

Curriculum Vitae

Alberto Martinez, B.Eng., M.A.Sc., P.Eng.

Advantage Forensics® Inc. (416) 630-0700

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PRACTICE AREAS

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

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 level courses in Experimental & Computational Biomechanics, Biomechanics of Injury and Prevention, and Orthopaedic Biomechanics

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

- Undergraduate level courses in Physics, Dynamics, Mechanical Design, Injury Biomechanics, Anatomy, Pathology, Medical Imaging Modalities, and Biomaterials

EMPLOYMENT HISTORY

Advantage Forensics Inc., Toronto

Forensic Engineering Associate, March 2017 to present

- Conduct 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

- Conducted research in the field of engineering biomechanics investigating the fracture tolerance of the lower leg during automotive impacts. 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



- Assisted 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

- “Back to Basics: Getting Started with iINPUT-ACE 2.6” webinar, iINPUT-ACE, July 2020
- Society of Automotive Engineers World Congress Experience Digital Summit, June 2020
- “Vehicle Forensics Essentials” series course, Berla Corporation, June 2020
- “Driver Checking Failures towards Pedestrians and Cyclists: An On-road Study” webinar, Canadian Association of Road Safety Professionals, June 2020
- “PC-Crash Training Course: 401 Staged Collisions” online course, PC-Crash, April 2020
- “Human Factors Related to Perception Reaction Times”, Advantage Forensics in-house training workshop, Toronto, April 2020
- “The Democratization of Video Evidence: Equipping Investigators with Modern Tools and Know-How” webinar, iINPUT-ACE, February 2020
- “Experts at Trial: How to Maximize (or Minimize) their Effectiveness”, Will Davidson LLP Seminar, September 2019
- “A Powerful Approach for Video Evidence: How to Combine Point Clouds and State-of-the-Art Scene Mapping” webinar, iINPUT-ACE & Leica Geosystems, September 2019
- Video Examinations for the Police Investigator Course, Forensic Video Solutions, July 2019
- 2018 CATAIR National Conference, Ontario Police College, August 2018
- Crash Data Retrieval Operators Course, CATAIR, Durham Regional Police Association, June 2018
- Volunteer Expert Witness: “Examining and Cross-examining Experts”, The Advocates’ Society, Toronto, April 2018, May 2019
- Society of Automotive Engineers World Congress Experience, Detroit, MI, 2018 – 2019
- “Childhood Road Traffic Injuries in Canada” webinar, Canadian Association of Road Safety Professionals, January 2018
- “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
- Meeting of the Canadian Society for Biomechanics, Hamilton, July 2016
- Injury Biomechanics Symposium, The Ohio State University Injury Biomechanics Research Center, Columbus, OH, June 2015 & June 2016



- Canadian Bone and Joint Conference, Western University Bone and Joint Institute, London, April 2016
- McMaster University Bone Symposium, Hamilton, April 2016
- Advanced Open Water Diver, PADI (Professional Association of Diving Instructors)
- Ontario/Baden-Wurttemberg Summer Research Scholarship, 2013
- Grand River PEO Student Scholarship, September 2010

PROFESSIONAL SOCIETIES & ASSOCIATIONS

Professional Engineers of Ontario, P.Eng. since 2020

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

- Dabbour, E., Dabbour, O., **Martinez, A.A.** (2020). "Temporal stability of the factors related to the severity of drivers' injuries in rear-end collisions", *Accident Analysis & Prevention*. 142 (105562).
- Young, J., Serkies, K., **Martinez, A.A.**, (2018) "Categorizing Unintended Acceleration/Pedal Misapplication Collisions from Event Data Recorders", 28th CARSP Road Safety Conference.
- **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.

LECTURES & PRESENTATIONS

- "Automated Vehicle Data Forensics – TechStream & iVe", Advantage Forensics in-house training webinar, Toronto, July 2020
- "Use of PC-Crash, Infotainment & Navigation Data for Personal Injury Claims" webinar, Oatley Vigmond, May 2020
- Guest lecturer: "Forensics of Human Factors & Ergonomics – Case Studies", MIE345 Human Factors Engineering course, University of Toronto, 2019 – 2020
- Guest lecturer: "Forensic Biomechanics", MIE439 Introductory Biomechanics course, University of Toronto, 2019 – 2020
- "PC-Crash Essentials Course", Advantage Forensics in-house training workshop, January 2019
- "Defending Winter Maintenance (MMS) Cases", Black Sutherland, Toronto, March 2019
- "Automated Driving Systems and Evidence in Collisions", Gluckstein Lawyers, Toronto, January 2019
- "Telematics, Infotainment & EDR Evidence in Collisions", Beard Winter & Black Sutherland, Toronto, 2019



- “An Introduction to the Forensic Acquisition of Passenger Vehicle Infotainment and Telematics Systems Data”, Advantage Forensics in-house training, Toronto, March 2018
- “Without a Leg to Stand On: The Axial Fracture Tolerance of the Tibia”, ME 758 – McMaster University Department of Mechanical Engineering Graduate Seminar, Hamilton, 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, 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 and Joint Conference, London, April 2016