



NEW HORIZONS • NOUVEAUX HORIZONS

**50th Annual Conference of the
Association of Canadian Ergonomists
Association Canadienne d'Ergonomie**

August 12 - 15, 2019

The Delta by Marriott, St. John's, NL, Canada

**Workshops
August 12, 2019**

**Conference Proper
August 13 - 15, 2019**

**Exhibitor Showcase
August 13 - 14, 2019**

**FINAL CONFERENCE
PROGRAM**



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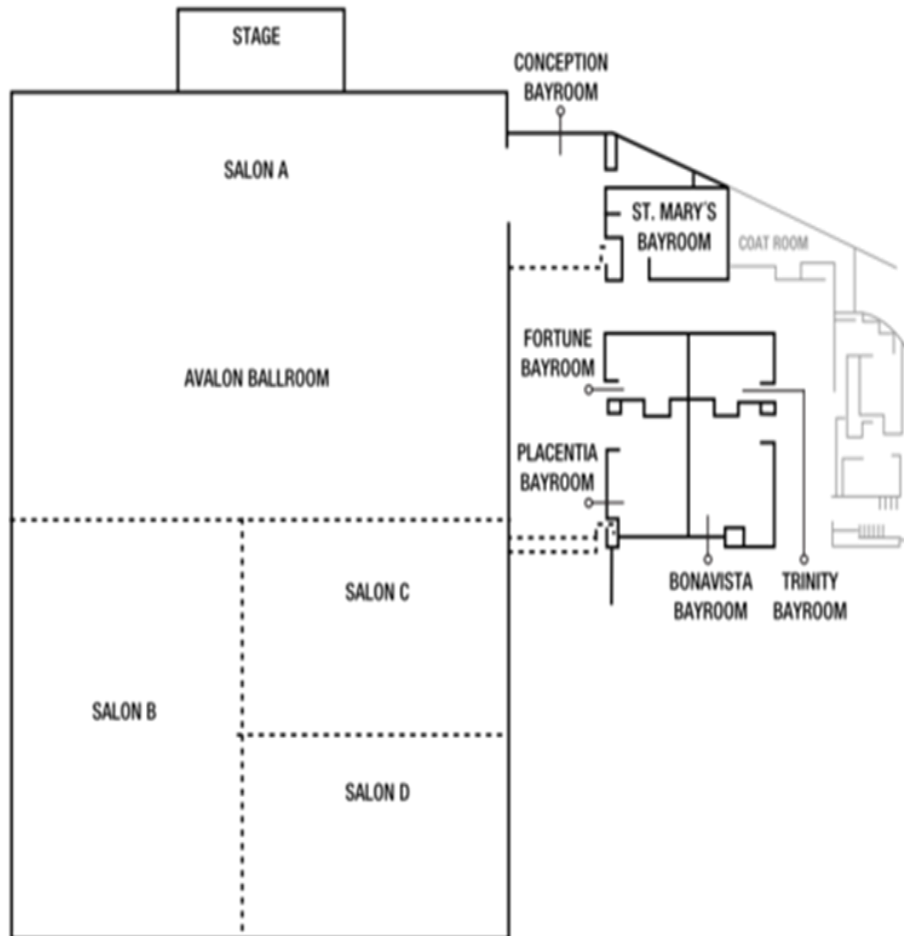


Association of Canadian Ergonomists
Association Canadienne d'Ergonomie

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ACE 2019 Venue & Floor Plan

MEETING AND BANQUET FACILITIES



NEW WING MEETING ROOMS



WELCOME!

Welcome to the 50th Annual Conference of the Association of Canadian Ergonomists, held in St. John's, Newfoundland and Labrador!

It is with great pleasure that we welcome you to the 50th annual ACE conference, entitled "New Horizons". This year's conference will celebrate the impact of ACE on ergonomics and human factors in Canada, as well as explore the future of ergonomics and the new horizons it can influence in both academia and work practices! We are also very excited to hold the conference in St. John's for the very first time and hope you enjoy exploring and experiencing the unique culture of this province!

