



# Ken Iliadis

BSc PPhys

Senior Scientist

## contact

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## expertise

Collision Reconstruction

## areas of specialization

Complex Collisions

Simulations/Animations

Road Design

Pedestrians/Bicycles

Recreational Vehicles

Mr. Ken Iliadis is a senior scientist at MEA Forensic and a member of the Collision Reconstruction group in Toronto. Over his 24-year career doing forensic work, Ken has investigated thousands of car, truck, and bus collisions involving serious and catastrophic injuries. Ken also works on accidents involving snowmobiles, ATVs, and other off-road vehicles. Ken is a licensed professional physicist and peace officer and has testified as an expert witness in court many times.

After graduating from the University of Western Ontario with a Bachelor's degree in Physics, Ken was involved in a study of first-generation airbags that found they deployed with excessive force. As a direct result, manufacturers introduced depowered second-generation airbags, which decreased the number of injuries and deaths. Ken continues to do research at MEA. His published work on the acceleration and braking of snowmobiles has made him a leader in reconstructing accidents involving these kinds of vehicles.

Ken's experience helps him identify all of the factors that could have contributed to a collision. "I've learned that it is rare for an accident to happen because of one, isolated factor," he says. "Often, there is a perfect storm: one driver was speeding, another entered an intersection on a yellow light or was looking at their phone. It's often not just about the speed of one car." He is also focused on communicating the results of his analyses in a clear way, and often uses computer simulations and animations to present his results. "As someone who does a lot of animation, I love that software is getting more powerful and allowing for more realistic depictions," he says.

## education

Bachelor of Science, Physics, University of Western Ontario, 1994.

Additional Undergraduate coursework, Medical Biophysics, 1992-1993.

Additional Post-Graduate coursework, Masters of Transportation Engineering, 2001-2003

## professional status

Licensed Professional Physicist, Canadian Association of Physicists, 2000

Peace Officer of Ontario, June 2007

## professional associations

Canadian Association of Physicists (CAP)

American Institute of Physics (AIP)

Society of Automotive Engineers (SAE)

Canadian Association of Road Safety Professionals (CARSP)

Institute of Transportation Engineers (ITE)

Association for the Advancement of Automotive Medicine (AAAM)

Canadian Association of Technical Accident Investigators and Reconstructionists (CATAIR)

Past Director of Ontario Regional Executive

## professional experience

### **MEA Forensic Engineers & Scientists**

Senior Scientist, 2008 to Present

Responsible for the technical assessment of motor vehicle accidents with expertise in collision severity, collision sequence, seat belt use and effectiveness, vehicle crush and dynamics, illumination and visibility, road design, bicycle/pedestrian accidents, computer simulation/animation, and photogrammetrical analysis.

### **Special Investigations Unit, Ministry of the Attorney General, Toronto, ON**

Senior Reconstructionist, 2007 to Present

Employed on an as-needed basis. Responsible for the technical assessment of motor vehicle accidents, where the police are involved and a civilian has sustained either serious or fatal injuries.

### **Hastings Boulding Correia Consulting Engineers and Scientists, Mississauga, ON**

Associate/Partner, 1998 to 2008

Involved in the reconstruction of hundreds of high-speed and complex motor vehicle accidents. Qualified and testified to give expert evidence as a Forensic Scientist in the field of Accident Reconstruction on civil and criminal matters in the Superior and Provincial Courts of Ontario. Conducted research in areas such as the utilization of automotive event data recorders.

### **Iliadis and Associates, Toronto, ON**

Accident Investigation and 3-D Animation, Sole Proprietor, 1996 to 2002

Consulting work focusing on the reconstruction of motor vehicle collisions and creating 3-dimensional animations of the collisions.

### **Ryerson University, Toronto, ON**

Technical responsibilities included collision investigation/reconstruction and injury analysis, with the intent to determine the effectiveness of safety related vehicle components.

## research activities

Completed over 500 tests assessing the acceleration and braking capabilities of modern snowmobiles. Acceleration tests were performed at ¼, ½, and full throttle. Braking tests were performed under locked track conditions as well as rolldown (engine braking) with engine power ON and power OFF. It was found that a modern snowmobile can accelerate on groomed/packed snow at rates similar to a motorcycle on dry roads, while its maximum braking rate is closer to about half that of a passenger car on dry roads.

Completed an in-depth study involving automotive “black box” data recorders. Several staged crash tests were completed and analysed. Results from the vehicle crash data recorders were compared with calibrated instrumentation in order to determine the validity of the data downloaded from the crash data recorders.

Completed a comprehensive study evaluating the effectiveness of modern roundabouts when compared to contemporary intersections, in terms of safety and traffic flow. The study included a detailed assessment of the Coe Hill roundabout in Toronto, ON.

Extensive research and testing was conducted using 3-dimensional animation software as an analytical tool and a presentation method for collision reconstruction. Video and still-photographs were commonly used as backgrounds to the animations. Forensic animations have been presented at the Ontario Science Centre, the Ontario Provincial Police training headquarters, and at the Canadian Multidisciplinary Road Safety Conference.

Aerial photography is becoming a routine tool in forensic diagrams. Stock aerial photographs of urban centers are relatively easy to obtain, however, photographs of rural areas are not. A research project was completed which involved flying to remote locations, taking orthographic photographs and rectifying these photographs using survey measurements.

Led a research team involved in a nation-wide study on the effectiveness of first-generation airbags. The primary focus of the research was to compare crash severity versus occupant injury. A direct result of this research was the depowering of airbags by the manufacturers (second-generation airbags), leading to a significant decrease in injuries and deaths to the general public due to overly aggressive airbag deployments.

