigan, USA, 2015. *Topic: Your Life. Our Duty: Assessment of New Blast Eliminating Technology.*
5. Invited Speaker, Rotary Club of Vancouver, British Columbia, Canada, 2015. *Topic: Forensic Biomechanical Engineering.*
6. Guest Speaker, 39 Signal Regiment, Canadian Armed Forces, Canadian Forces Base Esquimalt, British Columbia Communicator’s Dine In, Union Club of British Columbia 2014. *Topic: Soldier Support – How the Military Shaped my Career.*
7. Guest Lecturer, Simon Fraser University, School of Engineering Science, Burnaby, Canada, 2014. *Topic: Injury Biomechanics.*
8. Guest Lecturer, Simon Fraser University, Department of Biomedical Physiology and Kinesiology, Burnaby, Canada, 2014. *Topic: Injury Biomechanics.*
9. Invited Speaker, City of Vancouver Law Department, Vancouver, Canada, 2014. *Topic: Elementary Physics for Lawyers: Application to Complex Injury Litigation.*
10. Invited Speaker, Continuing Legal Education Society of British Columbia, Vancouver, Canada, 2014. *Topic: Elementary Physics for Lawyers: Applications to Complex Injury Litigation.*
11. Invited Speaker, Vancouver Police Department, Vancouver, Canada, 2013. *Topic: Applications of Forensic Biomechanical Engineering.*
12. Invited Speaker, 8th Interdisciplinary World Congress on Low Back & Pelvic Pain.

- Dubai, UAE, 2013.
13. Invited Speaker, Kin Week at Simon Fraser University, Burnaby, Canada, 2013. *Topic: Kinesiology then, what now? Role Kinesiology played in my Current Career.*
 14. Invited Speaker, Secret Science Café, Vancouver, Canada, 2013. *Topic: The Science of Violence.*
 15. Invited Speaker, British Columbia Association of Kinesiologists, Annual General Meeting. Vancouver, British Columbia, 2013.
 16. Invited Speaker, American Society of Testing and Materials (ASTM), F24 International Technical Committee on Amusement Rides and Devices. New Orleans, Louisiana, 2013. *Topic: User Centered Design.*
 17. Invited Speaker, American Society of Testing and Materials (ASTM), F24
 18. International Technical Committee on Amusement Rides and Devices. Vancouver, British Columbia, 2012. *Topic: Biomechanics of Spinal Injury.*
 19. Invited Speaker, American Society of Testing and Materials (ASTM), F08 International Technical Committee on Sports Equipment, Playing Surfaces, and Facilities. Atlanta, Georgia, 2012.
 20. Invited Speaker, World Forum on Spine Research – The intervertebral disc, Helsinki, Finland, 2012.
 21. Key Note Speaker, Men’s Expo, Edmonton, Canada, 2012.
 22. Invited Speaker (Lecture Series/Promotional Events), Men’s Expo, Edmonton, Canada, 2012.
 23. Invited Appearance, The Ranch’s Gala Event, Edmonton, Canada, 2012
 24. Invited Speaker, 1922 Royal Westminster Regiment, RCACC, Abbotsford, Canada, 2012.
 25. Invited Charity Appearance, Melrose Gala Event for Calgary Military Family Resource Centre, Calgary, Canada, 2011.
 26. Invited Appearance, Lock and Load Tactical, Las Vegas, USA, 2010.
 27. Invited Charity Appearance, Crown Surplus Stores Inc. for the 4th Annual Seniors and Veterans Food Drive, Calgary, Canada, 2010.
 28. Invited Speaker (Motivation/Information), Simon Fraser University Faculty of Science and School of Engineering, Burnaby, Canada, 2010.
 29. Invited Speaker (Motivation/Career Options), University of British Columbia’s Biomedical Engineering Society, Vancouver, Canada, 2010.
 30. Keynote Speaker, National Instruments (NIweek), Texas, USA, 2009.
 31. Invited Speaker (Lecture Series/Promotional Events), National Instruments (NIweek), Texas, USA, 2009.
 32. Invited Speaker (Lecture Series), Indian Medical Association: Continuing Medical Education for health care professionals specializing in the treatment of the spine, Mumbai, India, 2009.

Invited Scientific Reviewer

- Manuscripts Pending Publication to the *Journal of Biomechanics*.
- Manuscripts Pending Publication to the *Journal of Biomaterials Applications*.
- Abstracts Pending Publication to the *American Society of Biomechanics*.