We thank each of you for attending and bringing your expertise to this event. As researchers, students, exhibitors, and practitioners in ergonomics, human factors, and other allied professions, you are the ones influencing the future of ergonomics and paving the way for new horizons in this exciting field.

We invite you to participate in as much as you can throughout this conference. Join us for the keynotes, presentations, 50th Anniversary Celebration, the exhibitor showcase, the social event, and technical tours! This conference provides ample opportunity for networking, learning, and experiencing products and services that will be able to help you well into the future with your ergonomics needs!

We would like to thank the organizing committee for their efforts in bringing this conference to St. John's and acknowledge the generous support from our sponsors to help make this conference possible!

Welcome to St. John's and the 50th ACE Conference!

Best regards,

Kathy-Lynn Shaw

ACE 2019 Conference Chair

Colleen Dewis

ACE 2019 Technical Chair



Association of Canadian Ergonomists
Association Canadienne d'Ergonomie

Established in 1968, the Association of Canadian Ergonomists/Association Canadienne d'Ergonomie (ACE) is a bilingual, professional association with members from coast to coast who have an interest, research, or practice in the field of human factors/ergonomics.

To find out more about ACE or to become a member, visit our website:

www.ergonomicscanada.ca

2019 Conference Organizing Committee

Conference Chair:

Kathy-Lynn Shaw

Sponsor/Exhibitor Coordinator:

Linda Sagmeister

Committee Members:

Nancy L. Black

Karen Hoodless

Diana De Carvalho

Jeff Lidstone

Todd Hickey

Hayley Crosby

ACE Operations Resource:

Karry Fortin

Technical Chair

Colleen Dewis



Association of Canadian Ergonomists
Association Canadienne d'Ergonomie

President's address

Welcome to the 50th Annual Conference of the Association of Canadian Ergonomists. This year marks a milestone for our association and we will celebrate the past, the people, and the bright future of our association in St. John's. Your conference organizing committee has worked hard to assemble an exceptional program of technical papers and keynote speakers that shed light on how design and research are moving forward to new horizons. We hope, in addition to the conference, you will enjoy the technical tours and social programs and explore some of Newfoundland's wonderful character and history.



ACE conferences have played a key role in my professional growth over the years, and I hope you will take the opportunity over the next few days to meet and interact with the speakers and presenters, learn some new concepts, tools or approaches in ergonomics and human factors, and connect with colleagues across the country. The learning and connections that occur at these meetings help us all be better researchers and practitioners, and together we improve and grow the ergonomics profession in Canada. Be proud to be an Ergonomist and part of an amazing network of professionals through ACE. Also consider getting more involved in ACE – we need your enthusiasm and expertise as we plan to host the world at the IEA conference in Vancouver in 2021.

Judy Village, PhD, CCCPE, CPE
President, Association of Canadian Ergonomists

Paper/Panel reviewers

Technical Chair: Colleen Dewis (PhD Candidate, Dalhousie University)

Reviewers:

Daniel Armstrong (PhD Candidate, University of Waterloo)
Christopher Bailey (PhD Candidate, McGill University)
Dr. Nancy L. Black (Université de Moncton)
Natalie Carscadden (Health Sciences North)
Dr. Kim Cullen (Memorial University of NL)
Dr. Diana De Carvalho (Memorial University of NL)
Dr. Steven Fischer (University of Waterloo)
Mona Frey (PhD Candidate, Memorial University of NL)
Dr. Mike Holmes (Brock University)
Todd Hickey (WorkSafe NB)
Dr. Jason Kumagai (Optimal Fit Inc.)
Dr. David Kingston (University of Saskatchewan)
Dr. Carolyn MacGregor (University of Waterloo)
Kayla Miller (MSc Candidate, Dalhousie University)
Sadeem Qureshi (PhD Candidate, Ryerson University)
Robyn Reist (MSc Candidate, University of Saskatchewan)
Tracy Seymour (Canadian Revenue Agency)
Dr. Michael Sonne (My Abilities Technologies Inc)
Dr. Francois Taillefer (Université de Québec à Montréal)
Jackie Toner (MSc Candidate, University of New Brunswick)
Dr. Catherine Trask (University of Saskatchewan)

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50th Anniversary of ACE Conferences!

