Appendix 1. Carleton Faculty Engaged in Data Analytics and Big Data Research.

Faculty of Public Affairs

**Ana Dammert** (CUIDS)
Associate Professor, Normal Patterson School of International Affairs
Expertise/specialization: labour economics, applied microeconomics.

**Kier Armstrong** (CUIDS)
Associate Professor, Department of Economics
Expertise/specialization: Social and economics measurement, microeconomics, multilateral approaches to index-number theory, measurement of well-being, cost-benefit analysis.

**Ba M. Chu** (CUIDS)
Associate Professor, Department of Economics
Expertise/specialization: time-series econometrics

**Jose Galdo** (CUIDS)
Associate Professor, Department of Economics
Expertise/specialization: labour economics, microeconometrics, applied econometrics

**Lynda A. Khalaf** (CUIDS)
Professor, Department of Economics
Expertise/specialization: econometrics, energy econometrics, financial econometrics.

**Tracey Lauriault** (CUIDS)
Assistant Professor, Journalism and Communication.
Expertise/specialization: Critical data studies, big data, open data, data infrastructures, and data as media.

**Merlyna Lim** (CUIDS)
Assistant Professor, Journalism and Communication; Canada Research Chair in Digital Media and Global Network Society.
Expertise/specialization: digital media and activism, online collective actions, social media analysis, integrated small and big data analysis.

**Konstantinos Metaxoglou** (CUIDS)
Assistant Professor, Department of Economics
Expertise/specialization: econometrics, applied industrial organization, empirical financial economics.

**Maya Papineau-Koritar** (CUIDS)
Assistant Professor, Department of Economics
Expertise/specialization: environmental and energy economics, applied econometrics

**Raul Razo-Garcia** (CUIDS)
Associate Professor, Department of Economics
Expertise/specialization: Environmental and energy economics, applied econometrics.

**Marcel-Cristian Voia** (CUIDS)
Associate Professor and Co-Director of the Centre for Monetary and Financial Economics
Expertise/specialization: Micro-Econometrics, applied econometrics.

Christopher Worswick (CUIDS)
Professor and Chair, Department of Economics
Expertise/specialization: labour economics, applied econometrics.

Faculty of Arts and Social Science

Ash Asudeh
Associate Professor, Institute of Cognitive Science.
Expertise/specialization: semantics, cognitive science, linguistic theories and grammatical architecture, language and logic, computational linguistics and psycholinguistics.

Craig Bennell
Associate Professor, Department of Psychology and the Director of the Police Research Lab.
Expertise/specialisation: the reliability, validity, and/or usefulness of psychologically-based investigative techniques, such as criminal and geographic profiling, and factors influencing police decision making, especially in use-of-force encounters. (This includes computerized crime linkage analysis systems.)

Shelley Brown
Associate Professor, Department of Psychology and the Institute of Criminology and Criminal Justice and Director of the Forensic Psychology Research Centre.
Expertise/specialisation: examining the reliability and validity of existing psychologically-based assessment tools, developing new models of female criminal behavior using integrated theoretical and methodological approaches, and developing new assessment tools for youthful females.

Chris Burn
Professor, Department of Geography and Environmental Studies.
Expertise/specialisation: relationship between climate and permafrost, physical geography

Bruce Curtis
Professor, Department of Sociology and Anthropology.
Expertise/specialisation: the counter-intuitive, category slippage and the development of systems and categorization and includes the history of weights and measures, the making of the census and of census categories, the politics of demography, and attempts to construct systems of civil registration and vital statistics.

Amedeo D’Angiulli
Professor, Institute of Interdisciplinary Studies.
Expertise/specialisation: cognitive neuroscience of mental imagery and its relevance to everyday life, Impact of environmental factors on neurocognitive processes associated with information encoding and selective attention as reflected by event-related potentials (ERPs), perceptual symbols in blind and sighted individuals, behavioural correlates of cross-modal plasticity in visual deprivation and impairment; determinants of optimal development of basic cognitive skills supporting literacy and numeracy.

Jim Davies
Associate Professor, Institute of Cognitive Science
Expertise/specialisation: visualization in humans and machines, artificial intelligence, analogy, problem-solving, visual analytics, artistic compellingness and creativity.
Joanna Dean
Associate Professor, Department of History.
Expertise/specialisation: geospatial analysis of historical aerial photographs, urban forestry.

Jennifer Evans
Associate Professor, Department of History
Expertise/specialization: the history of sexuality and visual culture, especially the role of photography and social media as agents of historical meaning

Shawn Graham
Associate Professor, Department of History.
Expertise/specialisation: digital humanities, digital media, procedural generation of archaeological texts, digital archaeology, public archaeology, and landscape archaeology, modelling social complexity, social networks analysis and the Roman economy, accessibility issues and the digital humanities.

Brian Greenspan
Associate Professor. Department of English Language and Literature and Director of the Hypertext and Hypermedia Lab.
Expertise/specialisation: digital humanities, new narrative media, special storytelling, interactive interfaces.

Stephan Gruber (CUIDS)
Associate Professor, Geography and Canada Research Chair in Climate Change Impacts/Adaptation in Northern Canada.
Expertise/specialisation: Permafrost, mountain and arctic environments, climate change impacts, cryosphere control on slope instability, heterogeneous environments and their quantification with measurements and models, uncertainty in computer simulations, wireless sensing networks and customized sensor technology.

