

Professors with research topics that could be of interest to URA students

Centre for Engineering Professional Practice and Engineering Education

Dr. Jillian Seniuk Cicek

Engineering education, indigenous initiatives, methodologies, and pedagogies in engineering education; engineering student perspectives, identity, and learning

Dr. Stephanie Hladik

Qualitative and design-based research into engineering education in a variety of settings, studying how educators interact with learners, investigating how engineering identity can be developed across space and time

Dr. Kari Zacharias

Engineering education, engineering knowledge and identity, inter- and transdisciplinarity, art and technology, engineering and the humanities, and critical pedagogy

Civil Engineering

Dr. Marolo Alfaro

Geosynthetic-reinforced earth structures, ground improvement techniques, earthfill dams, northern infrastructure

Dr. Masoud Asadzadeh

Watershed Modeling, Model Calibration, River-Reservoir Systems Modeling, and applications of optimization and sensitivity analysis in water resources engineering

Dr. Jamie Bartz

Geotechnical Engineering: Deep foundations, landslides, slope stability, soil-structure interaction.

Dr. Mohamed Bassuoni

Infrastructure and building materials, durability of concrete, rehabilitation and sustainable concrete infrastructures

Dr. James Blatz

Geotechnical engineering including design of flood protection infrastructure, infrastructure management and planning

Dr. Young-Jin Cha

Smart sustainable structural systems using advanced structural health monitoring system and control technologies

Dr. Shawn Clark

River ice engineering, ecohydraulics, hydraulic structures

Dr. Karen Dow

River ice engineering, experimental fluid mechanics, computational hydraulics

Dr. Ehab El-Salakawy

Concrete structures, steel and FRP reinforcement, structural behaviour, seismic performance of FRP-RC frames and hollow-core slabs

Dr. Graziano Fiorillo

Bridge engineering, Structural Reliability and Risk, Structural Analysis of Extreme Events

Dr. Beata Gorczyca

Potable water treatment, particle analysis, disinfection, heavy metal removal, water chemistry

Dr. Gursans Guven Isin

Building information modeling, construction automation and digitalization, construction engineering and project management

Dr. Huma Khalid

Structural health monitoring, simplified design-oriented structural modelling

Dr. Donghoon Lee

Hydroclimate forecasting, water resources system, disaster risk assessment, agricultural drought and food security

Dr. Ricardo Mantilla

Hydrologic modeling, flood forecasting, flood frequency estimation, self-similarity in river networks, hydroinformatics, and data assimilation of remote sensing instruments

Dr. Babak Mehran

Optimization of traffic operations and public transportation systems, traffic flow modelling, intelligent transportation systems

Dr. Chandra Rajulapati

Statistical modeling of extreme events such as floods, droughts, and heatwaves, climate change impact assessment, hydroclimatic variability, risk assessment, and big data analysis

Dr. Jonathan Regehr

Freight transport systems, traffic engineering and modelling, traffic information systems, railroad engineering

Dr. Ahmed Shalaby

Pavement engineering, performance of highway materials, infrastructure engineering and management, design of sustainable infrastructure

Dr. Dagmar Svecova

Precast prestressed concrete bridge deck connections; Use of Ultra-high performance concrete in accelerated bridge construction; durability of concrete under temperature and fatigue loading.

Dr. Chengjin Wang

Emerging contaminants, water reuse, advanced oxidation processes, natural organic matters, and environmental chemistry

Dr. Qiuyan Yuan

Nutrient removal and recovery, leachate & wastewater treatment, solid waste, biomass, fermentation, anaerobic digestion

Electrical and Computer Engineering

Dr. Udaya Annakkage

Power System Stability, FACTS, HVDC converters, wind energy systems

Dr. Ahmed Ashraf

Information & Computing Systems, Biomedical Engineering

Dr. Faouzi Bellili

Signal Processing and Wireless Communications

Dr. Gregory Bridges

Biomedical and Electrical Biosensors, Sensors, Applied Electromagnetics

Dr. Douglas Buchanan

Micro- Nano-electronic Materials and Devices, MEMs-based ultra-sonic transducers

Dr. Ken Ferens

Telecommunications, Embedded Systems, Distributed Computing

Dr. Shaahin Filizadeh

Power systems transient simulation; power electronics; electric and hybrid vehicles

Dr. Colin Gilmore

Applied Electromagnetics, Electromagnetic Inversion

Dr. Aniruddha Gole

Power systems simulation, flexible AC Transmission systems (FACTS), High Voltage DC Transmission

Dr. Carl Ho

Power Electronics, Energy Efficiency, Renewable Energy Technologies, Smart Grids and Micro Grids

Dr. Ekram Hossain

Wireless communication networks, cognitive radio systems, multimedia communications over wireless and mobile networks

Dr. Peng Hu

Networked Systems, Applied Machine Learning

Dr. Dustin Isleifson

Electromagnetics and Remote Sensing

Dr. Ian Jeffrey

Applied and Computational Mathematics, High Performance Computing, Parallel Programming, Electromagnetics

