



ENGINEERING RESEARCH REFERENCE GUIDE

December 2023



THE UNIVERSITY OF BRITISH COLUMBIA
School of Engineering

[ENGINEERING.OK.UBC.CA](https://engineering.ok.ubc.ca)

WORLD-CLASS RESEARCHERS POWER INDUSTRY PARTNERSHIPS AT THE SCHOOL OF ENGINEERING

Research is the cornerstone of success in business, and it is equally as pivotal to a successful university. At the School of Engineering, we are motivated by innovation. Driven by curiosity, and the goal of uncovering solutions that lead to meaningful change, the engineering programs at UBC Okanagan are making an important impact throughout the region, across Canada and around the world.

For over a decade, researchers at the School of Engineering on UBC's Okanagan campus have been building partnerships to innovate in areas as varied as fuel-cell technology, composite materials, wearable devices, wastewater recovery, microfluidics, industry 4.0, intelligent systems, smart materials, transportation and nano-technologies. World-class faculty and facilities enable us to support many stakeholders in the community including students, industry, not-for-profit organizations, and the general public. School of Engineering research has been concentrated into five key research clusters:

ADVANCED MATERIALS & MANUFACTURING

Advanced materials and manufacturing encompasses building materials, composites, electronic materials, material characterization, material processing, structural design and strengthening.

ADVANCED SYSTEMS & DATA ANALYTICS

Advanced systems and data analytics includes big data and networks, communication networking, dynamics and vibrations, photonics and electromagnetics, robotics, control systems, mechatronics, MEMS/NEMS and sensors.

CLEAN TECHNOLOGY & ENVIRONMENTAL SYSTEMS

Clean technology & environmental systems encompasses clean fuels, smart grid power systems, energy utilization, alternative energy systems, drinking water treatment and distribution, biological treatment of waste, energy conservation, solid waste management, sustainable urban development, and environmental system monitoring and modelling.

HEALTH TECHNOLOGIES

Health technologies includes biomaterials, biomechanics, disease detection, health monitoring, and medical devices such as lab-on-chip, microfluidic devices, sensors and fuel cells.

URBAN INFRASTRUCTURE & GREEN CONSTRUCTION

Urban Infrastructure and Green Construction encompasses biological treatment of waste and wastewater, smart cities, construction materials, planning and decision-making, sustainable buildings, transportation, waste management and water systems.

Researchers on the Okanagan campus of UBC are developing the building blocks for light-speed computing that could revolutionize the notion of what computers can do. Through the latest innovations, our labs are developing biomedical engineering solutions that are changing health care. Our civil engineering research teams are helping communities make better decisions about how and when to replace infrastructure while developing new and innovative materials for their replacement.





UBC has invested millions in state-of-the-art laboratory equipment, and our faculty have been awarded tens of millions for research infrastructure and operation through highly competitive national grants. Our research collaborations with industry have received Collaborative Research and Development grants from the Natural Sciences and Engineering Research Council of Canada (NSERC) that have enabled research, training and technology transfer.

The School of Engineering is an incubator of innovation and research. The School hosts numerous institutes, centres and nodes that stimulate discoveries through collaboration both inter-disciplinary and cross campus. The Materials and Manufacturing Research Institute (MMRI), based on the Okanagan campus, brings together researchers from all disciplines to conduct high-quality, high-impact research at the interface of basic and applied sciences. MMRI hosts the Composite Research Network (CRN) Okanagan node. The CRN boasts over 100 industry partners and experts who investigate develop solutions and address the challenges within the complex world of composites.

The Okanagan campus is also home to a Clean Energy Research Centre node where researchers are uncovering safe, widespread and equitable access to sustainable energy. Together with the Cluster of Research Excellence in Green Infrastructure, the two groups have helped to establish the School of Engineering as a hub for sustainability research in power generation and construction. In collaboration with Okanagan College, UBC has established the Green Construction and Training Partnership that will enhance training and research opportunities across the region.

Part of the Faculty of Applied Science, the School of Engineering at UBC's Okanagan campus is building on over 100 years of engineering teaching and research excellence at UBC. The School has full accreditation in four programs: Civil, Electrical, Manufacturing, and Mechanical Engineering. Program Options include: Aerospace, Biomedical, Environmental Engineering, Mechatronics, and Resilient Infrastructure Management (RIM).

When the Manufacturing Engineering program launched in 2019, the School of Engineering built a new teaching and research facilities on and adjacent to campus. These new facilities house state-of-the-art equipment for training and research purposes, and mark the first stage of development for UBC's envisioned digital learning factory.

Since its inception in 2005, the School of Engineering has seen momentous growth in research and teaching infrastructure, as well as in its student body that has grown to 2000 undergraduate and graduate students.

The School's growth — and growing success in research endeavours — would not have been possible without the support of industry. We welcome new collaborations and inquiries about research partnerships.