Chris Herdman
Professor, Department of Psychology and the Institute of Cognitive Science.
Expertise/specialisation: human attention and performance in dynamic environments through the use of modelling and simulation, design, implementation and evaluation of advanced human-machine systems.

Masako Hirotani
Associate Professor, School of Linguistics and the Director of the Language & Brain Lab.

Elyn Humphreys
Associate Professor, Department of Geography and Environmental Studies.
Expertise/specialisation: soil-plant-atmosphere interactions in a variety of climates and ecosystems, biometeorology, carbon cycle science and micrometeorological, as well as other techniques for the measurement of trace gas fluxes.

Doug King
Professor and Chair, Department of Geography and Environmental Studies and a Co-Director of the Geomatics and Landscape Ecology Research Laboratory.
Expertise/specialisation: remote sensing and geo-spatial methods for modelling, mapping and monitoring forests, wetlands, and other critical habitat areas such as shorelines at landscape and patch scales, airborne and high resolution satellite remote sensing, moderate resolution imagery (SPOT, Landsat and Radarsat).
Jo-Anne LeFevre
Chancellor’s Professor, Department of Psychology and the Director of the Institute of Cognitive Science (ICS) and the Centre for Applied Cognitive Research.
Expertise/specialization: cognitive development and cognition, mathematical cognition, numerical cognition, longitudinal study on the predictors of children’s acquisition of mathematics.

Craig Leth-Steensen
Associate Professor, Department of Psychology.
Expertise/specialization: the application of quantitative and statistical techniques for the analysis of psychological data, the development of mathematical and computational models (including random walks and neural networks) that can provide theoretical accounts for human cognitive and psychophysical performance (especially with respect to reaction time and reaction time distributions).

Stefania Maggi
Associate Professor, Psychology
Expertise/specialization: epidemiology, population health, social determinants of health, child development, mixed-methods research, community based research, and participatory methods with young children.

Pablo Mendez (CUIDS)
Assistant Professor, Geography and Environmental Studies
Expertise/specialization: housing markets and urban change, and quantitative analyses of government-produced datasets such as the Census of Population and the Longitudinal Survey of Immigrants to Canada.

Scott Mitchell (CUIDS)
Associate Professor, Department of Geography and Environmental Studies and Co-Director of the Geomatics and Landscape Ecology Research Laboratory.
Expertise/specialization: uncertainty in environmental modelling and monitoring, remote sensing, Geography Information Systems including decision support and model interfaces, as well as carbon cycling and landscape productivity patterns.

Amina Mire
Assistant Professor, Department of Sociology and Anthropology
Expertise/specialization: interdisciplinary analysis and critical research in women and health; racialization and biomedicalization of women’s bodies and skin; anti-ageing; etc.

Michael Mopas
Assistant Professor, Department of Sociology and Anthropology
Expertise/specialization: criminology; socio-legal studies; sound studies; science and technology studies; science, technology and law; crime, media and culture; cyber-crime and cyber-governance; policing and surveillance; governmentality; actor-network theory; food studies

Derek Mueller (CUIDS)
Associate Professor, Department of Geography and Environmental Studies.
Expertise/specialization: remote sensing techniques, indicators and impacts of climate change in the cryosphere, environmental change detection, ice islands and icebergs.

Kasia Muldner
Assistant Professor, Institute of Cognitive Science
Expertise/specialization: learning and cognition, creativity, cognitive and affective modeling, educational technologies and games, affective computing.

Carlos Novas
Associate Professor, Department of Sociology and Anthropology
Expertise/specialization: Science and Technology Studies; Social Studies of Science; governmentality; biopolitics; biotechnology; life sciences; genetic testing; genetic counselling.

Kevin Nunes
Associate Professor, Department of Psychology
Expertise/specialization: cross-sectional, retrospective, and longitudinal design, archival datasets, meta-analytic literature reviews.

James Opp
Professor, Department of History
Expertise/specialization: Place, Memory, and Digital Representations of History, Visual culture, material culture, public history

George Pollard
Associate Professor, Department of Sociology and Anthropology.
Expertise/specialisation: quantitative and mathematical sociology, foundational and meso-level theory, Social Psychology, social relations, pop culture as collective action, media sociology, work, occupations and organizations.

Steven Prus
Associate Professor, Department of Sociology and Anthropology.
Expertise/specialisation: social gerontology, epidemiology, and statistics, namely applied statistics and general and generalized linear models.

Murray Richardson
Associate Professor, Department of Geography and Environmental Studies.
Expertise/specialization: hydrology; water-quality; mercury; watershed ecosystems; limnology; GIS; remote sensing, geo-computation; environmental modelling, quantitative methods, digital terrain analysis; spatial statistics; ecohydrology; LiDAR; DEMs, northern peatlands, Unmanned Aerial Vehicles (UAVs)

Brian Tansley
Associate Professor, Departments of Psychology and Systems & Computer Engineering.
Expertise/specialization: human factors and engineering psychology, design and evaluation of visual and auditory signals at the human-machine interface, and quantitative modelling of human and machine vision.

Fraser Taylor
Distinguished Research Professor, Department of Geography and Environmental Studies and Director of the Geomatics and Cartographic Research Centre.
Expertise/specialization: cybergcartography, language mapping, Northern research, geospatial information management, archiving and preservation.

Paul Théberge
Professor, School for Studies in Art and Culture and the Institute of Comparative Studies in Literature, Art and Culture.
Expertise/specialization: issues relating to music, technology and culture, music and globalization and uses of sound in film and television, the music industry and its adaption to the internet.