Come and celebrate with us, while we honour long time members, meet first time conference delegates, and thank ACE members for their support over the years.

*Cocktail Party on Monday, August
12th!*

6:00pm - Salons B/C/D at the Delta

Sponsored by

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Keynote Speaker - Tuesday, August 13, 2019

KEYNOTE SPEAKER Catherine Courage

Google, Inc.

VP, Design



Design Thinking to Disrupt Traditional Thinking: Have the services and/or products you deliver to your customers significantly advanced over the last decade? Too often we strive to drive greater innovation, but fail to make significant progress. Frequently stuck in routines or processes that have proven successful in the past, we fail to make meaningful change. It is everyone's responsibility to foster a culture that embraces change. We all need to inspire and ignite a new way of thinking about factors that contribute to exceptional experiences for the people we serve. Catherine will discuss strategies and approaches to help drive new ideas and great innovation.

Catherine's passion is delivering world-class products and services that drive customer delight, adoption and loyalty. As VP of Product Design and Experience for Google Ads, Payment and User she is responsible for defining the end to end experience across these critical business and user products. Catherine coauthored the book "Understanding Your Users," and is an active writer and speaker on creativity, innovation and design. She has been featured in Harvard Business Review, The Wall Street Journal, Fast Company, Huffington Post and TEDx. She has twice been selected by the Silicon Valley Business Journal – as one of Silicon Valley's "40 under 40" young tech leaders, and as one of Silicon Valley's 100 Most Influential Women. Catherine made Forbes list of "Top 10 Rising Stars" at The World's Most Innovative Companies. She currently sits on board of directors for Insight Enterprises and the California College of the Arts.



Ergonomics Canada magazine

ACE's annual magazine, "Ergonomics Canada" is available in both hard copy and electronically. It provides timely information on various aspects of ergonomics and human factors. The electronic issue is available via the ACE website (www.ergonomicscanada.ca). You can also download copies of past issues.

Keynote Speaker - Wednesday, August 14, 2019

KEYNOTE SPEAKER

Wayne Albert

Professor and Dean of the Faculty of Kinesiology at the
University of New Brunswick.



Ships, Helicopters and Automobiles: Transportation Vehicles as the Working Environment

Automobiles, trucks, buses, ships and helicopters are not only modes of transportation, but also serve as a working environment for a substantial number of people. Different transportation vehicles provide specific ergonomic and human factors challenges. This presentation explores a number of consultancy and research projects representing a combination of laboratory and field-based approaches that address physical and cognitive demands associated with working on or operating these vehicles. Many of the laboratory-based projects incorporate the use of vehicle simulators to better provide ecological validity of the working environment for assessment purposes.

Dr. Albert is a Professor and Dean of the Faculty of Kinesiology at the University of New Brunswick. His research focuses on occupational biomechanics (ergonomics) and the prevention of musculoskeletal injuries in the workplace as well as general low back health. Dr. Albert has been involved in a variety of occupational research projects including focusing on cumulative joint loading, neuromuscular demands and neuromuscular fatigue accommodations in industries ranging from automotive assembly to offshore workers to military helicopter pilots. Most recently Dr. Albert has been involved with a Moncton-based manufacturing company in the design of an ergonomically-designed and fully modifiable seat-design to promote musculoskeletal health and driving vigilance for long-haul truck driving.

Dr. Albert has been an active member of the Society of Biomechanics since 1991 and was named a Fellow of the Society in 2012. He has also been an active member of the Association of Canadian Ergonomists since 1991, serving on the executive of the Atlantic Chapter from 2007 to 2011 including a term as President from 2009 to 2011.

