

# NEDA LATIFI

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Department of Mechanical and Industrial Engineering,  
Translational Biology and Engineering Program,  
Ted Rogers Center for Heart Research,  
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## Education

**Ph.D. in Tissue Engineering**, McGill University, Montreal, Canada 2011–2018  
Thesis title: Nano-fibrillar hybrid biomaterials and phono-mimetic perfusion bioreactor for vocal fold tissue engineering (GPA 4/4).

**M.Sc. (Honors) in Applied Solid Mechanics**, Isfahan University of Technology, Iran 2008–2011  
Thesis title: Finite element implementation of nonlocal damage using micro-plane theory.  
(GPA 18.9/20, **First rank**).

**B.Sc. (Honors) in Mechanical Engineering**, Isfahan University of Technology, Iran 2004–2008  
Thesis title: Modeling of the vibrations of a continuous beam using Lagrange method (GPA 18.8/20, **Second rank**).

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## Research Interests

- Heart valve tissue engineering
  - Tissue-mimetic biomaterials
  - Cell-biomaterial interactions
  - Tissue culture bioreactors
  - Atomic force microscopy (AFM)
  - Heterotypic collagen fibrils
  - Elastogenesis
  - Preclinical translation of engineered heart valve tissue
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## Research Experience

- **NSERC Postdoctoral research fellow**  
Simmons Laboratory, Mechanical and Industrial Eng., University of Toronto October 2018–Present  
Translational Biology and Engineering Program (TBEP), Ted Rogers Center for Heart Research
  - Engineering pulmonary valve tissue sheets using porcine umbilical cord perivascular cells and tissue-mimetic electro-spun scaffolds
  - Translating autologous engineered pulmonary heart valve from bench to preclinical studies
  - Differential regulation of extracellular matrix components using growth factors with an emphasis on elastogenesis for heart valve tissue engineering applications
  - The effects of mechanical stiffness of the substrates on the maturation of human pluripotent stem cell derived cardiomyocytes in collaboration with Prof. Michael Laflamme’s group at the Toronto Hospital Research Institute

- In situ mechanical characterization of a micro-scaled tissue engineered cancer model in collaboration with Professor Edmond Young’s group at the University of Toronto
  - Generation of valvular interstitial cells from human pluripotent stem cells in collaboration with Professor Gordon Keller’s group at McEwen Stem Cell Institute, University of Toronto
  - Age effect on the niche stiffness of the satellite cells (the resident adult stem cells of skeletal muscle) in a mouse model in collaboration with Prof. Penney Gilbert’s group at the University of Toronto
  - Mechanical characterization of mitral valve prolapse in collaboration with Professor Joy Lincoln’s group at the Children’s Hospital of Wisconsin
- **Graduate research assistant (Ph.D candidate)**  
 Mechanical Eng., McGill University July 2013–September 2018
    - Nano-fibrillar hybrid biomaterials and phono-mimetic perfusion bioreactor for vocal fold tissue engineering
  - **Graduate research assistant (Ph.D student)**  
 Mechanical Eng., McGill University September 2011–November 2012
    - Determination of the elastic properties of rabbit vocal fold tissue using uniaxial tensile testing and a tailored finite element model
  - **Graduate research assistant (M.Sc. student)**  
 Mechanical Eng., Isfahan University of Technology September 2008–February 2011
    - Investigations on development and implementation of a nonlocal damage model
  - **Undergraduate research assistant (B.Sc. student)**  
 Mechanical Eng., Isfahan University of Technology September 2007–August 2008
    - Development of a model for vibration of a continuous beam using Lagrange method
  - **Undergraduate research assistant (B.Sc. student)**  
 Mechanical Eng., Isfahan University of Technology May 2006–August 2007
    - Design and fabrication of a magneto-rheological damper
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## Honors and Distinctions