**Lara Varpio**
Adjunct Research Professor, School of Linguistics and Language Studies.
Expertise/specialization: Information and Communication Technologies (ICTs) as they are used in interprofessional healthcare teams including mobile alerting technologies in pediatric medicine, the clinical use (and misuse) of Electronic Patient Records, and the development of theory addressing interprofessional communication via communication technologies.

**Jesse Vermaire**
Assistant Professor, Geography and Environmental Studies
Expertise/specialization: Aquatic ecology, limnology, paleolimnology, paleoecology, watershed conservation, ecosystem ecology, climate change, eutrophication

**Rob West**
Associate Professor, Department of Psychology and the Institute of Cognitive Science (ICS).
Expertise/specialization: computer models of human cognition, areas of memory, strategic thinking, dynamic systems, psychophysics, and cognitive engineering.

**Faculty of Science**

**Susan Aitken** *(CUIDS)*
Professor, Department of Biology.
Specialization: big data in biochemistry research (pattern and covariance recognition in large multiple sequence alignments, predication of macromolecular structural features that determine specificity of function) and in a broader context related to health, food security and the environment.

**Olga Baysal** *(CUIDS)*
Assistant Professor, School of Computer Science.
Expertise/specialization: Data mining, mining software repositories, data analytics, software analytics, empirical software engineering, and human aspects of software engineering.

**Alain Bellerive**
Professor and Chair, Department of Physics.
Expertise/specialization: experimental particle physics, the study of the fundamental constituents of matter and their interactions. He is involved in the ATLAS experiment at the Large Hadron Collider (LHC) located at CERN.

**Leopoldo Bertossi** *(CUIDS)*
Professor, School of Computer Science.
Expertise/specialization: database systems, data integration, data quality for business intelligence, intelligent information systems, semantic web, ontologies, data on the web.

**Robert Biddle** *(CUIDS)*
Professor, School of Computer Science
Expertise/specialization: human/computer interaction, computer security, data visualization.

**Prosenjit Bose**
Professor, School of Computer Science.
Expertise/specialization: algorithm design and analysis, algorithms, applied geometric computing (applications to manufacturing), computational geometry, computer vision, data structures, discrete mathematics, graph theory, image processing, pattern recognition, randomized algorithms, routing in networks and theory of computing.

Steven Cooke (CUIDS)
Professor and Canada Research Chair, Department of Biology
Expertise/specialization: Fish Ecology and conservation physiology.

Jean-Pierre Corriveau
Associate Professor, School of Computer Science.
Expertise/specialization: artificial intelligence, CASE and knowledge-based tools for software engineering, cognitive science, contextualized natural language understanding, distributed and real-time systems, human computer interaction, memory-based text comprehension, object-oriented and agile modelling, programming languages, programming and quality engineering, and software engineering.

Frank Dehne (CUIDS)
Chancellor's Professor of Computer Science and heads the Parallel Computing & Bioinformatics Research Lab.
Expertise/specialization: parallel computing, coarse grained parallel algorithms, parallel computational geometry, parallel data warehousing and online analytical processing (OLAP), and parallel bioinformatics. He is particularly interested in the use of parallel algorithms for large scale scientific computing and the interrelationship between the theoretical analysis of algorithms and the performance observed when these algorithms are implemented.

Dwight Deugo
Associate Professor, School of Computer Science.
Expertise/specialization: artificial intelligence, evolutionary computation (genetic algorithms, genetic programming and artificial life), information systems, large-scale distributed object computing, open source software, pervasive computing, programming languages, software engineering and web technologies.

Richard Ernst
Scientist-in-Residence, Department of Earth Sciences.
Expertise/specialization: planetary geology, specifically, analogues of Large Igneous Provinces (LIPs) on other planets, and improving the LIP record in order to reconstruct the arrangement of crustal blocks within supercontinents back to 2.7 billion years ago.

Lenore Fahrig (CUIDS)
Professor, Department of Biology and a Co-Director of the Geomatics and Landscape Ecology Research Laboratory.
Expertise/specialization: effects of landscape structure on abundance, distribution and persistence of organisms, spatial simulation modelling.

Patrick Farrell
Professor, School of Mathematics and Statistics.
Expertise/specialization: categorical data analysis, biostatistics, sampling and applied statistics.

Kevin Graham
Associate Professor, Department of Physics.
Expertise/specialization: experimental particle physics, the study of the fundamental constituents of matter and their interactions, neutrinos, neutrinoless double beta decay. He is involved in the DEAP and EXO experiments at SNOLAB.

**Ashkan Golshani** *(CUIDS)*
Professor, Department of Biology

**Yuhong Guo**
Associate Professor and Canada Research Chair, School of Computer Science
Expertise/specialization: Machine Learning, Artificial Intelligence, Natural Language Processing, Computer Vision, Bioinformatics, Data Analysis

**Emily Heath**
Associate Professor, Department of Physics
Expertise/specialization: Monte Carlo simulations of radiation therapy, dose accumulation computations.

**Thomas Koffas**
Associate Professor, Department of Physics.
Expertise/specialisation: experimental particle physics, Higgs boson, member of the ATLAS collaboration at the Large Hadron Collider at CERN.

**Iain Lambert** *(CUIDS)*
Professor and Chair, Department of Biology.
Expertise/specialisation: environmental genomics, chemical toxicity, mutagenesis and DNA repair.