[illegible]

Previously Dr. Neyedli was a Marie Curie Post-Doctoral Fellow in Clinical Neurosciences at the University of Oxford. As part of her fellowship she belonged to the Adaptive Brain Computations Project that spanned multiple centres across the EU whose aim was to perform ground-breaking research in neural plasticity. She completed a PhD in the Faculty of Kinesiology and Physical Education and a Masters of Applied Science in the Mechanical and Industrial Engineering Department both at the University of Toronto. Outside of research, she enjoys applying her knowledge about human performance in coaching rugby at the high school and university level.

Schedule at a Glance

Time	Monday August 12	Tuesday August 13	Wednesday August 14	Thursday August 15
7:30		Registration		
8:00	Registration		Registration	Registration
8:30	Workshop Design Communication Tools – C MacGregor (Salon F)	Welcome & Keynote Address Catherine Courage (Google) (Salon A) “Design Thinking to Disrupt Traditional Thinking”	Opening remarks & Key- note Address Wayne Albert (University of New Brunswick) (Salon A) “Ships, Helicopters and Automobiles: Transportation vehicles and the Working Environment”	Opening remarks & Key- note Address Heather Neyedli (Dalhousie University) (Salon A) “Human Technology Teaming; exploring the relationship”
10:00	A.M. Break	Exhibitor Presentations (Salon A)	A.M. Break & Exhibitor Showcase (Salons B/C/D)	A.M. Break
10:15	Workshop cont'd	A.M. Break & Exhibitor Showcase (Salons B/C/D)		
10:30		Session 1: Collaborations in Ergonomics (in French) – Salon A Session 2: Military & Seating Considerations – Salon E Session 3: MSDs and Lifting – Salon G	Session 10: IEA 2021: Opportunities for Canada on the World Stage – Salon E Session 11: Office Ergonomics – Salon F Session 12: Rehabilitation & Paramedics – Salon G	Session 19: Fatigue Risk Management – Salon E Session 20: Considerations for Comfort – Salon G
10:45				
12:00	Lunch	Lunch I ACE AGM (Salon A)	Lunch Exhibitor Showcase (Salons B/C/D)	Lunch, Presentation of Awards, Closing Address (Salon A)
13:00	Workshop cont'd			
13:30			Session 4: Design & Operations (in French) – Salon A Session 5: Muscle Analysis & Fatigue – Salon E Session 6: Effects of Sitting – Salon G	Session 14: Return on Investment & Risk Assessment – Salon F
14:00		Session 15: Unpacking the 2017 CSA Z412 Standard – Salon G	Technical Tour: Centre for Marine Simulation OR Offshore Safety and Survival Departure from front lobby tour 14:00-17:00 (approx.)	
14:30	P.M. Break	P.M. Break & Exhibitor Showcase (Salons B/C/D)		
14:45	Workshop cont'd	Exhibitor Prizes (Salons B/C/D; tradeshow teardown after break)		
15:00		Session 7: MSD Prevention & Postures (in French) – Salon A Session 8: General Biomechanics – Salon E Session 9: Analysis & Validation of Physical & Ergonomics Techniques – Salon G	Session 16: Ergonomic Awareness in the Workplace – Salon E Session 17: ACE National: Encouraging Member Retention & Engagement – Salon F Session 18: Systematic Supports for Health & Safety – Salon G	
16:00				
16:30				
17:30	Early Registration	Opening Reception & Exhibitor Showcase 5:30 - 7:30 PM (Salons B/C/D)		
18:00	50 th Anniversary Cocktail Party (Social -Salon B/C/D)		Delegate Social McCarthy's Party: Rally in the Alley (departure from Salon A)	

Pre-conference Workshop - Monday, August 12, 2019

The workshops offer training for health and safety representatives and committee members, union delegates, engineers, supervisors, foremen, human resource professionals and for ergonomists and other professionals interested in ergonomics.