- Natural Sciences and Engineering Research Council of Canada (NSERC) Postdoctoral Fellowship  
 \$90,000 (Canadian dollar) 2021–2023
- 2020 Rising Star in Engineering in Health by the School of Engineering and Applied Sciences, Columbia University  
 December 2020 <https://www.bme.columbia.edu/announcing-inaugural-rising-stars-engineering-health>
- Fonds de Recherche du Quebec Nature et Technologies (FRQNT)  
 Postdoctoral Scholarship–Second Term – \$55,000 (Canadian dollar). 2020–2021
- FRQNT Postdoctoral Research Scholarship – \$110,000 (Canadian dollar). 2018–2020
- First Rank in the Multidisciplinary Committee of the Fonds de Recherche du Quebec  
 Nature et Technologies (FRQNT) Postdoctoral Fellowship Award April 2018
- *Scientific Reports* one 100–author for material science papers in 2018 April 2019
- Student Scientist Award, TERMIS-Americas,  
 Charlotte, NC, USA– \$400 (US dollar) December 2017
- Nominated for the 2016 Senior Women Academic Administrators of Canada (SWAAC)  
 graduate student award of merit competition, Faculty of Engineering, McGill University January 2016

- First-place Award of the 2014 ASME International Mechanical Engineering Congress and Exposition track 3 (Biomedical and Biotechnology Engineering) – \$500 (US dollar) November 2014
- McGill Graduate Excellence Award in Engineering– \$16,000 (Canadian dollar) 2012–2014
- McGill Engineering International Tuition Award (MEITA)– \$24,000 (Canadian dollar) 2011–2014
- McGill Graduate Research Enhancement and Travel (GREAT) Award, 7th World Congress of Biomechanics, Boston, MA, USA– \$450 (Canadian dollar) July 2014
- McGill Graduate Travel Funding Program (GTFP) Award, TERMIS-Americas Annual Conference 2014, Washington, DC, USA– \$1457 (Canadian dollar) April 2014
- McGill Graduate Travel Funding Program (GTFP) Award, 2012 IUTAM summer school on Biomechanics of tissue and tissue-cell interactions, Purdue University, West Lafayette, IN, USA– \$1175 (Canadian dollar) June 2012
- First Rank among Mechanical Eng. Dept. M.Sc. Students, Isfahan University of Technology 2008-2011
- Graduate Excellence Fellowship Award (Merit-based Scholarship), Isfahan University of Technology 2008-2010
- Second Rank among Mechanical Eng. Dept. B.Sc. solid mechanics students, Isfahan University of Technology 2004-2008
- Undergraduate Excellence Fellowship Award (Merit-based Scholarship), Isfahan University of Technology 2004-2008
- Membership of intelligent students, Isfahan University of Technology 2004-2011
- High rank in selective examination for National Physics Olympiad, Iran 2003

## Invited Talks on Engineering Functional Load-bearing Tissues

- Department of Mechanical Engineering, Ecole de Technologie Superieure. April 2021
- 2020 Rising Stars in Engineering in Health, Department of Biomedical Engineering, School of Engineering and Applied science, Columbia University, City of New York. December 2020
- Department of Applied Oral Sciences, Faculty of Dentistry, Dalhousie University. January 2020

## Publications ([Google scholar](#))

- **N. Latifi**, M. Lecce, and C. A. Simmons, Porcine umbilical cord perivascular cells for preclinical testing of tissue engineered heart valves, *Tissue Engineering Part C: Methods*, 27.1 (2021): 35.
- W. Dhahri, T. S. Valdman, D. Wilkinson, E. Ceylan, N. Andharia, B. Qiang, H. Masoudpour, F. Wulkan, E. Quesnel, W. Jiang, S. Funakoshi, J. Gomez, **N. Latifi**, C. A. Simmons, G. Keller, M. A. Laflamme, *In vitro* matured human pluripotent stem cell-derived cardiomyocytes form grafts with enhanced structure and function in injured hearts (*Circulation, revised manuscript under review*).
- S. Bouhabel, S. Park, K. Kolosova, **N. Latifi**, K. Kost, N. Y. K. Li-Jessen, and L. Mongeau, Functional analysis of injectable substance treatment on surgically injured rabbit vocal folds, *Journal of Voice*, 2021 (<https://doi.org/10.1016/j.jvoice.2021.06.001>).
- M. Asgari, **N. Latifi**, F. Giovaniello and M. Amabili, Revealing layer-specific ultrastructure and nano-mechanics of fibrillar collagen in human aorta via in situ AFM testing–implications on tissue mechanics (submitted).