**Anil Maheshwari** *(CUIDS)*
Professor, School of Computer Science.
Expertise/specialization: computational geometry, graph theory, and sequential, parallel, distributed, multi-core, and external memory algorithms for problems which fit within the framework of design and analysis of algorithms.

**Bruce C. McKay** *(CUIDS)*
Associate Professor, Department of Biology
Expertise/specialization: transcriptomics, regulation of gene expression.

**Shirley Mills**
Associate Professor, School of Mathematics and Statistics.
Expertise/specialization: applied statistics, software reliability, analysis of large data sets, decision analysis and event modelling, multivariate statistic, analysis of categorical data, data mining, detection and estimation in the presence of outliers.

**Pat Morin**
Professor, School of Computer Science.
Expertise/specialization: algorithms, computational geometry, data structures, distribution-sensitive data structures, computational statistics and graph theory.

**Dariush Motazedian**
Associate Professor and Chair, Department of Earth Sciences.
Expertise/specialization: stochastic and hybrid earthquake fault modelling, seismic soil modelling, earthquake ground motion relations, seismic microzonation and rapid warning systems for earthquakes (ShakeMap).

David Mould
Associate Professor, School of Computer Science.
Expertise/specialization: computer graphics, procedural modelling, computer-generated art, computer games and image processing.

Jason Nielsen
Associate Professor, School of Mathematics and Statistics.
Expertise/specialization: functional data analysis, longitudinal data analysis, mixture models, and computational statistics/numerical analysis.

Doron Nussbaum
Associate Professor, School of Computer Science.
Expertise/specialization: algorithms, computational geometry, computer graphics, computer vision, data structures, distributed computing, Geographic Information Systems (GIS), medical computing, parallel computing, robotics and machine vision.

Gerald Oakham
Professor, Department of Physics.
Expertise/specialization: experimental physics, ATLAS experiment at CERN, Higgs physics.

John Oommen
Chancellor’s Professor, School of Computer Science.
Expertise/specialization: data structures, algorithms, artificial intelligence, image processing, learning systems, pattern recognition, robotics, stochastic automata and theory of computing.

Nicolas Rodrigue
Assistant Professor, Department of Biology
Expertise/specialization: bioinformatics, Bayesian modeling of molecular evolution, Monte Carlo methods, high-performance statistical computing, protein structure modeling, statistical protein design, and next-generation-sequencing approaches for studying viral and microbial evolution

Owen Rowland (CUIDS)
Associate Professor, Department of Biology
Expertise/specialization: high-throughput sequencing, genomics.

Jörg-Rüdiger Sack (CUIDS)
Professor, School of Computer Science.
Expertise/specialization: algorithms, data structures, distributed and parallel computing, computer graphics, geographic information systems and foremost computational geometry.

David Sinclair
Distinguished Research Professor, Department of Physics
Expertise/specialization: experimental particle physics, double beta decay, neutrinos.

Nicola Santoro
Distinguished Research Professor, School of Computer Science.
Expertise/specialization: algorithms, communication networks, data structures, discrete mathematics, parallel and distributed computing, distributed and real-time systems, evolutionary computing, graph theory, mobile computing, network computing, robotics, theory of computing and wireless communication.

**Thomas Sherratt** (CUIDS)
Professor, Department of Biology
Expertise/specialization: mathematical modelling, simulations, predator-prey interactions, evolution of aging, animal cooperation and conflict.

**Andrew Simons** (CUIDS)
Professor, Department of Biology
Expertise/specialization: ecosystem modelling, evolution, adaptation.

**Sanjoy Sinha**
Professor, School of Mathematics and Statistics.
Expertise/specialization: biostatistics, longitudinal data analysis, missing data analysis, mixed models and robust interference.

**Michiel Smid**
Professor, School of Computer Science.
Expertise/specialization: algorithms, applications of computational geometry in manufacturing, data structures, discrete mathematics, geometric networks, graph theory and the theory of computing.

**Myron L. Smith** (CUIDS)
Associate Professor, Department of Biology
Expertise/specialization: genomics, transcriptomics, small molecule-protein interaction, genetics, antimicrobials, non-self recognition.

**Rowan Thomson**
Associate Professor, Department of Physics.
Expertise/specialization: development and application of computational techniques and theoretical approaches to study the interactions of radiation with matter, with an emphasis on research questions relevant to radiation therapy treatments for cancer, Monte Carlo simulations.

**Paul Van Oorschot**
Professor and Canada Research Chair, School of Computer Science.

**Manuella Vincter**
Professor, Department of Physics
Expertise/specialization: experimental particle physics, the primary research focus on the ATLAS experiment is on the identification and reconstruction of electrons, particularly in the decays of the carriers of the fundamental weak force, the W and Z bosons.

**William Willmore** (CUIDS)
Associate Professor, Department of Biology
Expertise/specialization: proteomics, protein-protein interactions, hypoxia
Tony White (CUIDS)
Professor, School of Computer Science.
Expertise/specialization: artificial intelligence, artificial life, distributed and real-time systems, evolutionary computing (genetic algorithms and programming), information systems, internet applications, machine learning, mobile agents, parallel and distributed computing, peer-to-peer computing, social computing, software, swarm intelligence and web technologies.

Alex Wong (CUIDS)
Assistant Professor, Department of Biology
Expertise/specialization: high-throughput sequencing, genomics, adaptation, antibiotic resistance, molecular evolution.

