

## Curriculum Vitae

# Kyle Serkies, B.A.Sc., M.A.Sc., EIT

Advantage Forensics® Inc. (416) 630-0700

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## PRACTICE AREAS

- **Material Testing**
- **Product Failure**
- **Plumbing and Household Appliance Component Failure**
- **Collision Reconstruction**
- **Motorcycle Collisions**
- **Vehicle Component Failure**
- **Biomechanics**
- **Computer Simulation & Animation**

## ACADEMIC BACKGROUND

Master of Applied Science, Biomedical Engineering, University of Toronto, 2015

- Master's courses in biomedical device design and biomaterials

Bachelor of Applied Science, Materials Engineering with minor in Bioengineering, University of Toronto, 2011

- Bachelor's courses in mechanical behavior of materials, fracture & failure analysis, corrosion, computer simulation, polymer engineering, biomaterials and physiology

## ADDITIONAL COURSES, TRAINING & AWARDS

- "Persuasive Communication" webinar, Experts.com, 2017
- "Features & Accuracy of Crash Data Recorders, 2017 Update" seminar, Advantage Forensics in-house training, Toronto, 2017
- "Tire Forensics and Accident Reconstruction" seminar, CATAIR, Toronto, 2017
- "ASTM Committee Week", committee meetings Toronto, 2017
- "Practical Strategies for Experts: Testifying Without Fear" seminar, PIA Law, Toronto, 2016
- WREX 2016 Collision Reconstruction Conference, Orlando, 2016
- "Residential Oil Spills: A Messy Business" webinar, Origin and Cause, 2016
- "Extracting Commercial Vehicle EDR Black Box Recorders" webinar, Origin and Cause, 2016
- "Advanced Collision Reconstruction with CDR Applications", CATAIR, 2016
- "Crush Energy Analysis" workshop, Advantage Forensics in-house training, Toronto, 2016
- "PC Crash 10.0 Assumptions & Inputs" workshop, Advantage Forensics in-house training, Toronto, 2016
- "PC Crash 10.0 Simulation & Analysis" workshop, Advantage Forensics in-house training, Toronto, 2016
- Collision Reconstruction Journal Review Series, Advantage Forensics in-house seminars, Toronto, 2016
- "PC-Crash Essentials Training Course: Latest Features", MEA Forensics, 2015
- "PC-Crash Essentials Training Course: Vehicle Control", MEA Forensics, 2015
- Motorcycle Maintenance Course, Humber College, Toronto, 2015
- Heraeus Kulzer Travel Award, International Association for Dental Research, 2015



- School of Graduate Studies Conference Grant, University of Toronto, 2014
- Class M Motorcycle License, 2014
- Teaching Assistantship Training Course, University of Toronto, 2013
- Laboratory Biosafety Course, 2012
- First Jump Certification, Canadian Sport Parachuting Association, 2012
- Motorcycle Operator Training Course, Learning Curves, 2012
- Undergraduate Student Research Award, NSERC, 2011
- Nanotechnology Summer Fellowship Award, University of Toronto, 2011
- Dean's Honour List, University of Toronto, 2009-2011
- Student Council Athletics Director, Department of Materials Science & Engineering, University of Toronto, May 2009 – April 2010
- Ontario Private Security License, 2009
- Ontario Smart Serve Certification, 2009
- Pleasure Craft Operators License, 2005

## EMPLOYMENT HISTORY

### **Advantage Forensics Inc., Toronto**

Associate, March 2015 to present

Member of material failure team, product failure team, and collision reconstruction team

### **Tequila Jacks Toronto, Toronto**

Manager of Security Operations, April 2011 to June 2016

Lead management of security staff, liaise with Fire & Police Departments, provide fact witness testimony in court

### **York Simcoe Bucs OVFL Football, Newmarket**

Special Teams/Linebacker/Conditioning Coach, October 2013 to July 2015

Conditioned and developed strength and speed of young football players in preparation for collegiate level

### **Institute of Biomaterials and Biomedical Engineering, University of Toronto, Toronto**

Graduate Research Assistant, September 2011 - December 2014

Analyzed fracture toughness, failure mode and polymer degradation of biomaterials specimens

### **Head Teaching Assistant, University of Toronto, Toronto**

Molecules & Materials Undergraduate Engineering course, January to April 2014 & January to April 2013

### **Research Assistant, University of Toronto, Toronto**

Department of Materials Science & Engineering, September 2010 – August 2011

Designed state-of-the-art tester for measurement of strength and failure mode of zebra mussel adhesive plaques, using Instron, SEM, and optical microscopy technologies



## PROFESSIONAL SOCIETIES & ASSOCIATIONS

Professional Engineers of Ontario, Engineer in Training designation

The Canadian Association of Technical Accident Investigators and Reconstructionists

The Minerals, Metals & Materials Society

American Society for Testing & Materials:

