

Curriculum Vitae

Alberto Martinez, B.Eng., M.A.Sc., E.I.T.

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PRACTICE AREAS

- **Biomechanics**
- **Bicycle Collisions**
- **Injury Biomechanics**
- **Collision Reconstruction**
- **Computer Simulation & Animation**
- **Gait Analysis**
- **Human Factors**
- **Occupant Kinematics**
- **Slip, Trip & Fall Biomechanics**
- **Sports Injuries**

ACADEMIC BACKGROUND

Master of Applied Science, Mechanical Engineering, McMaster University, 2017

- Thesis: "The Effect of Load Rate on the Axial Fracture Tolerance of the Isolated Tibia During Automotive and Military Impacts"
- Graduate courses:
 - Experimental & Computational Biomechanics
 - Biomechanics of Injury and Prevention
 - Topics in Orthopaedic Biomechanics

Bachelor of Engineering, Biomedical Engineering, University of Guelph, 2014

- Undergraduate courses:
 - Health and Injury Biomechanics
 - Clinical Biomechanics
 - Biomechanical Engineering Design
 - Biomedical Engineering Design
 - Anatomy & Pathology
 - Medical Imaging Modalities
 - Bio-instrumentation Design
 - Biomaterials



EMPLOYMENT HISTORY

Advantage Forensics Inc., Toronto

Forensic Engineering Associate, March 2017 to present

- Conducting forensic engineering analyses that include studying occupant injuries, how collisions occur, and slips, trips, and falls as part of Biomechanics and Accident Reconstruction Teams

McMaster Injury Biomechanics Laboratory, Hamilton

Research Assistant, January 2015 to December 2016

- Conducting graduate research in the field of engineering biomechanics investigating the fracture tolerance of the lower leg during automotive impacts. I am responsible for designing experimental procedure and validating instrumentation necessary to gather data during testing

Department of Mechanical Engineering, McMaster University, Hamilton

Graduate Teaching Assistant, January 2015 to April 2016

- Assist professors within the Department of Mechanical Engineering in teaching undergraduate level courses. Undergraduate courses include Engineering Mechanics (3rd year), Biomechanics (4th year), and Experimental and Computational Biomechanics (4th year)

Mannheim Medical Center, University of Heidelberg, Mannheim, Germany

Student Research Assistant, May 2013 to July 2013

- Member of research group working in the development of new acquisition strategies for magnetic resonance imaging, assisting in MR simulations using MATLAB and data analysis

ADDITIONAL COURSES, TRAINING & AWARDS

- “Drug Recognition Evaluator Program & Cannabis” webinar, Canadian Association of Road Safety Professionals, September 2017
- “Persuasive Communication for Expert Witnesses” webinar, Experts.com, September 2017
- “Features and Accuracy of EDR Downloads”, Advantage Forensics in-house training workshop, August 2017
- Tire Forensics & Accident Reconstruction Seminar, CATAIR, Toronto Police College, June 2017
- Advanced Open Water Diver, PADI (Professional Association of Diving Instructors)
- Ontario/Baden-Wurtemberg Summer Research Scholarship, 2013
- Grand River PEO Student Scholarship, September 2010

PROFESSIONAL SOCIETIES & ASSOCIATIONS

Professional Engineers of Ontario, E.I.T. since 2017

Canadian Association of Technical Accident Investigators and Reconstructionists, member since 2017

Canadian Society for Biomechanics, member since 2016

Society of Automotive Engineers, member since 2017



PAPERS, PUBLICATIONS & PROJECTS

- **Martinez, A.A.**, Chakravarty, A.B., Quenneville, C.E. (2018) "The Effect of Impact Duration on the Axial Fracture Tolerance of the Isolated Tibia During Automotive and Military Impacts", *Journal of Mechanical Behavior of Biomedical Materials*. 78, p. 315-320.
- Chakravarty, A.B., **Martinez, A.A.**, Quenneville, C.E. (2017) "The Injury Tolerance of the Tibia Under Off-Axis Impact Loading", *Annals of Biomedical Engineering*. 45 (6), p. 1534-1542.
- Chakravarty, A.B., **Martinez, A.A.**, Quenneville, C.E. (2016) "The Injury Tolerance of the Tibia Under Off-Axis Impact Loading", 19th Biennial Meeting of the Canadian Society for Biomechanics, Hamilton, ON
- "Mechanical Equine Cheek Tooth Extraction Device", Undergraduate Capstone Project, University of Guelph, 2014

LECTURES & PRESENTATIONS

- "Without a Leg to Stand On: The Axial Fracture Tolerance of the Tibia", ME 758 – McMaster University Department of Mechanical Engineering Graduate Seminar, Hamilton, ON, September 2016
- Poster Presentation: "The Effect of Impulse and Impact Duration on the Axial Fracture Tolerance of the Isolated Tibia", In proceedings of the 19th Biennial Meeting of the Canadian Society for Biomechanics, Hamilton, ON, July 2016
- Podium Presentation: "The Effect of Occupant Posture on the Risk of Fracture in the Human Tibia Under Dynamic Impact Loading", In proceedings of the 12th Annual Injury Biomechanics Symposium, Columbus, OH, June 2016
- Poster Presentation: "The Effect of Impulse and Impact Duration on the Axial Fracture Tolerance of the Isolated Tibia", In proceedings of the Biennial Canadian Bone & Joint Conference, London, ON, April 2016