James S. Wright
Chancellor’s Professor, Department of Chemistry.
Expertise/specialization: computational chemistry, molecular modelling.

Paul Villeneuve (CUIDS)
Associate Professor, Department of Health Sciences.
Expertise/specialization: Epidemiology, environmental and occupational health, longitudinal studies, case-control studies and record linkage.

Renate Ysseldyk
Assistant Professor, Department of Health Sciences
Expertise/specialization: longitudinal studies, health psychology, social determinants of health.

Toby Zeng
Assistant Professor, Department of Chemistry
Expertise/specialization: Computational chemistry

Yiqiang Zhao
Professor, School of Mathematics and Statistics.
Expertise/specialization: applied probability, queuing theory and queuing networks, stochastic modelling and performance analysis for wireless and computer networks, credit risk modelling and derivative markets and pricing.

Faculty of Engineering and Design

A.O. Abd El Halim
Professor, Department of Civil and Environmental Engineering.
Expertise/specialization: safety and security of transportation infrastructure, improving the engineering resistance of civilian critical infrastructure to blast loadings and man-made attacks, analytical and theoretical modelling of asphalt pavement systems (highways, airfields), experimental and laboratory investigations, field evaluation and assessment, use of geosynthetic materials to reinforce civil engineering systems, and life cycle analysis and economics of transportation.

Ramachandra Achar
Professor, Department of Electronics.
Expertise/specialization: computer-aided design methodologies for modelling and analysis of emerging high-speed, mixed-domain and multi-function electronic products.
Andy Adler  
Professor and Canada Research Chair in Biomedical Engineering, Department of Systems and Computer Engineering.  
Expertise/specialization: biometrics imaging and security systems (including the associated algorithms, measurement devices, and privacy and security aspects), and the development of non-invasive biomedical measurement technologies and sensors (including the medical image and signal processing algorithms).

Fred Afagh  
Acting Dean and Professor, Department of Mechanical and Aerospace Engineering. 
Expertise/specialization: structural modelling of thin-walled, open and closed cross-section beams, dynamic modelling and stability of helicopter rotors, modelling and investigation of blade-sailing effects in shipboard rotor aircraft using numerical and analytical methods, controlling blade-sailing phenomena by using smart structures technology, optimization of actuator configuration and positioning using genetic algorithms, and stability analysis of elastic systems subjected to follower type forces.

Victor Aitken  
Associate Professor, Department of Systems and Computer Engineering. 
Expertise/specialization: control systems, state estimation, data and information fusion, redundancy, sliding mode systems, non-linear systems, vision, mapping and localization, sensing, control and state estimation methods for navigation and guidance of unmanned vehicle systems, and vision, state estimation and information fusion for robotics and biomedical applications.

Samuel Ajila (CUIDS)  
Associate Professor, Department of Systems and Computer Engineering.  
Expertise/specialization: cloud computing with emphasis on virtual machine resource management and migration; data integration and mining with emphasis on software and data repositories.

Andrei Artemev  
Associate Professor, Department of Mechanical and Aerospace Engineering.  
Expertise/specialization: development of computer simulation methods for structure and properties of solid materials and structure evolution in phase transformations, phase field models of domain structures in thin ferroelectric films and nano-composites, micro-macro models of phase transformations and phase-field micromechanics models of the martensitic transformation, and computer modelling and damage analysis of functional composite materials.

Claire Austin  
Adjunct Research Professor, Department of Civil and Environmental Engineering and a Research Scientist at the Air Quality Research Branch of Environment Canada.  
Expertise/specialization: smog science related to air contaminants monitored by the Canadian National Air Pollution Surveillance (NAPS) Network, development of new measurement and analysis techniques for studying pollutants in ambient air and the quantification of the contribution of transportation sources to ambient particulate matter, data mining.

Ian Beausoleil-Morrison  
Professor, Department of Mechanical and Aerospace Engineering.  
Expertise/specialization: micro-cogeneration based upon fuel cells and Stirling cycles, building performance simulation, optimization of solar energy utilization and alternative cooling approaches.

Adrian Chan (CUIDS)  
Professor, Department of Systems and Computer Engineering
Expertise/specialization: remote monitoring of people (includes multimodal, continuous, wearable monitoring); automatic quality assessment (detect/identify/quantify/mitigate contaminants in data).

John Chinneck (CUIDS)
Professor, Department of Systems and Computer Engineering.
Expertise/specialization: optimization (i.e. determining an optimal choice when restricted by constraints), mathematical programming, operations research, modelling, linear and non-linear programming, heuristics, infeasibility analysis, and developing algorithms to debug optimization models and to speed optimization solutions.

Cynthia Cruickshank
Assistant Professor, Department of Mechanical and Aerospace Engineering.
Expertise/specialization: system and component level modelling of solar thermal energy systems and sensible heat storages including experimental analysis, investigations related to the impact of large-scale implementation of solar thermal systems on electric utility peak loads, optimization and integration of new solar thermal technologies with conventional heating and cooling systems, and the experimental and numerical evaluation of flowing electrolyte direct methanol fuel cells.

Jeffrey Erochko
Assistant Professor, Department of Civil and Environmental Engineering.
Expertise/specialization: nonlinear dynamic modelling of structures subjected to earthquake loading, design and testing of self-centering systems for bridges, and passive damping and isolation of structures.

Babak Esfandiari (CUIDS)
Professor, Department of Systems and Computer Engineering
Expertise/specialization: machine learning, agent-based systems, network computing, artificial intelligence, object-oriented design and languages, network management.