- **N. Latifi**, M. Lecce, B. Mirani, T. Sokhanvar, N. M. Siqueira, J. P. Santerre, and C. A. Simmons, Engineering pulmonary valve tissue sheets using porcine umbilical cord perivascular cells and tissue-mimetic electro-spun scaffolds (*in preparation*).
- **N. Latifi**, M. Lecce, T. Sokhanvar, N. M. Siqueira, J. P. Santerre, and C. A. Simmons, Differential regulation of extracellular matrix components using growth factors and vitamin C derivatives (*in preparation*).
- B. Mirani, S. O. Mathew, **N. Latifi**, S. Zahavi, B. G. Amsden, and C. A. Simmons, Engineering heart valve tissues with mimetic biaxial mechanical properties using melt electrospinning writing (*in preparation*).
- B. Mirani, **N. Latifi**, M. Lecce, and C. A. Simmons, Technological successes of biomaterials and biofabrication techniques for heart valve tissue engineering (*in preparation*).
- E. M. Strohm, N. I. Callaghan, **N. Latifi**, M. C. Kolios, and C. A. Simmons, High frequency ultrasound-based measurement of cardiomyocyte contractility (*in preparation*).
- Moyle L. A., **N. Latifi**, C. A. Simmons, and P. M. Gilbert, Age effect on the niche stiffness of the satellite cells in a mouse model (*in preparation*).
- M. Asgari, R. Benavides, **N. Latifi**, and M. Amabili, Nano-rheometry and single collagen bonding in the layers of human thoracic aorta using atomic force microscopy (*in preparation*).
- M. Asgari, **N. Latifi**, and M. Amabili, Small-scale abnormalities in human aortic aneurysm (*in preparation*).
- H. Ravanbakhsh, G. Bao, **N. Latifi** and L. Mongeau, Functionalized carbon nanotube-based composite hydrogels for vocal fold tissue engineering: Biocompatibility, rheology and Swelling, *Materials Science and Engineering: C* (2019): 109861.
- **N. Latifi**, M. Asgari, H. Vali and L. Mongeau, A tissue-mimetic nano-fibrillar hybrid injectable hydrogel for potential soft tissue engineering applications, *Scientific Reports*, 8.1 (2018): 1047.
- M. Asgari\*, **N. Latifi\***, H. K. Heris\*, H. Vali and L. Mongeau, In vitro fibrillogenesis of tropocollagen type III in collagen type I affects its relative fibrillar topology and mechanics, *Scientific Reports*, 7.1 (2017): 1392.  
\* M. Asgari, N. Latifi and H. K. Heris equally contributed to this work.
- **N. Latifi**, H. K. Heris, S. L. Thomson, R. Taher, S. Kazemirad, S. Sheibani, N. Y. K. Li-Jessen, H. Vali and L. Mongeau, A flow perfusion bioreactor system for vocal fold tissue engineering applications, *Tissue Engineering Part C: Methods*, 22, no. 9 (2016), 823-838.
- H. K. Heris\*, **N. Latifi\***, H. Vali, N. Y. K. Li and L. Mongeau, Investigation of chitosan-glycol/glyoxal as an injectable biomaterial for vocal fold tissue engineering, *Procedia Engineering*, 110 (2015), 143-150. \* N. Latifi and H. K. Heris equally contributed to this work.
- **N. Latifi**, A. K. Miri and L. Mongeau, Determination of the elastic properties of rabbit vocal fold tissue using uniaxial tensile testing and a tailored finite element model, *Journal of the Mechanical Behavior of Biomedical Materials*, 39 (2014): 366-374.
- **N. Latifi**, H. K. Heris, S. Kazemirad and L. Mongeau, Design and validation of a self-oscillating mechanical model to investigate the biological response of human vocal fold fibroblasts to phono-mimetic stimulation, *American Society of Mechanical Engineers (ASME) 2014 International Mechanical Engineering Congress & Exposition*, Volume 3: Biomedical and Biotechnology Engineering, Montreal, QC, November 14th- 20th, 2014. DOI: 10.1115/IMECE2014-38970.
- **N. Latifi**, M. Asgari, R. Gopinath, M. Toufaili, and L. Mongeau, A novel strategy for vocal fold tissue engineering to promote fibroblasts attachment and migration, *Tissue Engineering Part A*, 23 (2017), S15-S15.
- **N. Latifi**, M. Asgari, and L. Mongeau, A novel micro-fibrillar hybrid injectable biomaterial for vocal fold tissue engineering, *European Cells and Materials Journal*, 21 (2017), Supplement 1, P792.