Will Hughes, Director
School of Engineering
Faculty of Applied Science
Okanagan campus

ADVANCED MATERIALS & MANUFACTURING

Building materials, composites, electronic materials, material characterization and material processing
engineering.ok.ubc.ca/research/advanced-materials/



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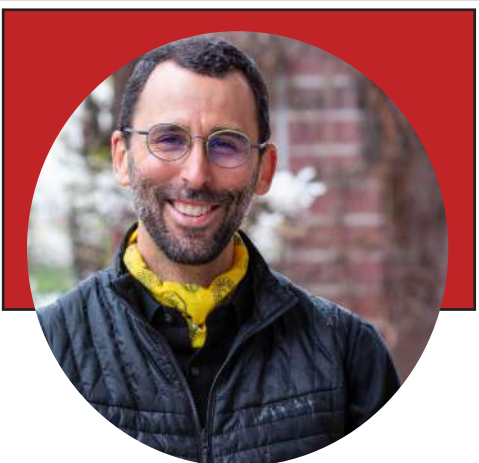


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ADVANCED MATERIALS & MANUFACTURING

Building materials, composites, electronic materials, material characterization and material processing
engineering.ok.ubc.ca/research/advanced-materials/



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Stronger, lighter, smarter

Advanced materials and manufacturing are advancing science, engineering and medicine by addressing the way people use industrial and household items every day. Researchers at the School of Engineering on the Okanagan campus of the University of British Columbia are working across disciplines to develop innovative approaches to advanced materials and manufacturing.

As the Canada Research Chair (Tier 2) in Advanced Materials and Polymer Engineering, Mohammad Arjmand, brings his expertise in nanomaterials, sensors, polymer processing, forming, and characterization to collaborations with colleagues and industrial partners. "As we continue to develop nanomaterials and mix them with polymers, we are developing multifunctional composite cocktails that can address many issues such as friction, wear, and heat distribution at the molecular level, the results are prompting an evolution within industry," Armand explains.

One floor down at the School of Engineering, is the Okanagan Node of the Composite Research Network. Lead Investigator, Abbas Milani, also the Director of the Materials and Manufacturing Research Institute, works on advancing reinforcement and matrix materials for industrial sectors such as aerospace, automotive, marine, and construction. According to Milani, industry is approaching CRN and MMRI with an eye on innovation. "We are seeing a growing demand for advanced composites and related manufacturing technologies to build lighter and stronger products."

An important component of the development process is material characterization. Experimental research on metalcasting, sintering, composite fabrication, additive manufacturing and polymer-processing for wide industrial applications such as automotive, energy, biomedical, composite, aerospace and electronics industries is being carried out at UBC Okanagan. This research is complemented with robust computer modelling and simulation, as well as process and materials characterization capabilities.

Associate Professor Dimitry Sediako's research focuses on stress characterization in automotive, aerospace, and marine powertrain components, as well as in-situ studies of solidification, phase evolution, and high temperature creep in new aluminum and magnesium alloys' development for the transportation industries. "Our industry partners are working with us to create lightweight alloys and metal matrix composites that by virtue of their composition impact thermodynamic properties among other variables." Sediako's most recent research at the Canadian Nuclear Laboratories investigates unique properties of neutrons, allowing direct stress measurements and phase analysis inside metal parts and components.

With nearly \$2-million dollars in funding from Western Economic Diversification Canada, the School of Engineering is establishing a Clean Technology Hub to promote clean technologies that convert carbon-based additives and components into new, sustainable products. According to Phil Barker, Vice-Principal and Associate Vice-President of Research and Innovation at UBC's Okanagan campus, the funding recognizes the exceptional work already underway at the School. "Our engineering researchers have established cutting-edge procedures for recovering and reusing carbon-based materials that would otherwise be discarded, and creation of this new hub will allow us to accelerate work in this area, scale our partnerships with industry, and create technical training opportunities that will accelerate transition to a greener economy."

Associate Professor Lukas Bichler, the Principal Investigator of the new Clean Technology Hub, says the new facility will allow even more collaborators to join the research. "We continue to strive to be a national and international leader in clean technology, and support like this latest funding from the Federal Government will help us continue on that path."

The same is true for another large-scale and multi-disciplinary clean technology project currently underway at the School of Engineering. A number of engineering researchers and their teams, from a variety of disciplines, are working with FortisBC to adapt and improve hydrogen-enrichment of natural gas and its distribution. The intent is to enable FortisBC's to meet its goal of reducing users' greenhouse gas emissions by 30-percent by 2030.

ADVANCED SYSTEMS & DATA ANALYTICS

Big data and networks, communication networking, photonics and electromagnetics, robotics and controls and sensors
engineering.ok.ubc.ca/research/advanced-systems/



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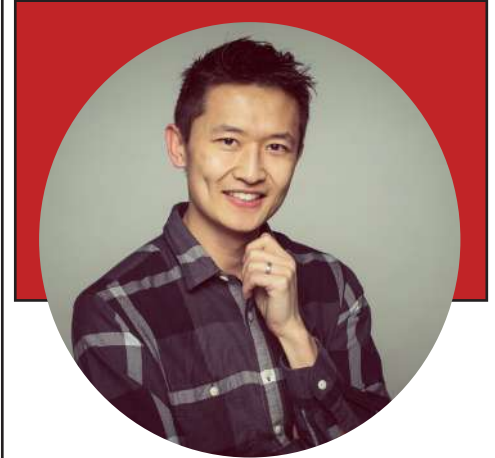