Jason Etele
Associate Professor, Department of Mechanical and Aerospace Engineering.
Expertise/specialization: Rocket Based Combined Cycle (RBCC) Engines, unmanned aerial vehicle (UAV) Analysis/Simulation using computational fluid dynamics (CFD), low cost space launch systems, hypersonic/high speed flows and aerodynamics and flight mechanics.

Ali Etemad (CUIDS)
Adjunct Professor, School of Information Technology.

Stephen Fai (CUIDS)
Associate Professor, Architecture and Director of the Carleton Immersive Media Studio (CIMS)
Expertise/specialization: research in the area of architectural representation, including projects relating to documentation and dissemination of ethno-cultural methods of construction, biomedical visualization, and building information modelling for heritage conservation.

Greg Franks
Assistant Professor, Department of Systems and Computer Engineering.
Expertise/specialization: software performance engineering, analytic performance modelling using “layered queues”, discrete event simulation of distributed computer systems, reverse engineering of
distributed software systems through trace analysis, model building, solution and analysis process, software engineering, operating systems, and operating system schedulers.

**Robert Gauthier**  
Associate Professor, Department of Electronics.  
Expertise/specialization: photonic crystals and photonic quasi-crystals bandgap and defect state engineering, laser trapping, manipulation, orientation and ablation of micron sized objects, and simulation software development for physics end engineering applications.

**John Goldak**  
Distinguished Research Professor, Department of Mechanical and Aerospace Engineering.  
Expertise/specialization: design and analysis of casting, fluid flow and solidification of castings, design environments for casting, microstructure models in casting and welding and hydrogen cracking in welds.

**James Green**(CUIDS)  
Associate Professor, Department of Systems and Computer Engineering.  
Expertise/specialization: pattern classification challenges in biomedical informatics and high performance computing, prediction of protein structure and function, the design of novel assistive devices for the disabled, and the acceleration of computational mass spectrometry through implementation on novel computational platforms.

**Pavan Gunupudi**  
Associate Professor, Department of Electronics  
Expertise/specialization: multi-disciplinary system simulation, parallel circuit/system simulation, signal integrity, design automation of high-speed very large scale integration (VLSI) and radio frequency (RF) circuits, simulation of silicon-photonicics and microwave photonics circuits and systems, electrical and optical device modelling, model-order reduction, electrical/optical interconnects, artificial neural networks, design centering and optimization, and electromagnetic compatibility.

**George Hadjisophocleous**  
Professor, Department of Civil and Environmental Engineering.  
Expertise/specialization: fire risk analysis, fire and smoke movement modelling, computational fluid dynamics, and occupation response and evacuation in fires.

**Amir Hakami**  
Associate Professor, Department of Civil and Environmental Engineering  
Expertise/specialization: air quality modelling, forward and backward/adjoint sensitivity analysis, modelling as policy support tool, uncertainty analysis, data assimilation, inverse modelling and numerical analysis in air quality models.

**Neal Holtz**  
Associate Professor, Department of Civil and Environmental Engineering.  
Expertise/specialization: design codes and standards, software development, computer-aided learning, 3D computer graphics modelling, databases and Internet-based information services with a focus on computer-based representation of highly technical documents such as building codes and standards, and the integration of these with applications software.

**Changcheng Huang**(CUIDS)  
Professor, Department of Systems and Computer Engineering.  
Expertise/specialization: data center network design for big data applications.
Mohamed Ibnkahla (CUIDS)
Professor, Department of Systems and Computer Engineering and Cisco Chair in the Internet of Things.
Expertise/specialization: Internet of Things and wireless sensor networks and technologies with applications in various domains including smart homes, smart city, smart grid, intelligent transportation systems, security, healthcare, and green society.

O. Burkan Isgor
Adjunct Professor, Department of Civil and Environmental Engineering.
Expertise/specialization: durability of concrete structures, theory and modelling of corrosion of steel in concrete, service life prediction of reinforced concrete structures, computational material science (continuum and ab initio approaches), non-destructive and model assisted testing, and the use of sustainable and recyclable materials in construction.

Karim Ismail
Associate Professor, Department of Civil and Environmental Engineering.
Expertise/specialization: modelling of sustainable modes of transportation with a special focus on non-motorized modes of transportation, road safety analysis, highway design, and modelling and evaluation of intelligent transportation systems with a special focus on freight.

Chris Joslin (CUIDS)
Associate Professor, School of Information Technology.
Expertise/specialization: computer graphics and animation, biomedical engineering, and signal processing and compression which encompasses feature extraction, signal processing, and medical informatics.

Deniz Karman
Professor Emeritus, Department of Civil and Environmental Engineering
Expertise/specialization: air pollution sources and control methods, characterization and modelling of mobile source emissions, environmental performance and life cycle analysis of alternative fuels and vehicles, impact of motor vehicle emissions on urban air quality, motor vehicle emission inventories and regional air quality modelling, measurement and modelling of urban air quality in microenvironments, and greenhouse gas emissions from industrial and transportation sources.

Ata Khan
Professor, Department of Civil and Environmental Engineering.
Expertise/specialization: intelligent transportation-cognitive vehicle, modelling and simulation, policy and planning, engineering economics, safety, efficiency, sustainable development, and energy and environmental factors in transportation.

Heng Aik Khoo
Associate Professor, Department of Civil and Environmental Engineering
Expertise/specialization: steel structures and pipelines, modelling and testing to predict the performance of steel pipelines and structures subjected to different loading conditions, fracture mechanics, low cycle fatigue, and constitutive relationship.