## Refereed Abstracts and Conference Presentations

- B. Mirani, S. O. Mathew, **N. Latifi**, S. Zahavi, B. G. Amsden, and C. A. Simmons, Engineering heart valve tissues with mimetic biaxial mechanical properties using melt electrospinning writing, *Heart Valve Society 2022 Annual Meeting* (Accepted).

- A. A. Mikryukov, A. Mazine, **N. Latifi**, B. Wei, D. Yang, Y. Miao, M. Gu, C. A. Simmons, and G. M. Keller, Generation of valvular interstitial cells from human pluripotent stem cell-derived endocardial cells, *Till & McCulloch Meeting 2021* (Accepted).
- **N. Latifi**, M. Lecce, and C. A. Simmons, Methods to isolate, expand, and promote extracellular matrix synthesis by porcine umbilical cord perivascular cells for preclinical testing of tissue engineered heart valves, *Heart Valve Society 2021 Annual Meeting*, April 2021 (Accepted for recorded presentation due to COVID19, withdrawn).
- T. Sokhanvar, **N. Latifi**, S. Chung, N. M. Siqueira, J. P. Santerre, and C. A. Simmons, Engineered heart valves tissue for preclinical testing in a pig model, *Undergraduate Engineering Research Day (UnERD)*, August 2021, University of Toronto (Podium).
- **N. Latifi**, M. Lecce, and C. A. Simmons, Pig umbilical cord perivascular cells for preclinical testing of tissue engineered heart valves, *Biomedical Engineering Society 2020 Annual Meeting*, October 2020 (Poster).
- F. Taheri, **N. Latifi**, Z. He and L. Mongeau, Phonatory characteristics and cellular behavior of a perfusion vocal fold bioreactor, *35th Annual Meeting of CBS*, Quebec City, May 2019 (Poster).
- M. Lecce, **N. Latifi** and C. A. Simmons, Optimization of conditions to isolate and grow cells to engineer living replacement heart valves, *Undergraduate Engineering Research Day 2019*, University of Toronto (Poster).
- H. Ravanbakhsh, G. Bao, **N. Latifi** and L. Mongeau, Swelling behaviour of carbon nanotube-based composite hydrogels used as injectable biomaterial for vocal fold, *5th Tissue Engineering and Regenerative Medicine (TERMIS) World Congress*, Kyoto, Japan, August 2018 (Podium).
- **N. Latifi**, M. Asgari, M. Toufaily, R. Gopinath and L. Mongeau, Mechanical characterization of glycol-chitosan particles using atomic force microscopy, *8th World Congress of Biomechanics*, Dublin, Ireland, July 2018 (Poster).
- H. Ravanbakhsh, G. Bao, **N. Latifi** and L. Mongeau, Investigating the rheological properties of carbon nanotube-based composite hydrogels as an injectable biomaterial for vocal fold tissue engineering, *8th World Congress of Biomechanics*, Dublin, Ireland, July 2018 (Poster).