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ADVANCED SYSTEMS & DATA ANALYTICS

Big data and networks, communication networking, photonics and electromagnetics, robotics and controls and sensors
engineering.ok.ubc.ca/research/advanced-systems/



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ADVANCED SYSTEMS & DATA ANALYTICS

Big data and networks, communication networking, photonics and electromagnetics, robotics and controls and sensors
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ADVANCED SYSTEMS & DATA ANALYTICS

Big data and networks, communication networking, photonics and electromagnetics, robotics and controls and sensors
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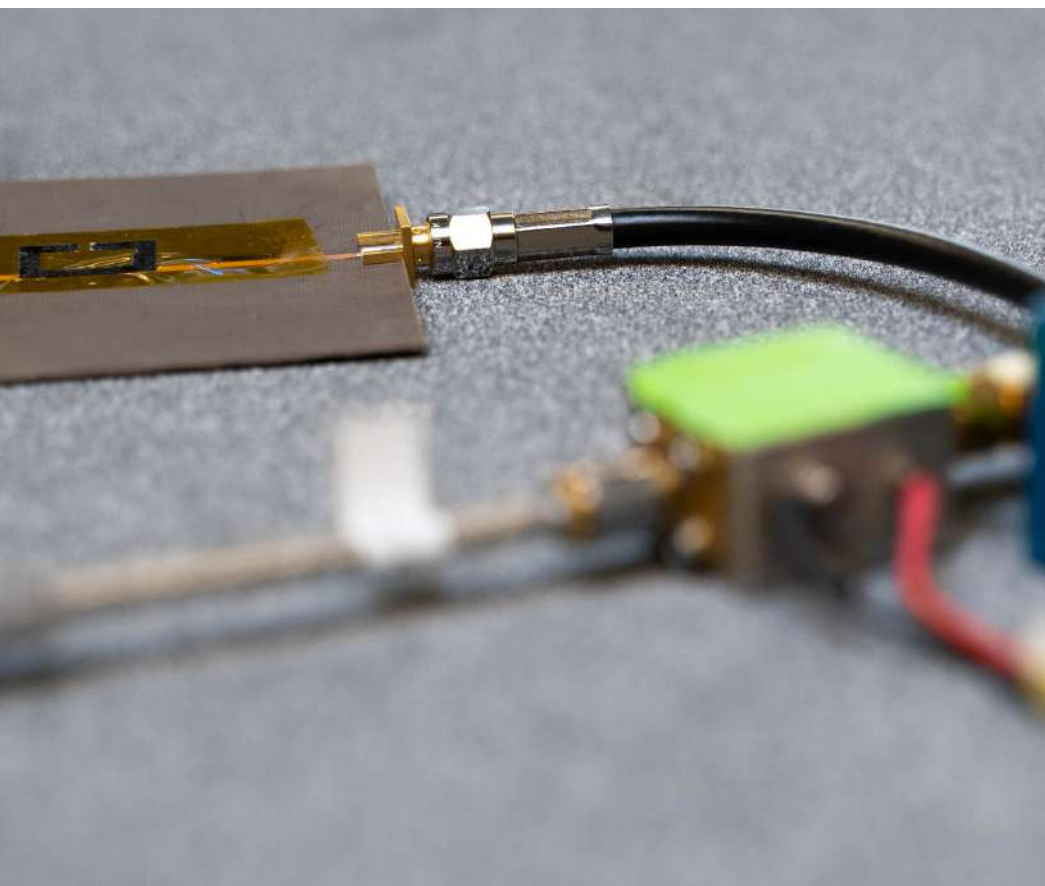
Modernizing the World Around Us

Advanced systems and data analytics are the brains behind modern technologies. These systems integrate various components with the end-result typically being streamlined monitoring and automation. Whether through big data and networks, photonics and electromagnetics, robotics and controls systems informed by sensors, advanced systems are helping to regulate and share information quickly and accurately.

Seemingly ubiquitous in our world, advanced systems and data analytics help connect and operate technologies that better the world around us. Modern technologies from autonomous cars and factories to our homes and electronics are built upon a network of systems anchored by data. Together, School of Engineering researchers at UBC Okanagan are collaborating to uncover innovations in advanced system and data analytics. They are creating new tools and systems to monitor and analyze data that are changing the way we interact with the world around us (and how that world interacts with us).

Advanced systems and data analytics are driving innovation in a number of fields by collecting and harnessing data that enables instantaneous change. In its simplest form, advanced systems like sensors collect data and that data is analyzed, compared to optimal results, and adjustments are made based on that comparison. Think of it like a thermostat. When you adjust the thermostat to 20-degrees Celsius, the thermostat collects the temperature within the room or rooms and adjusts accordingly. Smart appliances, agriculture, homes, and cities use that same basic concept.