- Manuscripts Pending Publication to the *Journal of Musculoskeletal Pain*.
- Manuscripts Pending Publication to the *SPINE Journal*.
- Pending Industry *Safety Standards to F08 and F24 ASTM* Committee's.

Awards

- \$145,500 “Industrial Research Assistance Program Award”, National Research Council of Canada.
- \$45,000 “MITACS-Accelerate Program Award”, garnered for interns at Optima Health Solutions Int’nl Corp.
- \$41,973 “Graduate Research Assistant Award”, Wayne State University.
- \$39,000 “Thomas C. Rumble University Graduate Fellowship”, Wayne State University.
- \$22,000 “Worksafe Graduate Research Training Award (MSc.)”, Worker’s Compensation Board of British Columbia.
- \$6,000 “Dean’s Entrance Scholarship”, University of Calgary.
- \$6,000 “School of Kinesiology Graduate Fellowship Award”, Simon Fraser University.
- \$1,100 “Simon Fraser University Open Graduate Scholarship”, Simon Fraser University.
- Canadian Forces Certificate of Appreciation awarded to Geoffrey Thor Desmoulin in recognition of services rendered to the Canadian Cadet Organizations, 19 Jan 2012.
- Donation made in Dr. Geoffrey Thor Desmoulin’s name to the “Fulfilling Our Promise: Eradicate Polio” fund in recognition of services rendered to the Rotary Club of Vancouver, British Columbia, Canada on April 21, 2015.
- “Best Table Topics”, Vancouver Entrepreneurs Toastmasters Club.

Athletic Achievements

- | | |
|------------------------------|--|
| International Athlete | - Represented Canada on the Canadian C.I.S.M. Biathlon Team
- 60th at 1993 Military World Championships
- Gold and Silver Medallist at 1990 Canadian Championships |
| Shodan (Black Belt) | - Awarded rank of Shodan in the art of Isshin Ryu Karate
- Triple Gold Medallist at "Kicks for Kids" Martial Arts Tournament |
| Varsity Rowing | - Represented SFU on the Varsity Rowing Team
- 4 th at 2001 Canadian University Rowing Championships (Men’s Heavy Weight Pair) |
| CrossFit Open | - 2018 Results: Overall Rank of 50 th in Canada West Men (age 45-49) |

Professional Certifications

Injury Biomechanics	<ul style="list-style-type: none"> - Injuries, Anatomy, Biomechanics and Federal Regulation (SAE International) - Short Course: Basics of Blast Physics, Damage and Injury (Dyn-FX Consulting)
Accident Investigation	<ul style="list-style-type: none"> - Incident Investigation & Root Cause Analysis Course (System Improvements, Inc.) - Accident Reconstruction (Wayne State University)
Occupational Health/Safety	<ul style="list-style-type: none"> - Workplace Hazardous Materials Information System - Construction Occupational Health and Safety - H2S Alive! (Dihydrogen Sulfide Safety Training) - Construction Explosive Actuated Tools - S.F.U. Laboratory Safety Certificate - BCRPA Strength Training Module
Fire & Explosives	<ul style="list-style-type: none"> - Explosives Awareness Course (Bonetti Explosives, Inc.) - Company Officer - Fire Prevention (Fire Protection Systems) - Company Officer - Pre-Emergency Planning - Company Officer - Firefighting Strategy and Tactics - Command - Firefighter - Basic Fire Science
Medical/Rescue	<ul style="list-style-type: none"> - Emergency Medical Responder - Occupational First Aid Level III - Basic Trauma Life Support - Semi-automatic External Defibrillator - Cardio-Pulmonary Resuscitation
Vehicle Operation & Design	<ul style="list-style-type: none"> - Class I Drivers License with Airbrake Endorsement - Offering, Handling and Transporting of Dangerous Goods - SAIT/N.A.P.D. Emergency Vehicle Driving - Audi Driving Experience – Vehicle Dynamics - Laminated Glass: Design for Vehicle Door Systems - Class VI (Motorcycle) Driver's License
Regulatory Affairs	<ul style="list-style-type: none"> - Ethics and Ethical Dilemmas (Regulatory Affairs Professionals Society) - Professional Engineering and Geoscience Practice in BC Online Seminar (Engineers & Geoscientists British Columbia)
Firearms & Ballistics	<ul style="list-style-type: none"> - Analysis of Use-of-Force Incidents (Force Science Institute) - Shooting Incident Reconstruction (Wayne State University) - Forensics of Firearms, Ballistics, and Explosives (Wayne State University)

- Firearms Range Safety Officer
- Canadian Firearms Safety Courses: Non-restricted and restricted (Silvercore Advanced Training Systems)
- Force Options Training (Vancouver Police Department)
- Patrol Based Ballistics Seminar 2014 (Vancouver Police – Force Options Training Unit)
- Long Rifle Course (Adler Tactical)
- Handgun Course (Adler Tactical)
- Large Bore Rifle Course (RCACC)
- Basic Military Training Course (The Calgary Highlanders 10th Battalion, C.E.F.)