John Lambadaris
Professor, Department of Systems and Computer Engineering.
Expertise/specialization: stochastic processes and optimization, queuing theory, mixed signal electronic design, analysis and modelling of traffic in modern computer and communication networks, architectures and performance evaluation, optimal control of optical networks, resource allocation and routing, congestion control for Internet, active queue management and scheduling algorithms.
Robert Langlois
Professor, Department of Mechanical and Aerospace Engineering.
Expertise/specialization: applied multibody dynamics, vehicle dynamics, mathematical modelling and computer simulation.

David Lau (CUIDS)
Professor, Department of Civil and Environmental Engineering.
Expertise/specialization: structural dynamics and earthquake engineering, monitoring and assessment of large structures, development of measurement and high speed computer data processing techniques for real-time monitoring, dynamic response and earthquake resistant design of bridges, buildings, liquid storage tanks and concrete arch dams as well as ritz vector approach or finite element method for nonlinear structural analysis.

Chung-Horng Lung (CUIDS)
Professor, Department of Systems and Computer Engineering
Expertise/specialization: technologies for real-time network anomaly detection in internet traffic data, including k-means, fuzzy c-means, Oclustering, principal component analysis, and wavelet analysis.

Shikharesh Majumdar (CUIDS)
Professor, Department of Systems and Computer Engineering
Expertise/specialization: parallel and distributed systems, performance modelling and performance evaluation of computer systems, operating systems, middleware, resource management on clouds and grids, resource management on wireless sensor networks, and web services and service oriented architecture.

Edgar Matida
Associate Professor, Department of Mechanical and Aerospace Engineering.
Expertise/specialization: pharmaceutical aerosols, large eddy simulation, dispersed two-phase random walk models, impinging jets.

Ronald Miller
Professor and Chair, Department of Mechanical and Aerospace Engineering.
Expertise/specialization: computational mechanics of materials, atomistic modelling of crystal defects, high temperature deformation of alloys and carbon nanotube composites.

Michel Nakhla
Chancellor’s Professor, Department of Electronics.
Expertise/specialization: parallel processing, modelling and simulation of high-speed interconnects, signal integrity, packaging, nonlinear circuits, multidisciplinary optimization, model-reduction techniques, statistical analysis, wavelets and neural networks, opto-electronic systems, design centering, thermal design, electromagnetic radiation and interference.

Liam O’Brien (CUIDS)
Associate Professor, Department of Civil and Environmental Engineering.
Expertise/specialization: analyzing streaming sensor data from multiple buildings that includes air temp, RH, CO2, motion, electrical power, visualization of building performance and complex data to support design, building performance simulation-supported design, daylighting and solar control, occupant behaviour and its impact on building performance, green roof performance and demand response controls to reduce peak loads.
Trevor W. Pearce
Associate Professor, Department of Systems and Computer Engineering.

Joana Rocha
Assistant Professor, Department of Mechanical and Aerospace Engineering.
Expertise/specialization: analytical and numerical modelling of aircraft acoustics and vibration, turbulence modelling, structural-acoustic coupling and structural design for noise reduction.

Henry M. J. Saari
Associate Professor, Department of Mechanical and Aerospace Engineering.
Expertise/specialization: processing and properties of gas turbine materials, solidification process modelling, corrosion of materials in supercritical carbon dioxide, and thermal analysis.

Mario Santana Quintero
Assistant Professor, Department of Civil and Environmental Engineering.
Expertise/specialization: 3D digital tools for recording, documentation and information management tools for heritage places (eg. Computer-Aided Drafting applications, 3D modelling, active and passive web – design, surveying instruments, photogrammetry, image processing, 3D laser scanning; and digital presentation).

Abhijit Sarkar (CUIDS)
Associate Professor, Department of Civil and Environmental Engineering
Expertise/specialization: uncertainty propagation and data assimilation techniques in engineering systems, nonlinear, stochastic and chaotic vibration, structural acoustics and fluid-structure interaction, stochastic finite element, flow through disordered porous media, and parallel computing for large-scale stochastic systems.

Maitham Shams
Associate Professor, Department of Electronics.
Expertise/specialization: high-speed and low-power circuits, system on chip, delay estimation and optimization, modern asynchronous circuits, arithmetic blocks, energy estimation and optimization, RF logic circuits, computer architecture, logical balance, CMOS logic styles, digital signal processing (DSP) and wireless, modelling of CMOS logic styles, adiabatic computing, biomedical and environmental, and metal-oxide semiconductor field-effect transistor (MOSFET) modelling.

Paul H. Simms
Professor, Department of Civil and Environmental Engineering.
Expertise/specialization: unsaturated soil mechanics, microscale modelling of porous media, evaporation and cracking in porous media, rheology of non-Newtonian fluids, as well as the coupled analysis of fluid flow, heat flow, and volume change in porous media.

Paul V. Straznicky
Professor Emeritus, Department of Mechanical and Aerospace Engineering.

Jérôme Talin
Assistant Professor, Department of Systems and Computer Engineering.
Expertise/specialization: the development and evaluation of sensors network based protocols in event detection (such as fire detection), in system monitoring and in disaster evacuation strategy and management plans. He is also interested in IPv4 to IPv6 transition modelling, network topology exploration, network monitoring and troubleshooting, and data classification and filtering.