You may register for the workshops even if you are not attending the conference. ACE reserves the right to cancel any workshop if there are insufficient registrations. If a workshop is cancelled for any reason, The Association of Canadian Ergonomists assumes liability limited to a refund of the workshop fee only. Please note that workshop fees are not included in the full conference registration fee.

N.B The workshops are described in the language in which they are presented.

Workshop Schedule

Room	08:30 - 12:00	13:00 - 16:30
Salon E	CANCELLED 1. Fatigue Risk Management - Practical Strategies for Individuals and Organizations Jason Kumagai	
Salon F	2. Design Communication Tools: Stakeholders, Personas, and User Journey Maps Carolyn MacGregor	
Salon G	CANCELLED 3. Using the MSD Prevention Guideline for Ontario: An Employer's Success Lisa Beech-Hawley, Don Patten, Amin Yazdani, Richard Wells	CANCELLED 4. Moving from Lab to Industry: Current and Future Force Measurement, to Determine Risk of Injury Allison Stephens, Kip Koshurba

Register on-line at <https://2019conference.ace-ergocanada.org>
 For information, call 1-888-432-2223

Workshop Descriptions

CANCELLED

Fatigue Risk Management; practical strategies for individuals and organizations.

Date and Length: August 12, 2019, 1-day (8:30am to 4:30pm) Salon E

Language: English

Outline:

WHY LEARN ABOUT FATIGUE RISK MANAGEMENT? We have all had moments where we have struggled to stay awake. Maybe you started watching that movie only to wake up during the credits? Perhaps you snuck in a nap at work? You may have even nodded off during the drive home, placing yourself and others at significant safety risk. Researchers, safety specialists and some companies are beginning to recognize that workplace fatigue is another form of impairment, much like distracted driving or drunk driving, which requires risk mitigation.

WHAT TO EXPECT FROM THE WORKSHOP? This workshop will provide individual strategies workers can take to maximize their own energy and get more sleep. However, fatigue risk management is a shared responsibility, where the organization must have systems in place that foster proper rest and recovery. The workshop will discuss some of the control mechanisms (e.g. screening tools, drowsy driver detection systems, bio-mathematical fatigue modeling, etc.) and elements of a Fatigue Risk Management System that companies can introduce to maximize safety and performance while minimizing the effects of fatigue. Participants will be provided with an audit tool to help them assess the current state of their organization's fatigue risk management system, and identify potential opportunities for improvement.

Facilitator:

Dr. Jason Kumagai, Optimal Fit Inc.

Workshop Descriptions

Design Communication Tools: Stakeholders, Personas & User Journey Maps

Date and Length: August 12, 2019, 1 day (8:30am to 4:30pm) Salon F

Language: English

Outline:

WHY LEARN DESIGN COMMUNICATION TOOLS? In the world of work, design-related projects can involve the (re)consideration of physical and electronic products, task processes, and larger workspaces. Ergonomists, and other health & safety professionals, often find themselves on multi-disciplined teams of specialists wherein each brings their own points of view to the workplace situation of concern. It is not uncommon for ergonomists to feel like they are the only advocate for the worker/user on a team of technical and business specialists. Knowing how to effectively leverage systems thinking and design thinking tools promotes deeper empathy and understanding for the users and stakeholders.

WHY LEARN STAKEHOLDER MAPS, PERSONAS, & USER JOURNEY MAPS? This hands-on workshop will focus on three User Experience (UX) design methods which are building traction as “go-to” methods in the digital media design space: Stakeholder Maps, Personas, and User Journey Maps. Stakeholder maps allow the team to more thoroughly identify decision-makers and influencers associated with a project. Developing evidence-based Personas helps myth-bust assumptions about users, while creating user journey maps illustrates the emotional impact of current and anticipated design decisions. The beauty of each method is that it is easily adapted for use with physical products, task process, and workplace designs. The real power of combining the UX methods lies in the team conversations and learning that help build and refine the visualization artifacts. The three methods covered in this workshop are ones that can be carried out by individuals or by teams, regardless of workplace.