Leadership

- Leadership Under Fire (Special Operations Training – Group)
- The Challenge (Special Operations Training – Group)
- The Forum (Landmark Worldwide)
- Advanced Course (Landmark Worldwide)
- Communications Course (Landmark Worldwide)

Close-Range Combat

- Certified Tactical Baton and Restraints Trainer #395 (Armament Systems and Procedures, Inc.)
- Target Focused Training Seminar (Vancouver Police Dept.)
- StreetSense Inc. – Basic Self Defense Course/Advanced Self Defense Course/Padded Assailant Course (Calgary)
- Israeli Martial Arts – Krav Maga Seminar (Tactix Gym, Vancouver)
- 2yrs Russian Martial Arts – Systema (Calgary RMA School)
- Black Belt: Isshin Ryu Karate (Martin’s Isshin Ryu Karate Dojo)

Persons Directed (Alphabetical Order)

<i>Name (Last, First)</i>	<i>Qualifications</i>	<i>Role</i>
Abbasi, Mayar	MSc. – <i>Computer Engineering</i>	R&D Engineer
Bird, Kevin	BASc. – <i>Materials Science</i>	R&D Engineer
Cheng, Veronica	LL.B. – <i>Bachelor of Laws</i>	Bus. Development
Clark, Michio	PhD. – <i>Biomechanical Engineering</i>	R&D Engineer
Doslikova, Katerina	PhD. – <i>Physiotherapy</i>	R&D Associate
Enns-Bray, William	PhD. – <i>Mechanical Engineering</i>	R&D Engineer
Fennell, Carly	MSc. – <i>Mechanical Engineering</i>	R&D Engineer
Granados, Karra	Diploma – <i>Paralegal</i>	Paralegal/Manager
Holloway, Isemay	Diploma – <i>Office Management</i>	Executive Assistant
Johnson, Taylor	BSc. – <i>Biology</i>	Internship
Kassaian, Amir	MSc. – <i>Electrical Engineering</i>	R&D Engineer
Lim, Gerald	PhD. – <i>Physics</i>	Scientist
MacBreheny, Michaila	Diploma – <i>Office Management</i>	Executive Assistant
MacIntosh, Alex	PhD. – <i>Biomechanical Engineering</i>	R&D Engineer

Manousiadis, Alex	BASc. – <i>Biomedical Engineering</i>	R&D Engineer
Meitz, Jason	BASc. – <i>Mechanical Engineering</i>	R&D Engineer
Milner, Theodore	PhD. – <i>Physics</i>	Scientist
Nolette, Mark	MSc. – <i>Biomedical Engineering</i>	R&D Engineer
Pierce, Hillary	BSc./CPPM. – <i>BioEngineering</i>	Office Manager
Rashid, Nafee	BASc. – <i>Mechanical Engineering</i>	R&D Engineer
Ropchan, Colin	BASc. – <i>Mechanical Engineering</i>	R&D Engineer
Rosen, Jonathan	PhD. – <i>Physics</i>	Scientist
Sagastume, Matt	Diploma – <i>Business and Marketing</i>	Marketing
Stevens, Christina	Diploma – <i>Mathematics and Design</i>	Operations Lead
Tran, Bao	BASc. – <i>Mechanical Engineering</i>	R&D Engineer
Upadhyaya, Kunj	BASc. – <i>Mechanical Engineering</i>	R&D Engineer
van Mourik, Stefan	Diploma – <i>Videography and Editing</i>	Editor
Wang, Yi Fan	BASc. – <i>Mechatronic Systems</i>	R&D Engineer
Woods, Kathleen	Diploma – <i>Paralegal</i>	Paralegal/Manager
Yan, Sam	BASc. – <i>Mechanical Engineering</i>	R&D Engineer