The complexity of what makes a sensor work is intricate. A sensor targets and acquires information it seeks, and converts that information into an electrical signal. Often that electrical signal needs to be converted to binary code for processing through a computer. The computer then compares the acquired data to a benchmark.



Post-Doctoral Researchers

Ali Akbarishehat – Postdoctoral Research Fellow
Synthesizing graphene and graphene oxide to develop conductive polymer-based biosensing nanocomposites. Also, graphene quantum dots and cellulose synthesis

Ehsan Ebrahimnia Bajestan – Postdoctoral Research Fellow
Experimental and numerical analysis of nanotechnology and microfluidics in the fields of thermal management of systems, sensors, biomechanics, and renewable energy

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Roosbeh Hajiraissi – Postdoctoral Research Fellow
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Advanced materials for Li-ion batteries and next-generation batteries.

Ali Khosrozadeh – Postdoctoral Research Fellow
Electrode materials for electrochemical energy storage devices

Ambreen Nisar – Postdoctoral Research Fellow
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CLEAN TECHNOLOGY & ENVIRONMENTAL SYSTEMS

Clean fuels, smart grid power systems, energy utilization, alternative energy systems, energy conservation, and environmental system monitoring and modeling. Learn more at engineering.ok.ubc.ca/research/clean-technology/



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CLEAN TECHNOLOGY & ENVIRONMENTAL SYSTEMS

Clean fuels, smart grid power systems, energy utilization, alternative energy systems, energy conservation, and environmental system monitoring and modeling. Learn more at engineering.ok.ubc.ca/research/clean-technology/



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CLEAN TECHNOLOGY & ENVIRONMENTAL SYSTEMS

Clean fuels, smart grid power systems, energy utilization, alternative energy systems, energy conservation, and environmental system monitoring and modeling. Learn more at engineering.ok.ubc.ca/research/clean-technology/



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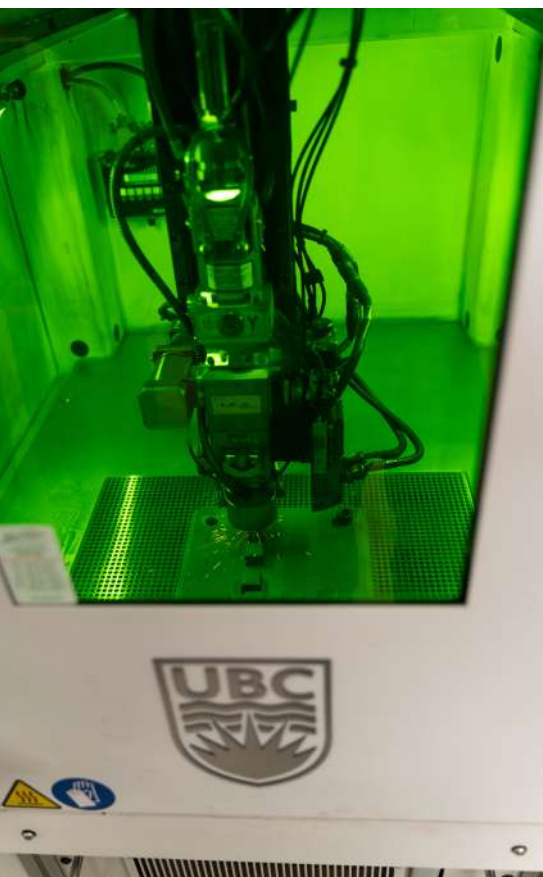


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Innovating Clean Technology

This past year, researchers at the School were awarded nearly \$2-million dollars in funding from Western Economic Diversification Canada to establish a Clean Technology Hub to promote clean technologies that convert carbon-based additives and components into new, sustainable products.

According to Phil Barker, Vice-Principal and Associate Vice-President of Research and Innovation at UBC's Okanagan campus, the funding recognizes the exceptional work already underway at the School. "Our engineering researchers have established cutting-edge procedures for recovering and reusing carbon-based materials that would otherwise be discarded, and creation of this new hub will allow us to accelerate work in this area, scale our partnerships with industry, and create technical training opportunities that will accelerate transition to a greener economy."

Associate Professor Lukas Bichler, the Principal Investigator of the new Clean Technology Hub, says the new facility will allow even more collaborators to join the research. "We continue to strive to be a national and international leader in clean technology, and support like this latest funding from the Federal Government will help us continue on that path."

The School's Research Chairs are expanding upon the faculty's core strengths in the area of clean technology, and empowering new initiatives along with training opportunities. Professor Cigdem Eskicioglu is the Industrial Research Chair in Advanced Resource Recovery from Wastewater; a role formed through a partnership with the Natural Sciences and Engineering Research Council of Canada (NSERC) and Metro Vancouver. Her research is transforming wastewater facilities into product factories, minimizing waste, creating carbon credits and leading a new circular economy.

Professor Shahria Alam is a UBC Okanagan Principal Chair in Resilient and Green Infrastructure and the Co-Director of the Green Construction Research and Training Centre. In these roles, Dr. Alam develops novel and sustainable infrastructure components, and systems that will survive catastrophic events while safeguarding life and economic development.

