



UNDERGRADUATE RESEARCH AWARDS RECOGNITION EVENT 2019

Thursday, August 8

Business and Information
Technology Building

Hosted by:

The Office of the Vice-President,
Research and Innovation

 **OntarioTech**
UNIVERSITY



2019 UNDERGRADUATE RESEARCH AWARDS RECOGNITION EVENT



TABLE OF CONTENTS

AGENDA.....2

KEYNOTE SPEAKER3

GUEST SPEAKER4

2019 NATURAL SCIENCES AND ENGINEERING RESEARCH COUNCIL (NSERC)

UNDERGRADUATE RESEARCH AWARD WINNERS 5-6

2019 ONTARIO TECH UNIVERSITY STUDENT TRAINING ASSISTANTSHIPS IN RESEARCH (STAR) AWARD WINNERS6



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AGENDA

Thursday, August 8

Business and Information Technology Building, Ontario Tech University main campus

12:30 to 1:00 p.m.

UB 2nd floor mezzanine

Registration for student award winners

1:00 p.m.

UB 2080

Opening Remarks

Les Jacobs, Vice-President, Research and Innovation

Jennifer Freeman, Executive Director of Research Services, Office of the Vice-President, Research and Innovation

1:10 to 1:30 p.m.

UB 2080

Keynote Speaker

Denina Simmons, PhD

Assistant Professor, Faculty of Science

Tier 2 Canada Research Chair in Aquatic Biology

Presentation title: Research & Creativity

Speaker

Farhan Abdul Ghaffar, PhD

Postdoctoral Fellow

Instructor, Faculty of Engineering and Applied Science

Presentation title: There's a Wireless Solution for that!

1:30 to 1:45 p.m.

UB 2080

Undergraduate Research Award winner recognition

1:45 to 2:30 pm

UB 2nd floor mezzanine

Networking for all registered guests



2019 UNDERGRADUATE RESEARCH AWARDS RECOGNITION EVENT



KEYNOTE SPEAKER



Denina Simmons, PhD

**Tier 2 Canada Research Chair in Aquatic Biology
Assistant Professor, Faculty of Science**

Dr. Denina Simmons was appointed to the Faculty of Science at Ontario Tech University in July 2018, where she is a Tier 2 Canada Research Chair in Aquatic Environmental Biology and runs the Aquatic Omics Lab. Denina received her undergraduate degree from Ryerson University and then completed her master's degree at Trent University under the supervision of Chris Metcalfe investigating the effects of personal care products on the estrogen receptor. Denina continued her doctoral research at Trent University under the supervision of Dirk Wallschälger and Neil Emery when she examined the metabolic detoxification of selenium by algae. Denina completed two consecutive post-doctoral fellowships at Environment Canada working with Jim Sherry in the Aquatic Contaminants Research Division where she developed protein profiling and proteomics methods to investigate the health of fish. After that, Denina had two consecutive contracts working on Omics projects with the Ontario Ministry of Environment, Conservation, and Parks.

Presentation: Research & Creativity

According to Wikipedia, research is "creative and systematic work undertaken to increase the stock of knowledge, including knowledge of humans, culture and society, and the use of this stock of knowledge to devise new applications." The one word in this definition that stands out the most to me is "creative". As a career scientist who primarily works in research, I experience my job as a highly creative and rewarding process. However, most of the people I talk to about my career experiences are often surprised to hear that I think of my job as a creative process. I would even go so far as to say that I owe my success thus far to my ability to think creatively (and to my lovely mother who always encouraged me to be creative). Too often western society does not emphasize the intrinsic value of creativity in all areas of life. Instead, creativity is considered an entirely artistic endeavor and not the domain of people who work in other fields. In this talk, I will discuss how I came to choose my career in science and research, and how I think that creativity has helped me to succeed.



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GUEST SPEAKER



Farhan A. Ghaffar, PhD

Postdoctoral Fellow

Instructor, Faculty of Engineering and Applied Science

Farhan A. Ghaffar received his B.E. degree in electronics engineering from the NED University of Engineering and Technology, Karachi, Pakistan, in 2007, and the M.S. and PhD degrees in electrical engineering from the King Abdullah University of Science and Technology (KAUST), Thuwal, Saudi Arabia, in 2010 and 2016 respectively. He is currently working as a Postdoctoral Fellow and Instructor at Ontario Tech University.

He was an Assistant Manager with Pakistan Space and Upper Atmosphere Research Commission (SUPARCO), Karachi, from 2008 to 2009, before joining KAUST. He was a Visiting Researcher with Carleton University, Ottawa, ON, and Royal Military College, Kingston, ON, in 2010 and 2012, respectively. Dr. Ghaffar is an author/co-author on 36 international publications which include 14 peer-reviewed journal papers. He is a co-inventor on 3 international patents. He has been the recipient of Academic Excellence Award at KAUST in 2013 and 2015, secured Honorary Mention in the First Ever 3MT Competition at International Microwave Symposium (IMS) and was awarded best performance award at SUPARCO in 2009. His current research interests include the design of system-on-package and system-on-a-chip-based antennas, radio frequency integrated circuits, flexible microwave passive components and ferrite low temperature co-fired ceramic-based tunable antennas and passives.

Presentation: There's a Wireless Solution for that!