Continuing Education

Full Courses

<u>Subject</u>	<u>Institute</u>
Vibrations and Machine Dynamics	University of Calgary
Crime Scene Investigation	British Columbia Institute of Technology
Statics and Dynamics	University of the Fraser Valley
Forensic Bioengineering	Wayne State University
Forensic Photography	British Columbia Institute of Technology

Seminars

<u>Subject</u>	<u>Institute</u>
Q&A w/ Hillary Rodham Clinton	The Vancouver Board of Trade (Women's Leadership Circle)
Apollo 13: The Successful Failure	Dr. Jim O'Neal former Flight Dynamics Officer (FIDO) for the Apollo Missions
Center Director Tour	National Aeronautical and Space Administration's Johnson Space Center
Engineering Evidence in Civil Litigation	Continuing Legal Education Society of BC
Automobile Driver Assist Technologies	Society of Automotive Engineers
Documentation Photography	Langara College
Car Crashes and Forensic Engineering	American Society of Mechanical Engineers
Mechanism of Concussion in Sports	American Society of Testing and Materials
Concussion in Youth Sports	Center for Disease Control
Concussion for Physicians	Center for Disease Control
Functional Assessment of the Spine	British Columbia Ass'n of Kinesiologists
Functional Assessment of the Extremities	British Columbia Ass'n of Kinesiologists

Business Communication for Leaders	Vancouver Community College
Landmark Forum in Action Series	Landmark Worldwide
Take the Money and Run: Business Plan	Futurpreneur Canada
Managing Your Focus	MindBridge Partners
Motorcycle Maintenance Course	Essential Motorcycle Services

Professional Memberships

- Order of the Engineer (Ohio)
- Canadian Kinesiologists Alliance
- Society of Automotive Engineers (SAE International)
- American Society of Testing and Materials (ASTM)
- Lifetime Honorary Member of the Officer's Mess (1922 RWR, RCACC)

Selected Press Interviews

- BC Soldier Magazine (National Defense, Ottawa) – “The Science Behind the Service”; Fall 2017 Edition 18, pp. 8-9.
- The COSTCO Connection Magazine (COSTCO Headquarters, Ottawa) – “The Merits of Mentoring”; Sept/Oct 2017 5(30), pp. 17-18.
- Simon Fraser University (Burnaby) – “Promotional Video for Co-operative Education”; posted, spring 2016.
- E-learners.com a subsidiary of Education Dynamics LLC (New Jersey) “Interview with Geoff Desmoulin, President and Senior Engineer at GTD Engineering:- Forensic Theories and Criminal Cases” Spring, 2015.
- The Leduc Rep (Alberta) – “What are Concussions & What Should You Do If You Get One?” Fall, 2014.
- Natural News – Natural Health News and Scientific Discoveries (New York) – “Vets exposed to bomb blasts may have brain injury and not know it.” March, 2014.
- MODERNMAN.com (California) – “Injury Biomechanics Perspective on the Headbutt Technique”; Aug, 2013.
- MO.com (Missouri) – “GTD Engineering featured on MO.com”; May 15, 2013.
- Scholastic Scope Classroom Magazine (New York) – “Could He Really Survive This Explosion? (No.)”; May 6, 2013.
- Skepticity – blog, website, magazine and podcast (California) – “Examining Extraordinary Claims and Promoting Science”; March 28, 2013.
- Simon Fraser University (Burnaby) – “Promotional Video for Department of Biomedical Physiology and Kinesiology”; posted, early 2013.
- Bruce Hurwitz Presents (New York) – “PhD Forum: How to Cope with Chronic Pain”; Oct. 28, 2012.
- Abbotsford News Paper (Abbotsford) – News Article; Jan. 18, 2012.

- Design News Magazine (Massachusetts) – “Science Grabs Spotlight in Deadliest Warrior”; Aug. 10, 2011.
- Design News Magazine (Massachusetts) – Cover Page Article; Oct. 10, 2010.
- Canadian Occupational Safety Magazine (Ontario) – Ergonomics Article; Sept. 3, 2010.
- ESPN 1050AM Radio (New York) – Geek Stuff Unlimited; July 30, 2010.
- University of Calgary (Calgary)– Research News Article; July 7, 2010.
- CNN.com (U.S.A.) – “Technology meets ultraviolence...” Article; April 27, 2010.
- Toro Magazine (Toronto) – Radar Article; April 28, 2009.
- Metro News (Vancouver) – Feature Article; March 24, 2010.
- ASME Mechanical Engineering Magazine (New York) – Feature Article; March, 2010.