- L.C. Chen, A. Rammal, N. Lee, M. Coulombe, **N. Latifi**, H. Wang, N.K.Y. Li-Jessen, K. Kost and L. Mongeau, Animal study of vocal fold repair using glyco-chitosan with collagen III fibrils, *The Voice Foundation 47th Annual Symposium: Care of the Professional Voice and International Association of Phonosurgery*, Philadelphia, PA, USA, May 30th-June 3rd, 2018 (Podium).
- **N. Latifi**, M. Asgari, R. Gopinath, M. Toufaily and L. Mongeau, A novel strategy for vocal fold tissue engineering to promote fibroblasts attachment and migration, *TERMIS Americas Annual Conference and Exhibition*, Charlotte, NC, USA, December 2017 (Podium).
- **N. Latifi**, M. Asgari and L. Mongeau, A novel injectable biomaterial for vocal fold tissue engineering, *12th International Conference on Advances in Quantitative Laryngology, Voice and Speech Research*, Hong Kong, October 2017 (Podium).
- **N. Latifi**, M. Asgari, M. Christopher and L. Mongeau, A new strategy for vocal fold tissue engineering, *23rd Congress of the European Society of Biomechanics*, Seville, Spain, July 2017 (Podium).
- **N. Latifi**, M. Asgari and L. Mongeau, A novel micro-fibrillar hybrid injectable biomaterial for vocal fold tissue engineering, *TERMIS European Chapter Meeting*, Davos, Switzerland, June 2017 (Poster).
- V. Noohi, **N. Latifi**, A. Douillette and L. Mongeau, Fabrication and testing of micro chitosan fibers for composite chitosan hydrogel scaffolds, *23rd Congress of the European Society of Biomechanics*, Seville, Spain, July 2017 (Podium).
- H. Ravanbakhsh **N. Latifi** and L. Mongeau, The effects of concentration of carbon nanotubes (CNTs) on the viability of human vocal fold fibroblasts encapsulated in composite chitosan glycol-CNT hydrogels, *CBS2017 Annual Meeting*, Winnipeg, MB, Canada, May 2017 (Poster).
- L.C. Chen, A. Rammal, **N. Latifi**, H. Wang, F. Barthelat and L. Mongeau, Adhesive strength of surgical adhesives on porcine vocal fold tissue, *CBS2017 Annual Meeting*, Winnipeg, MB, Canada, May 2017 (Poster).
- M. Asgari, **N. Latifi**, H. K. Heris, R. Sun and L. Mongeau, Mechanical characterization of collagen I fibrils through 3-point bending using AFM, *24th International Congress of Theoretical and Applied Mechanics (ICTAM)*, Montreal, QC, Canada, Aug. 2016 (Podium).
- **N. Latifi**, M. Asgari, M. Christopher, H. K. Heris, N. Y. K. Li and L. Mongeau, Glycol-chitosan/collagen/glyoxal hydrogels for vocal fold tissue engineering, *10th World Biomaterials Congress*, Montreal, QC, Canada, May 2016 (Poster, Selected to be published in Front. Bioeng. Biotechnol.).