WHAT TO EXPECT FROM THE WORKSHOP? We will apply each of the three UX methods to a practical case; and reserve some time for you to ask application questions for your own past/current/future projects. By the end of the workshop, participants will be able to; Use provided templates/worksheets to create Stakeholder Maps, Personas, and User Journey Maps; Facilitate small group discussions that leverage the method outcomes for building design team empathy; • Consider the advantages and limitations of applying each method to design-related workplace projects (past, current, future).

Facilitator:

Carolyn MacGregor specializes in user-centered design, usability, and user experience. She holds degrees in Psychology and Industrial Engineering; and has been a faculty member of the Department of Systems Design Engineering at the University of Waterloo for over 20 years. Carolyn is a CCPE; and holds a Limited Engineering License (Professional Engineers Ontario) for teaching engineering design at the university level.

Workshop Descriptions

CANCELLED

Using the MSD Prevention Guidelines for Ontario: An Employer's Success

Date and Length: August 12, 2019, 1/2 day 8:30am to noon Salon E

Language: English

Outline:

MAIN MESSAGE: Ontario Power Generation (OPG) achieved remarkable success in reducing musculoskeletal disorder (MSD) injuries through the implementation of an MSD prevention program based on the 2007 Ontario MSD Prevention Guideline. Learn from OPG's experience as keys to successful implementation of the program, and strategies for recharging their program using the New Ontario MSD Prevention Guideline, launched by CRE-MSD (Centre of Research Expertise for the Prevention of Musculoskeletal Disorders) in October 2018. An overview of this excellent new resource will be provided, with a focus on how participants can use the tools in their own work.

ACTIONS: The 2007 MSD Prevention Guideline for Ontario was the impetus for a targeted multiyear MSD Prevention Strategy at OPG. OPG adapted the Ontario guideline to create their own MSD Prevention Strategy, incorporating all of the elements of Management Commitment and Direction, Employee Involvement, Training, Communication, Hazard Identification and Risk Assessment, Documentation, Record Keeping and Monitoring Program Effectiveness, and annual action plans were developed to address the specific elements in the guideline, with SMART objectives and performance metric tracking.

OUTCOMES: A culture was built where the entire organization understood the term "MSD" and regarded and managed MSD hazards as any other safety hazards in the workplace. Proactive recognition, reporting and controlling of MSD hazards, and sharing of ergonomic improvement success stories were successful changes in the safety culture around MSDs. Understanding of the early warning signs and symptoms of MSDs, and early reporting of symptoms by workers increased - a significant change from the "tough it out" industrial workforce attitude that prevailed previously. The impact of all of the changes was seen in a reduction of medically treated and lost time MSD injuries from in the range of 40-50% of all recordable injuries to about 23% of all injuries, which significantly contributed to OPG's achievement of its best safety performance ever in the years following the focused MSD prevention strategy.

Facilitator:

Lisa Beech-Hawley, CCPE, MSc (Kin.)

Workshop Descriptions

CANCELLED

Moving from Lab to Industry: Current and Future Force Measurement, to Determine Risk of Injury

Date and Length: August 12, 2019, 1/2 day 1:00pm to 4:30pm Salon F

Language: English

Outline:

LEARNING OBJECTIVES INCLUDE: Critical thinking to determine the approach to force measurement. Measure forces to demonstrate part variation. Review and demonstrate external influences on force measurement. Explore force matching techniques. Analysis of acceptability relative to strength capability. Intro to new technology for force measurement (flexible sensors, sensor gloves, force puck).

