



Jeff Nickel

BASc EIT

Technologist

contact

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📍 Vancouver

Mr. Jeff Nickel is a technologist and instrumentation specialist in MEA Forensic's Vancouver office. His expertise is electrical systems. Jeff regularly designs test equipment and data collection systems for experiments related to casework and research. He has built a linear sled for whiplash experiments, a portable friction tester and a number of custom systems for measuring forces, speeds, accelerations and pressures during experimental re-enactments of specific events.

Jeff holds a Bachelor of Science in electrical engineering from the University of British Columbia as well as an Applied Science Technologist designation from BCIT.

Independent research is what attracted Jeff to MEA and his data collection systems are behind many of the peer-reviewed studies that MEA publishes. In partnership with UBC, Jeff has helped to design and build a large computer-controlled roll-over simulator with a complete data acquisition system. Jeff maintains a classic Porsche 911 but is also interested in modern cars: he recently built a data collection system to record the behavior of Toyota's autobraking systems.

education

Diploma of Applied Science Technology, Electronic Control, British Columbia Institute of Technology, 1985.

Bachelor of Science, Electrical Engineering, University of British Columbia, 2006.

professional status

Engineer in Training, Association of Professional Engineers and Geoscientists of British Columbia, 2014.

professional experience

MEA Forensic Engineers & Scientists

Electrical Technologist, 1996 to Present

Responsible for the design, construction and implementation of all instrumentation used during investigations involving motor vehicle accident reconstruction. Designs include custom 64-channel data-acquisition system used during human subject whiplash experiments, portable constant-speed friction drag sled, and a multi-card, backplane signal-conditioning data-acquisition system. Have instrumented custom vehicles used during high-speed collision testing.

Xerox Canada, Inc., Vancouver, BC

Applied Science Technologist, 1986 to 1991

Responsible for technical maintenance of networked xerographic imaging machinery. Involved in the design and field testing of manufactured retrofit devices. Lectured at national technical seminars and provided technical assistance to sales personnel.

research activities

2010 to present – Development of robotic automotive seat for research into Whiplash injury mitigation.

2007 to present – Design and construction of spherical plane 3D positioning robot for human cervical spine manipulation and neck muscle modeling.

2011 – Development of instrumented automobile for human factors research.

2011 – Snowmobile performance testing – Instrument and test snowmobiles for acceleration/braking and maneuverability.

2010 – Isometric neck loads – Developed instrumentation for recording neck load induced emg signals for modeling of the human neck.

2009 – Bathtub friction tests – Build test rig for measuring utilized friction while stepping into a bath tub.

2009 – Barrier vehicle collision tests – Instrument vehicles and barrier with accelerometers and load cells for energy absorption dynamic tests.

2008 – Offset vehicle crash tests – Instrument multiple vehicles with accelerometers and load cells for energy absorption dynamic tests.

2005 – Vehicle crash data recorder research – Design and construct a digital device that emulates analog outputs from a variety of in-car sensors and trigger the crash data recorder.

2003 – BioRID Dummy tests – Design and construct a series of amplifiers for interfacing a crash test dummy for human kinetics comparison.

2002 – Slip and Fall – Instrument footwear and in-floor force plates for research into: “The effect of subject awareness in assessing the probability of slip and fall accidents.” September 2002 – August 2004.

2001 – Design and construct and 4 meter long linear acceleration sled to replicate vehicle collision pulses for human subject whiplash research.