- Committee C14: Glass and Glass Products
  - C14.04 Sub-committee: Physical and Mechanical Properties
- Committee D14: Adhesives
  - D14.03 Sub-committee: Research
  - D14.10 Sub-committee: Working Properties
  - D14.30 Sub-committee: Wood Adhesives
  - D14.40 Sub-committee: Adhesives for Plastics
  - D14.80 Sub-committee: Metal Bonding Adhesives
- Committee D20: Plastics
  - D20.10 Sub-committee: Mechanical Properties
    - D20.10.02 Sub-committee: Impact and High Speed Properties
    - D20.10.15 Sub-committee: Dynamic Mechanical Properties
    - D20.10.24 Sub-committee: Fracture and Fatigue
    - D20.10.25 Sub-committee: Engineering and Design
  - D20.50 Sub-committee: Durability of Plastics
- Committee D30: Composite Materials
  - D30.02 Sub-committee: Research and Mechanics
  - D30.05 Sub-committee: Structural Test Methods
- Committee E04: Metallography
  - E04.08 Sub-committee: Grain Size
  - E04.09 Sub-committee: Inclusions
  - E04.11 Sub-committee: X-Ray and Electron Metallography
  - E04.14 Sub-committee: Quantitative Metallography
- Committee E07: Nondestructive Testing
  - E07.08 Sub-committee: Leak Testing Method
- Committee E08: Fatigue and Fracture
  - E08.03 Sub-committee: Advanced Apparatus and Techniques
  - E08.04 Sub-committee: Structural Applications
  - E08.05 Sub-committee: Cyclic Deformation and Fatigue Crack Formation
  - E08.06 Sub-committee: Crack Growth Behavior
  - E08.07 Sub-committee: Fracture Mechanics
- Committee E28: Mechanical Testing
  - E28.02 Sub-committee: Ductility and Formability
  - E28.04 Sub-committee: Uniaxial Testing
  - E28.06 Sub-committee: Indentation Hardness Testing
  - E28.07 Sub-committee: Impact Testing
  - E28.13 Sub-committee: Residual Stress Measurement
- Committee E30: Forensic Sciences
- Committee E58: Forensic Engineering
  - E58.02 Sub-committee: Product Defect Incidents
  - E58.03 Sub-committee: Vehicular Incidents
- Committee F04: Medical and Surgical Materials and Devices
  - F04.02 Sub-committee: Orthopaedic Devices
  - F04.03 Sub-committee: Medical/Surgical Devices
  - F04.11 Sub-committee: Polymeric Materials
  - F04.12 Sub-committee: Metallurgical Materials
  - F04.13 Sub-committee: Ceramic Materials
  - F04.15 Sub-committee: Material Test Methods
  - F04.33 Sub-committee: Medical/Surgical Instruments
- Committee F08: Sports Equipment, Playing Surfaces, and Facilities
  - F08.10 Sub-committee: Bicycles
  - F08.24 Sub-committee: Paintball and Equipment



- F08.30 Sub-committee: Fitness Products
- F08.51 Sub-committee: Medical Aspects and Biomechanics
- F08.53 Sub-committee: Headgear and Helmets
- F08.55 Sub-committee: Body Padding
- Committee F09: Tires
  - F09.20 Sub-committee: Vehicular Testing
- Committee F13: Pedestrian/Walkway Safety and Footwear
  - F13.50 Sub-committee: Walkway Surfaces
- Committee G02: Wear and Erosion
  - G02.10 Sub-committee: Erosion by Solids and Liquids
  - G02.30 Sub-committee: Abrasive Wear
  - G02.40 Sub-committee: Non-Abrasive Wear
  - G02.50 Sub-committee: Friction
- Committee G03: Weathering and Durability
  - G03.04 Sub-committee: Biological Deterioration
  - G03.08 Sub-committee: Service Life Prediction

## PAPERS, PUBLICATIONS & PROJECTS

- Serkies K.S., Garcha R., Tam L.E., De Souza G.M., Finer Y. (2016), "Matrix Metalloproteinase Inhibitor Modulates Esterase-Catalyzed Degradation of Resin-Dentin Interfaces", *Dental Materials*. 32(12): 1513-1523.
- Abstract Review Committee, Institute of Biomaterials and Biomedical Engineering Science Day, University of Toronto, 2014
- Development of a fine motor skill training tool prototype for children with autism, University of Toronto Bioengineering Science course, 2011
- "Byssal plaque adhesion strength of dreissena polymorpha and dreissena bugensis on polymeric substrates", Institute of Biomaterials and Biomedical Engineering: *Proceedings of the IBBME Undergraduate Summer Research Program*, 2011
- Design of an expansion for a steel production facility including plant design, equipment layout & material flow, University of Toronto Plant Design for Materials Process Industries course, 2011
- Design of an anti-theft computer monitor mount for a computing facility, University of Toronto Engineering Strategies and Practice course, 2008

## LECTURES & PRESENTATIONS

- Interactive field day demonstrator: "Crash Vehicle Injuries: What to Look For", WREX 2016, Orlando, May 2016
- Poster presenter: "Introducing the Standard Ambient Illumination Factor", WREX 2016, Orlando, May 2016
- Journal review presenter: "Coefficients of Restitution for Low and Moderate Speed Impacts with Non-Standard Impact Configurations", Advantage Forensics in-house training, Toronto, April 2016
- Journal review presenter: "Comparing Equations Relating Speed to Static Deformation for Frontal Narrow-Object Impacts", Advantage Forensics in-house training, Toronto, January 2016
- Expert witness panellist: "Examining & Cross-Examining Experts", The Advocates Society, May 2015, February 2016, April 2017
- Seminar presenter: "Does Matrix-Metalloproteinase Inhibition Affect Esterase-mediated Degradation of Self-etched Resin-dentin Interfaces?", International Association for Dental Research, Boston, March 2015
- Poster presenter: "The Effect of Simulated Human Salivary Enzymes and Matrix Metalloproteinase Inhibition on the Degradation and Fracture Toughness of the Self-etched Resin-dentin Interface", Faculty of Dentistry, University of Toronto, February 2015
- Poster presenter: "The Effect of Simulated Human Salivary Enzymes and Matrix Metalloproteinase Inhibition on the Degradation and Fracture Toughness of the Self-etched Resin-dentin Interface", Institute of Biomaterials and Biomedical Engineering, University of Toronto, May 2014

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- Poster presenter: “Byssal Plaque Adhesion Strength of Dreissena Polymorpha”, Materials Science and Engineering Undergraduate Thesis, University of Toronto, April 2011