Wireless communication is an indispensable aspect of many modern applications that range from space technology all the way to the healthcare industry. Thus, the demand for innovation in wireless electronics has been on the rise for the last few decades. These advancements include compact, agile and efficient radio frequency (RF) components and systems that can provide high-performing yet low-cost solutions. Against this backdrop, the talk will focus on three different applications where wireless communication provides efficient alternatives to the classical methods: i) Blood Sterilization System ii) Wearable Electronics and iii) Autonomous Vehicle. These examples will show the potential of a variety of RF devices that are being investigated here at Ontario Tech University for such high-end applications. Characteristics such as, flexibility, energy efficiency and circuit miniaturization will all be covered, validating the use of these novel solutions in real-world problems.



2019 UNDERGRADUATE RESEARCH AWARDS RECOGNITION EVENT



2019 NATURAL SCIENCES AND ENGINEERING RESEARCH COUNCIL (NSERC) UNDERGRADUATE RESEARCH AWARD WINNERS

Faculty	Student Name	Project Title	Supervisor
Business and Information Technology	Marco Valdez-Balderas	Prototyping of a virtual reality walking user interface	Dr. Alvaro Joffre Uribe Quevedo
	Zachary Parish	Unlocking Recommender Systems for Privacy and Security Domains	Dr. Amirali Salehi-Abari
	Joss Moo-Young & Mohtasim Siddiqui	Immersive technologies and serious gaming for medical education and training	Dr. Bill Kapralos
	Thanigajan Sangarapillai & Kevin Tang	Prototyping and Evaluating Big Data Analytics Architecture for Security	Dr. Khalil El-Khatib
	Wen Bo Yu	User Experience (UX) Research in eSport	Dr. Pejman Mirza-Babaei
Energy Systems and Nuclear Science	Jordan Crowell	Design of Small Modular Nuclear Reactor for the Canadian Arctic	Dr. Eleodor Nichita
	Alex Biancaniello	Development of a Tritium Vapourizer	Dr. Glenn Harvel
Engineering and Applied Science	Amalnnath Parameswaran	Automated Testing of Embedded (real-time) Operating Systems Functionalities	Dr. Akramul Azim
	Olivia Shurtleff	Electropun Nanofibers Enhanced by Graphene Nano-Plate for Optical Sensor Fabrication	Dr. Amirkianoosh Kiani
	Angelica Cusipag & Karl Kanmaz	Development of a smart helmet for structural firefighters in hazardous environments for simultaneous localization and mapping	Dr. Carlos Rossa
	Xu Ting (Pamela) She	Design and development of a visual perception and object localization device for autonomous systems	Dr. Haoxiang Lang
	Spencer Lytle	Building a Solar Hydrogen Reactor	Dr. Ibrahim Dincer
	William Collings	Aerodynamic devices that minimize soiling of road vehicles	Dr. Martin Agelin-Chaab
	Aryan Kukreja	Quad-copter flight for power line monitoring	Dr. Ruth Milman
	Tommy Tran	Development of an Autonomous Unmanned Aerial Vehicle (AUAV) for an Autonomous Amphibious Robot (AAR)	Dr. Scott Nokleby
Health Sciences	Ushani Ambalavanar	The effect of changing neck sensory input on brain plasticity	Dr. Bernadette Murphy
	Devonte Campbell	The effect of neck fatigue on eye-hand co-ordination	Dr. Paul Yelder



2019 NATURAL SCIENCES AND ENGINEERING RESEARCH COUNCIL (NSERC)
UNDERGRADUATE RESEARCH AWARD WINNERS, continued

Faculty	Student Name	Project Title	Supervisor
Science	Emily Hassal	Characterizing zooplankton diversity and water quality across The Land Between	Dr. Andrea Kirkwood
	Hafsa Zia	Chtin synthase expression in K. xylinus	Dr. Dario Bonetta
	Veronica Windmoller	Nonlinear Dynamics and the Atmosphere	Dr. Greg Lewis
	Britney Messam & Intisar Qamar	Molecular and biochemical characterization of regulatory proteins involved in bacterial cellulose biosynthesis	Dr. Janice L. Strap
	Spencer Bryson	Galo: Guided Automated Learning for query workload re-Optimization	Dr. Jarek Szlichta
	Danielle Lewis	Analysis of cytokine profiles induced by high intensity interval and moderate intensity continuous exercise	Dr. Julia Green-Johnson
	Quinton Belcastro	Searching for critical points in Canadian Open Data	Dr. Ken Pu
	Dawson Willerton	Machine Learning Techniques for Medical Image Processing	Dr. Mehran Ebrahimi
	Andrew Hynes	Smart Molecularly Defined Electrochromic (EC)/Electroluminescent (EL) Materials	Dr. Olena Zenkina
	Yi (Max) Sun	The Mathematics of Politics	Dr. Sean Bohun

2019 ONTARIO TECH UNIVERSITY STUDENT TRAINING ASSISTANTSHIPS IN RESEARCH (STAR) AWARD WINNERS

Faculty	Student Name	Project Title	Supervisor
Business and Information Technology	Ferooz Khan	Exogenous Growth Opportunities	Dr. Bin Chang
Education	Sonia Hector	Teacher Education Programs after Five Years	Dr. Diana Petrarca
Energy Systems and Nuclear Science	Eyad Tamimi	Oxidation behaviour of CuCrZr compared to Cu	Dr. Markus Piro
Engineering and Applied Science	Lisa Bailey	Testing and analysis of external heat engines	Dr. Brendan MacDonald
Health Sciences	Farida-Melanie Bacchus	Comparing home care use among older people in Canada (Ontario) and England	Dr. David Rudoler
Science	Yiqing Cao	Machine Learning Techniques for Medical Image Processing	Dr. Mehran Ebrahimi
Social Science and Humanities	Heidi Graf	Identifying Factors that Reduce Stigma toward Exonerees	Dr. Kimberley Clow

Thank you for joining us today!