Professor Kasun Hewage, FortisBC Smart Energy Chair, is leading research investigating BC's growing energy needs, and potential sustainable improvements to the acquisition and usage of energy resources in the province. His colleague, Assistant Professor Jian Liu, was recently appointed a UBC Okanagan Principal Research Chair in Energy Storage Technology (Tier 2). Dr. Liu uncovers innovations in energy storage leading to improved renewable energy solutions and reduced greenhouse gas emissions.

Together, these researchers and their colleagues in the School of Engineering and across UBC are making great strides towards a cleaner and more efficient world.



HEALTH TECHNOLOGIES

Biomaterials, biomechanics, disease detection, health monitoring and medical devices.
engineering.ok.ubc.ca/research/health-technology/



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HEALTH TECHNOLOGIES

Biomaterials, biomechanics, disease detection, health monitoring and medical devices.
engineering.ok.ubc.ca/research/health-technology/

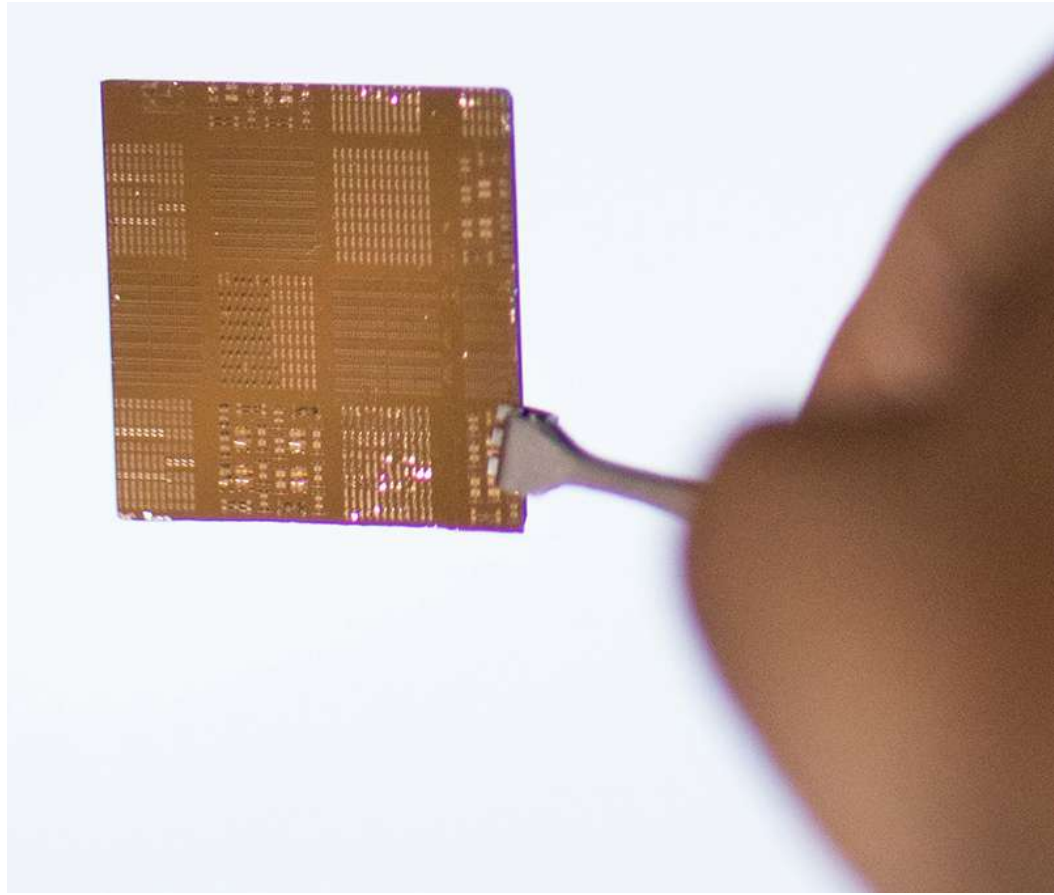


Sepideh Pakpour

Assistant Professor, Mechanical Engineering

Foundations of healthy buildings: ventilation, indoor air quality (IAQ), dust & pests, moisture; indirectly related to thermal health, safety & security, water quality, noise, lighting and views.

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LABS & FACILITIES

The School of Engineering has world-class, state-of-the-art laboratory facilities.