Dr. Vahab Khoshdel

Artificial Intelligence and robotics

Dr. Behzad Kordi

Condition monitoring of high voltage apparatus, electromagnetic modeling of power transmission lines

Dr. Joe LoVetri

Time domain computational EM, modeling of EMC problems, ground penetrating RADAR, microwave tomography

Dr. Arkady Major

Laser photonics, biophotonics, solid-state lasers

Dr. Dean McNeill

Embedded systems, structural health monitoring, adaptive signal processing, real-time and ubiquitous computing

Dr. Amine Mezghani

Wireless Communication, Joint Communication and Sensing, Large-Scale Signal Processing, Hardware Constrained Radio, Antenna Theory

Dr. Puyan Mojabi

Applied Electromagnetics

Dr. Zahra Moussavi

Biomedical Engineering, instrumentation, biological signal processing, and rehabilitation

Dr. Vladimir Okhmatovski

Computational Electromagnetics, High Performance Computing, Electronic Design Automation

Dr. Derek Oliver

Assessment of HV insulators, scanning probe microscopy, nanoscale and molecular electronics

Dr. Miloslaw Pawlak
Machine Learning and Pattern Recognition, Statistical Signal Processing

Dr. Ke Peng
Biomedical Engineering

Dr. Athula Rajapakse
Power system protection, monitoring and control, renewable energy integration, active distribution systems and microgrids

Dr. Elham Salimi
Microfluidics, Biosensors, and Bioelectromagnetics

Dr. Cyrus Shafai
Micro/nano-electro-mechanical systems, MEMS, micro-sensors, RF MEMS, MOEMS, adaptive optics

Dr. Sherif Sherif
Optical coherence tomography, optical and fluorescence microscopy, tissue optics, laser spectroscopy

Dr. Gabriel Thomas
Digital Signal and Image Processing. Ultrasound Non Destructive Testing

Dr. Douglas Thomson
Electronic Sensors of Dielectrophoretic actuation, Sensors for Structural Health Monitoring

Dr. Pradeepa Yahampath
Signal Processing and Communications

Mechanical Engineering

Dr. Eric Bibeau
Kinetic turbines, biomass, wind turbine icing, plug-in electric vehicles, district Energy Systems

Dr. Madjid Birouk
Combustion of fuels and bio-fuels, fuel nozzles, droplets gasification, swirling flows

Dr. Vijay Chatoorgoon
Aerospace Engineering, Acoustic Wave Propagation, Supercritical Flow Stability

Dr. Yuejian Chen
Machinery dynamics and diagnosis

Dr. Chuang Deng

Atomistic modeling and simulations, yielding and plasticity in nanocrystalline materials, grain boundaries

Dr. Philip Ferguson

Satellite, Attitude Control, Navigation, Space Objects, Composites, Reaction Wheels, Drones, Simulation, Orbit Control

Dr. Raghavan Jayaraman

Polymer and Composite Processing, Durability & Interfaces in Polymers and Composites, Novel Composite Materials

Dr. Matt Khoshdarregi

Advanced Manufacturing, Industrial Robotics, Machining, CNC Design, Instrumentation, Mechatronics

Dr. Xihui (Larry) Liang

System Dynamics, Condition Monitoring, Fault Analysis, Reliability, Intelligent Maintenance

Dr. Yunhua Luo

Biomedical Image Construction, Applied Mechanics and Design, Materials Science and Engineering

Dr. Ahmad Z. Naser

Advanced manufacturing, additive manufacturing, smart and sustainable production, circular economy. AI for engineering

Dr. Olanrewaju Ojo

Materials Science and Engineering, Processing-Microstructure-Property relationship studies

Dr. Scott Ormiston

Film condensation, heat exchanger shell-side flows, slab foundation heat loss, microchannels

Dr. Qingjin Peng

Virtual manufacturing, Sustainable product, Modeling and simulation, Product adaptability

Dr. Nariman Sepehri

Teleoperation and Robotics, Control Systems, Systems Modelling and Identification, Actuators and Fluid Power

Dr. Mark Tachie

Experimental Fluid Dynamics, Turbulent Flows Over Rough Surfaces, Laser Doppler Velocimetry, Particle Image Velocimetry

Dr. Igor Telichev

Fracture Mechanics, Nanomechanics and Computational Material Science, Mechanics of Composite Materials

Dr. Cam Verwey

Experimental heat and mass transfer, droplet and fuel science, non-intrusive laser diagnostics and turbulent convection.

Dr. BingChen Wang

Computational fluid dynamics, turbulent flow, convective heat transfer, bio-fluids, high-performance computing

Dr. Jay Wang

Mobile robots in real-world environments

Dr. Nan Wu

Structural Health Monitoring, Structural Repair and Enhancement, Energy Harvesting, Nano-technology

Dr. Malcolm Xing

Biomaterials, Nanomedicine, Tissue Engineering, 3D Bioprinting, Nanoenergy, Biosensor

Dr. Guozhen Zhu

Material Science and Engineering