**Gabriel Wainer**<sup>(CUIDS)</sup>
Professor, Department of Systems and Computer Engineering.
Expertise/specialization: multi-scale and multi-resolution modeling and simulation, emerging behaviour characterization, parallel processing algorithms for handling large volumes of data.

**Xin Wang**
Professor, Department of Mechanical and Aerospace Engineering.
Expertise/specialization: solid mechanics, linear and nonlinear fracture mechanics, finite element method, fatigue and fracture analyses of engineering materials and structures, structural integrity assessment methods, material characterization and numerical simulation of metal forming process.

**Anthony Whitehead**<sup>(CUIDS)</sup>
Associate Professor, Department of Computer Science and the School of Information Technology.
Expertise/specialization: practical applications of machine learning, pattern matching and computer vision as they relate to interactive applications (including games), computer graphics, vision systems and information management. The research encompasses the following areas of Data Science: computer vision, computational video, content-based on image and video retrieval, pattern recognition, feature extraction, classification, signal processing, sensor data processing, and data fusion.

**Murray Woodside**
Professor Emeritus and Distinguished Research Professor, Department of Systems and Computer Engineering.
Expertise/specialization: improving the performance of complex distributed computer software by the use of performance models, deriving models from annotated software designs in unified modelling language (UML), deriving models from traces and other measurements, model-solving algorithms, strategies and tools for performance improvement, usability of modelling, accuracy of solutions, and architectural patterns for high-performance systems.

**Halim Yanikomeroglu**
Professor, Department of Systems and Computer Engineering.
Expertise/specialization: wireless technologies including interference modelling, with a special emphasis on cellular networks.

**QJ Zhang**
Professor, Department of Electronics
Expertise/specialization: Computer-Aided Design tools and methodologies for design of high-speed VLSI packages, RF and microwave circuits and subsystems in communication systems; Neural Network technology for high frequency electronics circuits and systems design; Optimization technology for electromagnetic structures, circuits and systems design. Applications: modeling and optimization of RF and microwave circuits. Concurrent optimization techniques for signal integrity, thermal and EM based design of IC packages, multichip modules and printed circuit boards; Yield optimization, statistical modeling, manufacturability driven design of circuits;

**Sprott School of Business**
Francois Brouard (CUlDS) Associate Professor & Director, Sprott Centre for Social Enterprises
Expertise/specialization: Sprott Centre for Social Enterprises (SCSE), social enterprises databases, including charities T2010 information.

Ahmed Doha (CUlDS)
Assistant Professor, Sprott School of Business
Expertise/specialization: Design and implementation of supply chain systems, including B2C, B2C C2B, and C2C that produce big data and the analysis and interpretation of big data to understand supply chain best practices.

Gerald Grant
Associate Professor, Sprott School of Business.
Expertise/specialization: strategic management of information technology in private and public sector organizations.

Sefa Hayibor
Associate Professor, Sprott School of Business.
Expertise/specialization: stakeholder theory, ethical decision-making, corporate social performance, cognitive heuristics and biases, moral development, values in leadership, and the application of evolutionary psychology to business ethics.

Louise Heslop
Distinguished Research Professor and Professor Emerita, Marketing.
Expertise/specialization: marketing, business strategy, consumer behaviour and decision making, especially country and brand cue use, food marketing, including consumer acceptance of new food technologies, domestic versus international food selection, food promotion to children, and wine marketing.

Michael Hine (CUlDS)
Associate Professor, Sprott School of Business
Expertise/specialization: Use of text analytics to better understand eServices, eCommerce, and other business activities that are reliant on computer-mediated communication.

Diane Isabelle
Assistant Professor, Sprott School of Business.
Expertise/specialization: focuses broadly on the areas of science, innovation and techno-entrepreneurship within a global context. Her current research interests are organized around the following four themes: international entrepreneurship, internationalization (International New Ventures and SMEs), global collaborative research and Science, Technology and Innovation policy, and technology-integrated higher education pedagogy.

Shaobo Ji (CUlDS)
Associate Professor, Sprott School of Business
Expertise/specialization: analysis and design issues for business analytics system, ICT implementation in organization, ICT and individual/group decision making, managerial cybernetics.

Vijay M. Jog (CUlDS)
Chancellor's Professor, Sprott School of Business
Expertise/specialization: Business analytics, multivariate data analysis using big data, multi-dimensional decision making, data visualization and dashboards.
**Ernest Kwan** *(CUIDS)*
Assistant Professor, Sprott School of Business.
Expertise/specialization: data visualization and analysis in the social sciences, including graphics that facilitate the understanding and communication of data analysis results.

**Irene Lu** *(CUIDS)*
Associate Professor of Marketing, Sprott School of Business.
Expertise/specialization: measurement issues in marketing, exploration and evaluation of psychometric measurement techniques and latent variable modelling methods in marketing.

**Alejandro Ramirez** *(CUIDS)*
Associate Professor, Sprott School of Business
Expertise/specialization: business analytics, decision support tools, adoption of ICT for decision support in organizations, data strategies and governance.

**Robert Riordan** *(CUIDS)*
Instructor, Sprott School of Business
Expertise/specialization: Big Data, business intelligence, visualisation.

**Jerry Tomberlin**
Dean, Sprott School of Business.
Expertise/specialization: data analysis, statistical applications in casualty actuarial science, statistical issues in cases of employment discrimination, statistics and the law, the design and analysis of sample surveys, transportation, and the impact of academic business research.