- **N. Latifi**, H. K. Heris, N. Y. K. Li and L. Mongeau, A phono-mimetic bioreactor system for vocal fold tissue engineering applications, *MEDTEQ 4th Forum*, Montreal, QC, Canada, October 2015 (Poster).
  - **N. Latifi**, H. K. Heris, N. Y. K. Li and L. Mongeau, A phono-mimetic bioreactor system for vocal fold tissue engineering applications, *McGill Engineering Research Showcase (MERS)*, Montreal, QC, Canada, October 2015 (Poster).
  - H.K. Heris, **N. Latifi**, H. Vali, N.Y.K. Li and L. Mongeau, Investigation of chitosan-glycol/glyoxal as an injectable biomaterial for vocal fold tissue engineering, *International Conference on Tissue Engineering*, Lisboa, Portugal, June 2015 (Podium).
  - **N. Latifi**, H. K. Heris, E. Boucher, N. Y. K. Li, H. Vali and L. Mongeau, Mechanical and biochemical stability of hyaluronic acid-gelatin hydrogels for use in a phono-mimetic vocal fold bioreactor, *Canadian Biomaterials Society 2015 Annual Meeting*, Toronto, ON, May 2015 (Podium).
  - L. Mongeau, **N. Latifi**, Y. Alghonaim, H. K. Heris, J. Wong, S. J. Daniel and N. Y. K. Li, In vivo vocal fold tissue reconstruction using micro-structured hyaluronic acid-gelatin injectable hydrogels, *The Voice Foundation 44th Annual Symposium: Care of the Professional Voice and International Association of Phonosurgery*, Philadelphia, PA, USA, May 2015 (Podium).
  - **N. Latifi**, SH. Dushku, H. K. Heris, L. Mongeau and S. L. Thomson, Hybrid synthetic-biological vocal fold replicas for bioreactor studies, *10th International AQL Conference and Student Workshops: Advances in Quantitative Laryngology*, Voice and Speech Research, London, United Kingdom, April 2015 (Podium).
  - **N. Latifi**, H. K. Heris, S. Kazemirad and L. Mongeau, Design and validation of a self-oscillating mechanical model to investigate the biological response of human vocal fold fibroblasts to phono-mimetic stimulation, *ASME 2014 International Mechanical Engineering Congress & Exposition*, Montreal, QC, November 2014 (Podium).
  - **N. Latifi**, H. K. Heris, S. Sheibani, S. Kazemirad, N. Y. k. Li and L. Mongeau, Verification of an airflow-induced bio-mimetic bioreactor as a platform for studying vocal fold mechanobiology and tissue engineering, *7th World Congress of Biomechanics*, Boston, MA, USA, July 2014 (Poster).
  - L. Mongeau, **N. Latifi**, H. K. Heris, S. Sheibani, R. Taher, C. Yang, S. Kazemirad and N. Y. K. Li, Biological response of human vocal fold fibroblasts to phono-mimetic stimulation using an airflow-induced bioreactor, *The Voice Foundation 43rd Annual Symposium: Care of the Professional Voice*, Philadelphia, PA, USA, May 28th-June 1st, 2014 (Podium).
  - **N. Latifi**, Y. Alghonaim, J. Wong, H. K. Heris, S. J. Daniel, N. Y., K. Li and L. Mongeau, A long-term in vivo study of composite microgels based on hyaluronic acid and gelatin for the reconstruction of surgically injured rat vocal folds, *The 9th International Conference on Voice Physiology and Biomechanics*, Salt Lake City, Utah, USA, April 2014 (Poster).
  - **N. Latifi**, Y. Alghonaim, J. Wong, H. K. Heris, S. J. Daniel, N. Y. K. Li and L. Mongeau, A long-term in vivo study of hierarchically micro-structured hyaluronic acid-gelatin (HA-Ge) hydrogels for the reconstruction of surgically injured rat vocal folds, *Biomaterials Colloquium*, Montreal, QC, May 2014 (Poster).
  - **N. Latifi**, A. K. Miri and L. Mongeau, Determination of the elastic properties of rabbit vocal fold tissue using the uniaxial tensile test and a tailored finite element model, *McGill Engineering Research Showcase (MERS)*, McGill University, Montreal, QC, October 2013 (Poster).
  - **N. Latifi**, A. K. Miri and L. Mongeau, Exact shape based finite element modeling for characterization of mechanical properties of vocal fold tissue, *McGill Biomedical Engineering Symposium 2013*, McGill University, Montreal, QC, September 2013 (Poster).
  - N.L. Alavijeh, A. K. Miri and L. Mongeau, Exact geometrical-based finite element modeling for characterization of mechanical properties of vocal fold tissue, *The 8th International Conference on Voice Physiology and Biomechanics*, Erlangen, Germany, July 2012 (Poster).
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# Teaching Experience