## awards

2006 Top Private Pilot, Brampton Flying Club, Brampton, ON.

Nominated for the Charles H. Millar Award, Best Technical Paper, Canadian Association of Road Safety Professionals, 2001.

## publications

Predicting snowmobile speed from visible locked-track and rolldown marks in groomed/packed snow conditions

Acceleration and braking performance of snowmobiles on groomed/packed snow

## lectures & presentations

March 2011 – Accident Reconstruction and Recreational Vehicles. Ontario Insurance Adjusters Association; Northern Chapter, Sudbury, ON.

September 2008 – Event Data Recorders. Highway Patrol Officer Conference, Thunder Bay, ON.

March 2008 – Forensic use of photography and Total Station survey data in Accident Reconstruction, Forensic Identification

Investigators, Special Investigations Unit. Mississauga, Ontario

January 1995 to January 1999 – Forensic simulation/animation created for presentation at the Ontario Provincial Police Training Headquarters, Orillia, ON.

March 1998 – Level 4 Police Reconstruction Training – Vehicle Momentum – Metro Toronto Police Services, Toronto, ON.

Spring 1997 – Presenter on CBC Morning Show with Andy Barrie to discuss issues relating to airbag induced injuries, Toronto, ON.

## training and professional development

July 2019 – Video Examinations for the Police Investigator, Mississauga, ON.

September 2018 – Ontario Good Roads Associate Snow School 2018, Alliston, ON.

August 2018 – Bridgestone Racing Academy 3-day Wheel-to-Wheel Racing Course, Bowmanville, ON.

April 2015 – SAE World Congress & Exhibition, Detroit, MI.

May 2014 – Advanced Crash Reconstruction Utilizing Human Factors Research, Northwest University, Evanston, IL.

April 2014 – SAE International Congress and Exposition, Detroit, MI.

April 2009 – SAE International Congress and Exposition, Detroit, MI.

February 10, 2010 – Canadian Safety Council Snowmobile Training Course, Canadian Motorcycle Training Services, Horseshoe Resort, ON.

November 16, 2009 – Canadian Safety Council ATV Training Course, Horseshoe Resort, ON.

August 2008 – PC-Crash – Essentials and Expert Animations Workshop, Vancouver, BC

April 2008 – SAE International Congress & Exposition, Detroit, MI

August 2007 – C.A.T.A.I.R. 2007 Annual Crash Conference, Aylmer, ON

April 2007 – SAE International Congress & Exposition, Detroit, MI

April 2006 – SAE International Congress & Exposition, Detroit, MI

November 2005 – Completed flight test and written exam and qualified as a Private aircraft pilot (aeroplane, single engine, land), Brampton, ON.

June 2005 – Canadian Multidisciplinary Road Safety Conference XV, Fredericton, NB

April 2005 – SAE International Congress & Exposition, Detroit, MI

June 2004 – Canadian Multidisciplinary Road Safety Conference XIV, Ottawa, ON

March 2004 – SAE International Congress & Exposition, Detroit, MI

March 2003 – SAE International Congress & Exposition, Detroit, MI

Fall 2002 – Advanced Highway Geometric Design, Ryerson University, Toronto, ON.

Spring 2002 – Road Safety, Ryerson University, Toronto, ON.

March 2002 – SAE International Congress & Exposition, Detroit, MI

Fall 2001 – Traffic Operations and Management, Ryerson University, Toronto, ON.

July 2001 – Crash Data Retrieval Course, Toronto, ON

June 2001 – Canadian Multidisciplinary Road Safety Conference XII, London, ON

June 2001 – Biomechanics of Injury in Motor Vehicle Collisions, London, ON

March 2001 – SAE International Congress & Exposition, Detroit, MI

March 2000 – SAE International Congress & Exposition, Detroit, MI

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May 1999 – Canadian Multidisciplinary Road Safety Conference XI, Halifax, NS

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March 1999 – SAE International Congress & Exposition, Detroit, MI

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June 1998 – 16th International Conference on the Enhanced Safety of Vehicles, Windsor, ON

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April 1998 – Child Restraint Training Course, Edmonton, AB

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February 1998 – SAE International Congress & Exposition, Detroit, MI

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September 1997 – IPTM Motorcycle Accident Investigation Course, Hamilton, ON

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September 1997 – IPTM Pedestrian/Bicycle Accident Investigation Course, Hamilton, ON

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June 1997 – Canadian Multidisciplinary Road Safety Conference X, Toronto, ON

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February 1997 – SAE International Congress & Exposition, Detroit, MI

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February 1997 – Traffic Signal Seminar, Detroit, MI

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November 1996 – Heavy Truck Load Retention Workshop, Stoney Creek, ON

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October 1996 – Commercial Vehicle Course and Workshop, Centralia, ON

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September 1996 – Canadian Society of Forensic Science Annual Conference – Hamilton, ON

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February 1996 – SAE International Congress & Exposition, Detroit, MI

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January 1996 – Occupant Restraint Seminar, Toronto, ON

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September 1995 – Heavy Truck Seminar, Toronto, ON

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May 1995 – Canadian Multidisciplinary Road Safety Conference IX, Montreal, QC

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May 1995 – AIS-90 & Injury Scaling: Users and Techniques, Montreal, QC

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January 1995 to August 1998 – Transport Canada In-House Training – Multiple Sessions, Ottawa, ON.

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