- Advanced Control and Intelligent Systems (ACIS) Laboratory
- Advanced Materials for Energy Storage Lab
- Applied Laboratory for Advanced Materials and Structures
- Applied Micro & Nanosystems Facility
- Biological Solutions Laboratory
- Bioreactor Technology Group Laboratory
- Centre for Transportation and Land Use Research (CeTLUR)
- Chau Research Group
- Cleantech Hub
- Combustion for Propulsion and Power Laboratory
- Communication Theory Lab
- Composites Research Network Okanagan Laboratory
- UBC-Okanagan Computational Fluid Dynamics Laboratory
- Energy Systems and Power Electronics Laboratory
- Facility for Environmental and Biological Imaging
- Feng Research Group
- Heart Valve Performance Laboratory (HVPL)
- Integrated Optics Laboratory
- Intelligent Sensing, Diagnostic and Prognostic Research Lab
- Laboratory for Solar Energy and Fuels (LSEF) Research
- Life Cycle Management (LCM) Laboratory
- Micro-Electronics and Advanced Sensors Laboratory Nanomaterials and Polymer Nanocomposites Laboratory (NPNL)
- Natural Gas Fuel System Laboratory (NGFSL)
- Okanagan Laboratory for Control Systems Research
- Okanagan Polymer Engineering Research & Applications (OPERA) Lab
- Research in the Advanced Thermo-Fluidic Laboratory (ATFL)
- RF and Microwave Technology Research Laboratory
- Sustainable Transport Safety Research Laboratory
- Tesfamariam Research Group
- Thermal Management & Multi-phase Flows Lab (TMMFL)



URBAN INFRASTRUCTURE & GREEN CONSTRUCTION

Planning and decision-making, sustainable buildings, transportation, waste management and water systems.
engineering.ok.ubc.ca/research/urban-infrastructure-green-construction/



Shahria Alam

Professor, Civil Engineering
Principal Research Chair, Resilient and Green Infrastructure (Tier 1)

Smart materials and their structural applications such as seismic rehabilitation of deteriorated structures, performance-based design of reinforced concrete, prestressed concrete and masonry structures.

Phone: 250.807.9397
Email: shahria.alam@ubc.ca
Website: alams.ok.ubc.ca



Joshua Brinkerhoff

Associate Professor, Mechanical Engineering

Simulation of multiphase turbulent flows for compressed and liquefied gas systems and dispersion of atmospheric pollutants in urban and industrial environments.

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Email: joshua.brinkerhoff@ubc.ca
Website: cfdlab.ok.ubc.ca



Qian Chen

Assistant Professor, Civil Engineering

Using digital technologies, optimizing algorithms and project management methods to enable collaboration among stakeholders while accelerating the digital transformation of construction projects.

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Email: qian.chen@ubc.ca
Website: engineering.ok.ubc.ca/research



Mahmudur Fatmi

Assistant Professor, Civil Engineering

Transportation & land use interaction, travel behaviour analysis, smart and shared mobility, activity-based modelling, road safety, econometric modelling, agent-based microsimulation, transportation emissions and energy modelling.

Phone: 250.807.8428
Email: mahmudur.fatmi@ubc.ca
Website: cetlur.ok.ubc.ca



Kasun Hewage

Professor, Civil Engineering
FortisBC Smart Energy Chair

Life cycle thinking in built environment including water-energy-carbon nexus, energy efficient buildings, construction waste management, and life cycle assessment and costing in engineering products and processes.

Phone: 250.807.8176
Email: kasun.hewage@ubc.ca
Website: lcml.engineering.ok.ubc.ca



Zheng Liu

Professor, Civil Engineering

Data-driven decision making, predictive maintenance of civil infrastructure, aircraft, and complex machine.

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URBAN INFRASTRUCTURE & GREEN CONSTRUCTION

Planning and decision-making, sustainable buildings, transportation, waste management and water systems.
engineering.ok.ubc.ca/research/health-technology/



Nicolás Peleato

Assistant Professor, Civil Engineering

Advanced characterization of organic matter for evaluation of drinking water treatment processes and assessment of source water quality. Development of low-cost pre-treatment methods to effectively mitigate membrane fouling.

Phone: 250.807.8852
Email: nicolas.peleato@ubc.ca
Website: engineering.ok.ubc.ca/research



Ahmad Rteil

Assistant Professor, Civil Engineering (Tenure)

Design, evaluation and repair of infrastructure systems including reinforced / prestressed concrete structures.

Phone: 250.807.9626
Email: ahmad.rteil@ubc.ca
Website: engineering.ok.ubc.ca/research



Rehan Sadiq

Professor, Civil Engineering | Executive Associate Dean
UBC Distinguished University Scholar

Transportation & land use interaction, travel behaviour analysis, smart and shared mobility, activity-based modelling, road safety, econometric modelling, agent-based microsimulation, transportation emissions and energy modelling.

Phone: 250.807.9013
Email: Rehan.Sadiq@ubc.ca
Website: lcml.engineering.ok.ubc.ca



Sumi Siddiqua

Associate Professor, Civil Engineering

Nuclear waste repositories, energy pipelines, chemical stabilization of road subgrade materials, soil nano-particles, soil-water chemistry and the reuse of industry by-products.

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Email: sumi.siddiqua@ubc.ca
Website: lcml.engineering.ok.ubc.ca



Dwayne Tannant

Professor, Civil Engineering

Geotechnical engineering and engineering geology applied to surface and underground excavations in rock, terrain analysis, geohazard identification and evaluation, rock support design, blasting, rock mass characterization, and geotechnical engineering of earth dams.

Phone: 250.807.8067
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Lisa Tobber

Assistant Professor, Civil Engineering
Principal Research Chair, Women in Engineering (Tier 2)

Developing resilient and smart cities through multi-hazard design procedures, development of innovative structural components, advanced numerical simulations, and experimental testing.

