









Faculty Areas of Expertise

	<p style="text-align: center;">Ghassan Chehab <i>Civil Engineering</i></p>	<p>advanced characterization of construction materials; accelerated and nondestructive testing of pavements and roadway infrastructure; pavement design, rehabilitation and performance prediction; evaluation of geosynthetics for highway applications; instrumentation and field monitoring</p>
	<p style="text-align: center;">Francesco Costanzo <i>Engineering Science and Mechanics</i></p>	<p>theoretical characterization of the mechanical behavior of materials with focus on modeling and computation for dynamic fracture and damage evolution; heterogeneous materials; multiscale modeling</p>
	<p style="text-align: center;">Joseph Cusumano <i>Engineering Science and Mechanics</i></p>	<p>mechanics and dynamical systems theory; damage state estimation; data analysis algorithms; experimental verification</p>
	<p style="text-align: center;">Jeff Laman <i>Civil Engineering</i></p>	<p>field testing and monitoring of large civil structures, design and behavior of bridge structures, steel structures, fatigue, bridge load models</p>
	<p style="text-align: center;">Dan Linzell <i>Civil Engineering</i></p>	<p>SHM in areas related to the behavior of straight, curved, and skewed steel bridges during construction and under service loads; integral abutment bridges during construction and under service loads; ship structural components under static and dynamic loads; building systems and components under blast and impact loads; condition and forensic structural inspections of bridges, buildings and other infrastructure systems</p>

	<p>Cliff Lissenden <i>Engineering Science and Mechanics</i></p>	<p>mechanical behavior of materials, damage, fatigue and fracture; composites; wave mechanics; ultrasonic guided waves; monitoring adhesively bonded composite joints; guided waves for damage detection in piping</p>
	<p>Maria Lopez de Murphy <i>Civil Engineering</i></p>	<p>composite materials for repair and rehabilitation of civil infrastructure; characterization of interfacial crack propagation between fiber reinforced polymers and concrete; fiber reinforced concrete; long term monitoring and assessment of structural bonded repairs in civil infrastructure</p>
	<p>Karl Reichard <i>Applied Research Lab</i></p>	<p>complex systems monitoring and automation; R&D of systems for the monitoring, diagnosis, and prediction of health and status in mechanical and electrical systems; improve intelligent autonomous systems for the testing and monitoring of manufacturing and equipment operations; embedded and distributed sensing and control systems for machinery and system health monitoring, acoustic surveillance and detection; active noise and vibration control; electro-optics</p>
	<p>Joseph Rose <i>Engineering Science and Mechanics</i></p>	<p>ultrasonic guided waves and associated technologies including defect detection, sensors, phased arrays, data analysis, tomography; application to aircraft, helicopters, pipelines, power plants, material processing, deicing</p>
	<p>Andrea Schokker <i>Civil Engineering</i></p>	<p>SHM as related to design and materials related improvements in prestressed concrete, durability of concrete structures, and blast resistant concrete; special interest in recent advances in sensing techniques and innovative sensors</p>
	<p>Edward Smith <i>Aerospace Engineering</i></p>	<p>rotorcraft dynamics and aeromechanics; advanced composite materials and structures; active vibration control; health and usage monitoring systems; damage detection methodology for application to drive system (gears, bearings, shafts), rotor system (blades, linkages, flight controls), as well as composite structural components used widely in the airframe</p>

	<p>Bernhard Tittmann <i>Engineering Science and Mechanics</i></p>	<p>acoustic microscopy for materials characterization and materials process monitoring and control; physical acoustics characterization for study of superconductivity, rock mechanics, SAW devices, nondestructive evaluation; sensors for process monitoring and control of composites, sensors for health monitoring of pressure vessels; acoustic microscopy of biological cells and tissue</p>
	<p>Judith Todd <i>Engineering Science and Mechanics</i></p>	<p>integrity of coatings, multiscale wave-material interactions, laser processing of coatings, pressure vessel applications</p>
	<p>Martin Trethewey <i>Mechanical Engineering</i></p>	<p>condition based machine health monitoring; development and analysis of machine dynamic systems from experimentally acquired data; experimental technique development; signal processing; experimental modal analysis; structural modeling</p>
	<p>Mirna Urquidi-Macdonald <i>Engineering Science and Mechanics</i></p>	<p>modeling complex phenomenon; pattern recognition; neural networks; corrosion, pitting, and stress corrosion cracking</p>
	<p>Qiming Zhang <i>Electrical Engineering</i></p>	<p>actuators and sensors, transducers, dielectrics and charge storage devices; polymer thin film devices; polymer MEMS; RF resonators; electro-optic and photonic devices</p>