- **Co-supervisor**

- **University of Toronto**

- \* **M.Sc. students**

- Monica Lecce

- August 2020-Present

- \* **B.Sc. students**

- Tina Sokhanvar

- April 2021-Present

- Monica Lecce

- August 2019-2020

- **Research co-advisor/Mentor**

- **University of Toronto**

- \* **B.Sc. students**

- Monica Lecce

- May 2019-August 2019

- **McGill University**

- \* **PhD students**

- Fatemeh Taheri

- August 2017-October 2018

- Sepideh Mohammadi

- August 2017-August 2019

- Hossein Ravanbakhsh

- August 2016-August 2017

- \* **M.Sc. students**

- Marius Muller

- January 2017-January 2018

- Christina Chen

- November 2016-May 2018

- Vahid Noohi

- October 2015-August 2017

- Viet Thi Nguyen

- October 2015-April 2016

- Caroline Shung

- July-December 2015

- \* **B.Sc. students**

- Tanya Pak

- March-August 2018

- Merlyn Christopher

- March-August 2016 & April 2018

- Miral Toufaily

- September 2016-January 2018

- Zixin He

- May 2017-January 2018

- Rohit Gopinath

- June 2016-December 2017

- Rayan Nehme

- September 2016-April 2017

- Carina Liu

- May 2017-July 2017

- Klyde.Chanyin Liyenpin

- September-December 2016

- Ghulam Murtaza

- May-August 2016

- Marise Samaan

- June 2015-May 2016

- Sang Hyuk (Scott) Park

- May-August 2014

- Chanwoo Yang

- July-December 2013

- Jasmin Wong

- May-November 2012

- Juan Henao

- May-July 2012

- **Prospective Professors in Training (PPIT) Program, University of Toronto**

- January–July 2019

- **Teaching assistant**

- **McGill University, Montreal, Canada** (Arranging the assignments and grading them.)

- \* MECH 315, Mechanics III (Mechanical Vibrations)

- Winter 2015

- **Isfahan University of Technology, Isfahan, Iran** (Weekly tutorials and discussion sessions for graduate and undergraduate courses.)

- \* Advanced engineering mathematics (Graduate course)

- Fall 2010

- \* Machine element design
- \* Mechanisms design

Fall 2009, Fall 2010  
Winter 2009, Winter 2010

- **Guest Instructor**

- **University of Toronto**, Toronto, ON
  - \* Biomechanics (Guest lecture on tissue-mimetic biomaterials) March 12th 2021
- **Isfahan University of Technology**, Isfahan, Iran (I designed and taught three sessions.)
  - \* Advanced engineering mathematics (Graduate course) Fall 2010

- **Knowledge translation**

- Club for Undergraduate Biomedical Engineering (CUBE) tour, Translational Biology and Engineering Program (TBEP), University of Toronto February 7th, 2019
- Graduate Research Day (GRD) tour, Institute of Biomaterials and Biomedical Engineering (IBBME), University of Toronto February 22nd, 2019
- TV documentary entitled “Marianne au labo: un hydrogel qui régénère des cordes vocales endommagées après une seule injection”. Télé-Québec, <http://electronslibres.telequebec.tv/episodes/31512> February 7th, 2017
- Biomedical engineering/bioengineering lab tour leader, McGill University January 25th, 2017
- Biomedical engineering/bioengineering lab tour leader, McGill University January 26th, 2016

## Professional Activities/Volunteer Service

- **Committee member**, Biomedical Engineering Society Diversity Committee January 2021–June 2024
- **Board member**, Board of Directors, Canadian Biomaterials Society June 2021–Present
- **Committee member**, Translational Biology and Engineering Program Education Committee, Ted Rogers Center for Heart Research May 2021–Present
- Member of the reviewers’ board of Journal of Biomaterials July 2020–Present
- Member of the reviewers’ board of Polymers September 2020–Present
- **Reviewer of research articles for**
  - Cardiovascular Engineering and Technology October 2020–Present
  - ACS Nano August 2018–Present
  - Tissue Engineering Part C September 2016–Present
  - Biomedical Engineering Society (BMES) 2021 Annual Meeting June–August 2021
  - American Society of Mechanical Engineers (ASME) April–November 2014
- **Presentation judge**
  - University of Toronto Engineering Research Conference 2021 July 2021
  - University of Toronto Engineering Research Conference 2020 June 2020
  - 2019 Institute of Biomedical Engineering (IBME) Annual Research Conference May 2019
- **Scientific community leading roles**
  - **President**, Canadian Biomaterials Society (CBS)-Montreal Chapter October 2017–October 2018
  - **Vice president**, CBS-Montreal Chapter August 2016–October 2017
  - **Associate member**, CBS-Montreal Chapter June 2015–July 2016