Phone: 250.807.8723
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Website: engineering.ok.ubc.ca/research



URBAN INFRASTRUCTURE & GREEN CONSTRUCTION

Planning and decision-making, sustainable buildings, transportation, waste management and water systems.
engineering.ok.ubc.ca/research/health-technology/

Post-Doctoral Researchers

Kor Gokce Bicakci – Postdoctoral Research Fellow

A Marie Skłodowska-Curie Post-doctoral Research Fellow investigating the occurrence and transformation of target pharmaceutical and personal care products by applying an innovative and energy-efficient radio frequency sludge pretreatment followed by anaerobic digestion for moving towards non-toxic environment.

Chinchu Cherian – Postdoctoral Research Fellow

Valorization of pulp and paper mill by-products for potential utilization as raw material in the sustainable construction and geotechnical engineering applications.

Anas Salem Issa – Postdoctoral Research Fellow

Developing smart bracing systems to reduce seismic damages and keep structures serviceable after an earthquake.

Shuai Li – Postdoctoral Research Fellow

Developing guidelines for highway bridges to prevent unseating of spans during earthquakes by utilizing smart materials like shape memory alloys (SMAs).

Anupama Vijayakumari Nadaraja Pillai – Postdoctoral Research Fellow

Developing a microbial fuel cell system for harnessing electricity from agro-industrial waste water; biological treatment of arsenic contaminated mine water; and building microwave based sensors for environmental monitoring

Mohammad Tiznobaik – Postdoctoral Research Fellow

Investigating advanced concrete technology, recycled construction materials and its application towards sustainable development.

Xiaoxiao Zhao – Postdoctoral Research Fellow

Developing surface modification such as superhydrophobic materials. Specifically developing liquid-repellent paper to replace traditional plastic membranes.



EQUIPMENT & CAPACITY

The School of Engineering has world-class, state-of-the-art laboratory facilities.

