The Crashworthiness, Impact, and Materials Deformation (CIMD) Research Laboratory at the University of Windsor:

- Engages in world-class research on Impact Testing, Finite Element Analysis (FEA), Experimental Testing, Stress Analysis, Dynamics, and Machine Design
- State-of-the-art facilities include:
  - Dynamic testing machines such as Large Energy Droptower (45 kJ), Low Energy Droptower (3 kJ), Pneumatic Accelerator, Split Hopkinson Pressure Bar (SHPB) Apparatus, Instron instrumented Charpy Impact Testing Machine, Instron RR Moore Fatigue Testing Machine
  - Quasi-static testing machines including a 300 kN Long Stroke Tension/Compression Testing Machine, MTS Universal Tension/Compression Testing Machines with capacities from 50 kN to 650 kN
  - Visual data acquisition capabilities with high speed/megapixel resolution Photron SA4 cameras and low speed/megapixel Point Grey research cameras
  - Digital Image Correlation (DIC) Analysis system
  - Motion tracking software (ProAnalyst 2D and 3D versions)
- Large array of transducers for measurement during quasi-static and dynamic loading conditions including non-contact laser displacement transducers, accelerometers (MEMS- and ICP/IEPE-based technologies), and load cells (Strain gauge- and ICP/IEPE-based technologies)
- Data acquisition (DAQ) systems including National Instruments CompactDAQ system, DTS SLICE micro DAQ system, National Instruments LabVIEW and DIAdem
- Conducts computational deformation simulations using a large number of multi-processor workstations
- Capable of running FEA models having several millions of degrees of freedom
- Application of traditional and non-traditional element formulations in simulation of large deformation phenomena involving contact
- Capable for running both MPP and SMP version of large deformation finite element codes

To learn more about how you can get involved with the CIMD Research Group, contact Dr. Bill Altenhof in the Department of Mechanical, Automotive and Materials Engineering by email at altenh1@uwindsor.ca or call 519.253.3000 ext. 2619.