- **Event organizer**, Ted Rogers Center for Heart Research Planning Committee for the 1st Virtual Trainee Poster Day March-June 2021
- **Conference manager, chief-organizer and fundraiser**, The 3rd Montreal Biomaterials Research Day, CBS-Montreal Chapter, Center de recherche du C.H.U.M. (CRCHUM) October 2017–May 2018
- **Conference organizer and fundraiser**, The 2nd Montreal Biomaterials Research Day, CBS-Montreal Chapter, CRCHUM October 2016–February 2017
- **Session co-chair**, The 3rd Montreal biomaterials research day, CBS-Montreal Chapter May 1st 2018
- **Event organizer and session chair**, Microfluidics devices for biomedical applications, CBS-Montreal Chapter, McGill University February 1st 2018
- **Session co-chair**, The 33rd Annual Meeting of the CBS, Winnipeg, MB May 25th 2017
- **Presenter on behalf of CBS-Montreal Chapter**, The 33rd Annual General Meeting of the CBS, Winnipeg, MB May 25th 2017
- **Event organizer and fundraiser**, Fabricating functional self-assembling protein-based materials, CBS-Montreal Chapter, CRCHUM October 12th 2017
- **Event organizer and fundraiser**, Cell-biomaterials interactions and microfluidics, CBS-Montreal Chapter, École de Technologie Supérieure (ETS) June 14th 2017
- **Event organizer**, Biomaterials for gene and drug delivery, CBS-Montreal Chapter, Université de Montréal (UdeM) November 24th 2016
- **Event organizer**, Polymeric drug delivery in Academia and Industry, CBS-Montreal Chapter, University of Quebec in Montreal (UQAM) October 5th 2016
- **Event organizer**, Physiologically relevant bioengineered tissue equivalents, CBS-Montreal Chapter, McGill University July 6th 2016
- **Leader volunteer, Event organizer**, Student activity corner, World Biomaterials Congress (WBC2016), CBS-Montreal Chapter November 2015–May 2016
- **Event organizer**, McGill mixer event as part of World Biomaterials Congress (WBC2016), CBS-Montreal Chapter May 18th 2016
- **Event organizer**, Molecular diagnostic: use of biomaterials to detect pathological tissues, CBS-Montreal Chapter, Ecole Polytechnique de Montréal July 16th 2015
- **Volunteer staff**, Tissue Engineering and Regenerative Medicine Society (TERMIS) Americas Annual Conference and Exposition, Washington, DC December 13th–16th 2014
- **Volunteer staff**, Montreal Light Microscopy Course (MLMC2014), McGill University July 14th–18th 2014
- **Student volunteer, event organization**, 4th Canadian Conference on Nonlinear Solid Mechanics, Montreal, QC July 23rd–26th 2013  
Please refer to Amabili, M., and Alijani, F. "Preface of the special issue: 4th Canadian Conference on Non-linear Solid Mechanics (4th CCNLSM)." International Journal of Non-Linear Mechanics 66 (2014): 1-2.

• **Other contributions:**

- **Mentor**, The Association of Mechanical & Industrial Engineering Graduate Students, University of Toronto January 2021–Present
- **Student buddy**, International Student Services, McGill University November 2015–January 2016
- **Student buddy**, International Student Services, McGill University August–September 2015
- **Teacher volunteer**, mathematics for university entrance exam, Iran June 1st–August 31st 2005