- 007 James Bond Tester MK III
- 3000 kN Compression Tester
- 3D scanners, including two Creafom handheld scanners
- (VIUScan laser the LED-based GoScan 3D)
- 3D systems - ProJet 1500
- 500 kN Load Frame / Fatigue Tester
- 500kN (930 mm stroke) FPS Actuator
- 500kN (930 mm stroke) FPS TEST ACTUATOR
- 50kN (630 mm stroke) FPS TEST ACTUATOR
- 54 million pixels camera - 3D stitching
- 8 GHz Digital Phosphor Oscilloscope
- AATCC Spray Rating Instrument
- Advance metal lathe 16" Swing x 40" Long
- Advanced Battery Facility
- Advanced Control Educatin Kit II03(PX4CLP_USB)
- Agilent - 660-IR
- Agilent - EzoScan
- Alkali Silica Reaction
- American Autoclave
- Anton Paar - MCR-502 Oven
- APAM melt mixer
- ASP400 Differential Pressure Sensor
- Automatic Heated Vacuum Film Applicator
- Ballistic Impact Gun
- Ballistic Load Sensing Headform (BLSH)
- Barnstead Thermolyne furnace
- Bath sonicator
- BELMONT - SY-M-2535 High Speed EDM Drill
- BIOFLO 115 100-120v Master Control
- Blast simulator
- Blue-m - 1200" LGO furnace
- Blue-m Oven
- Blunt Trauma Torso Rig (BTTR)
- BMIL
- Bridgeport milling machines
- Brother - HS-70AM Wire EDM
- Buehler - CAST N VAC 1000 Resin Impregnation System
- Buehler - IsoMet 4000 Precision Diamond Saw Cutter
- Buehler - IsoMet LSS Low Speed Diamond Saw
- Buehler - The EcoMet 300 Polisher-Grinder
- CDNQ-910 Compact DAQ chassis
- CintiQ tablets
- Claytools sculptural 3D modeling software
- Clean lay-up room including debulking tool and vacuum pump
- CNC Router
- Cobb Absorbency Measurement System
- Compression molding machine, hot stirrer
- Concrete Test Hammer
- Connex500 multi-material, high-resolution 3D printer
- Controller for FPS System
- Controller for MTS System
- Corrosion analyzing instr. With rod and wheel elec.
- Corrosion Meter
- Digital Image Correlation System
- Doosan - Lynx 220 Turning Center
- Drop Weight Impact Testing Frame
- Drogometer-S100 Portable Smartphone Contact Angle Goniometer
- EBSD Detector and associated software
- EK-H4 Humidity Sensor Evaluation Kit
- Electrically Heated Muffle Furnace with Controller P 330
- Enhanced Laser Velocity System
- EK-CELL-O Milling Machine
- Explosion proof freezer
- Extradia XCT-400 tomography machine
- FANUC - T-21-iFLA RoboDrill
- FASTCAM - Model SASHigh Speed Camera
- FDM 3D printing setup
- Fluke Electronics-Ti10, Thermal Imaging Camera
- Four 250 kN (250 mm stroke) MTS Actuators
- Four 250 kN (250 mm stroke) MTS Actuators
- Freeze/Thaw Cabinet
- Friction/Peel tester
- Function Generator 33522A
- FumatCE vtr-42m, 14"diaX16", 208V 3ph,24a
- Geomagic Touch Haptic Device
- GHD Genesis Speed radar gun & traffic data logger
- Haas TL1 CNC Lathe
- Haas TM 1, 3 axis CNC Milling Machine
- Haas UMC 750, 5 axis CNC Milling Center
- Heaton Dual Zone Bonder
- High temperature oven (CM Furnace 1800 C)
- Hitachi - S-3000N SEM
- Hoskin FLIR Camera
- Hot Press
- I365-CP35MHT80 Laser Displacement sensor
- IMA I-30 drill press
- IMER - COMBI 1000, 14" Diamond Saw
- Impact Tester
- Instron - Model 3345 Materials Testing System
- Instron - Model 8872 Fatigue Testing System
- Instron - Model 8874 Axial-Torsion Fatigue Testing
- Instron Environmental Chamber
- James Bond Tester
- Kent KGH5 6384 AD surface grinder
- Keyence - VHX-1000E Microscope
- Kodiak Recirculating Chiller
- Laboratory Fabric Padder
- LED Digital Colour System Discovery Zeiss Stereoscope
- Linear Displacement Transducers (LVDT)
- LITZ Hitch - LV-800 Vertical Machining Center
- LMI-502 Digital Hardness tester
- Load Cells Ranging From (100N to 2000kN)
- LowStr Friction Welder
- LVSTD Detector upgrade for Mira-3 XMU FESEM
- MAHO - Model MH-700 Universal Milling Machine
- Manual Model 12-12H press
- Martindale Abrasion Instrument
- Mask Aligner System, A near UV(320NM-450NM), OAI's model 204 Mask Alignment system
- Materials Testing Systems
- Mechanical Ultrasonic Bath
- Metal Brakes
- Mini Jaw Crusher
- Mini lathe and mill
- Mini pulveriser
- MTS Landmark 370 (500 kN Load Frame / Fatigue Tester)
- National Instruments DAQ modules
- National Interments DAQ Systems
- Netzsch 449 F3 STA thermal analysis machine
- Nikon - SMZ745T microscope
- Nitrogen generation system Olympus - 38DLP Ultrasonic Thickness Gage
- Olympus - EPOCH 600 Ultrasonic Flaw Detector
- Olympus - OmniScan Eddy current array acquisition
- Olympus - TomoScan FOCUS LT Portable phased array and automated UT Instrument
- OMAX - Model 2652 Waterjet Cutter
- Omax waterjet machine Optical Microscope (Zeiss)
- Optical Vibration Isolation table
- Oscilloscope
- Ossila Automated Dipcoater
- Peaks Scientific - NML32A Nitrogen generator
- pellier plate & couette convection oven
- Phantom Miro M310 High Speed Camera monochrome
- Photoluminescence Instruments
- Plasma Etch PE25-JW
- Plasma-Enhanced Atomic Layer Deposition System
- Precisa - EP 1255M scale
- Precisa - XT 6200D scale
- Precisa - XT 920M scale
- Product Testing-Mechanical Testing (which includes Load frame, controller,cable set,grip set, wedge set...)
- Profometer 5+ Rebar Detector, Type Scanlog
- PSI VTR-42 208v, 8.6KW ptb-3199
- Pulverisette 7 Premium Micro Mill
- QM-100 Projection Microscope
- Rapid Chloride Permeability Test
- Rebar Detector
- Research range
- RF & Microwave power Sensor
- Rheometer
- RTM System
- Sartorius - MA35M Balance moisture analyzer
- SC660 IR Camera
- Shear Ice Adhesion Measurement System
- SHT25 Humidity/Temp Sensor SMD
- SHT75 Humidity/Temp Sensor
- Signal Analyzer 20Hz-7GHz
- Silverschmidt Concrete Test Hammer
- SLG1430-150 LABKIT with LiquidFlow sensor
- Sonometer
- Spark Plasma Sintering Machine (SPS 10-3)
- Spinner - W5650Mz-23NPP Single wafer
- TA - InstrumentsDHR-3 Rheometer
- TA Instruments - Discovery
- TA Instruments - Q1000 DSC
- TA Instruments - Q800 DMA
- TA Instruments - Q400
- Tensile Ice Adhesion Measurement System
- Tensile testing machine
- Tescan Mira-XMU Scanning Electron Microscope
- Thermal camera and ground-penetrating radar
- ThermoTron Oven
- Tig & Mig welder
- Ultimaker 3 Professional 3D Printer
- USB4000 Plug-and-Play Miniature Fiber Optic Spectrometer
- Vickers Hardness Tester
- Viscometer Size #200/300
- Viscometer Rotational 115V/60
- VU - CON Complete Unit
- Waters - Acquity UPLC H-Class system
- Wireless Data Acquisition Unit NI 9215
- XLK EK-V7-VC707G Evaluation Kit
- Xradia - microXCT-400 Micro CT Scanner