WHAT TO EXPECT: The role of the Ergonomist is to quantify the demands of the job. The predominant tool to accomplish this is the Force gauge. In this workshop, participants will get lots of hands on practice with the Force gauge: from how your gauge works, to setting it up to minimize errors, and taking of actual force measurements. The workshop will be using the Mark-10 force gauge, with tips on do's and don'ts. We will do many hands-on measurements, of Lego, jars, clips, triggers. We will explore the gauge attachment options and work with some customized tools for specific tasks. Participants will get hands on measurements with the Force Puck, demonstrate the dynamic measurement setting, and review the force profile. A unique approach to force quantification will be reviewed, including an exercise of force matching, which relies on muscle memory. Understanding part variation and variability in your measurements is key to quantifying demands. We will discuss variability of parts and how to deal with this statistically. From the measurements taken, we will perform an ergonomic assessment. How much is too much? Using HandPak software (Potvin), Dreyfus and Peebles & Norris references, we will discuss how to interpret the force demands of a task. This will be a hand-on workshop for both beginners and practitioners to review, discuss and demonstrate force measurement in the field of ergonomics

Facilitator:

Allison Stephens MSc, CCPE, CPE and Kip Koshurba BSc. Sandalwood of Canada.

Conference Sessions

TIME	DAY 1 – TUESDAY, AUGUST 13, 2019		
8:30 AM - 9:00 AM	WELCOME ADDRESS (Salon A)		
9:00 AM - 10:00 AM	PLENARY: Catherine Courage Google, VP of Product Design and Experience for Google Ads, Payment and User		
10:00 AM—10:15 AM	Exhibitor 60 second challenge		
10:15 AM – 10:45 AM	BREAK & EXHIBITOR SHOWCASE (Salons B/C/D)		
	Salon A	Salon E	Salon G
10:45 AM - 11:45 AM	<p>Session 1 PAPERS – Collaborations in Ergonomics (This session is in French with translation available)</p> <p>A look at the interprofessional collaboration in architectural design: The case of the reception desks at the future Centre intégré de cancérologie du CHU de Québec Université Laval <i>[Caroline Delisle, Carl Lalancette, Sonya Deraspe]</i></p> <p>The contribution of work analysis in the training needs analysis process: New opportunities in Ergonomics <i>[Sylvie Ouellet, Jihène Hichri, Miryam Hachami, Séverine Locret]</i></p>	<p>Session 2 PAPERS – Military and Seating Considerations</p> <p>Aircraft cockpit accommodation: A pilot study <i>[Andrew Schnare, Colleen Dewis, Srikanth Kalyanasundaram, John Kozey]</i></p> <p>Comparing whole-body vibration exposures and psychomotor vigilance task performance across two classes of truck seats <i>[Fangfang Wang, Hugh Davies, Rick Viveni, Bronson Du, Peter W. Johnson]</i></p> <p>Musculoskeletal hazards and injuries in Canadian aquaculture: A strategy for hazard identification and risk reduction <i>[Edgar McGuinness, Barbara Neis, Courtney Ochs, Kim Cullen]</i></p>	<p>Session 3 PAPERS: MSDs and Lifting</p> <p>Designing for client lifts in healthcare – A guideline for care, safety and consistency in Alberta health services <i>[Deborah Goodwin]</i></p> <p>A multi-professional approach to investigating musculoskeletal injuries among medical radiation technologists: A case study for new equipment <i>[JeanPierre Brunet, Anita Jogia, Jonathan Brown, Amanda Stuyt, Kayley Perfetto, Greg Leblanc, Jerry Plastino, Jill Smith]</i></p> <p>Study of musculoskeletal disorders among insurance office employees <i>[Harbir Singh, LakhwinderPal Singh]</i></p>
11:45 AM—1:30 PM	LUNCH & ACE ANNUAL GENERAL MEETING (Salon A)		

Conference Sessions cont'd

TIME	DAY 1 – TUESDAY, AUGUST 13, 2019 cont'd,		
	Salon A	Salon E	Salon G
1:30 PM - 2:30 PM	<p>Session 4 PAPERS: Design and Operations (Session is in French with translation available) Integrating ergonomics into a design project at the CHU de Québec: the case of the new hospital complex <i>[Caroline Delisle, Chantal Douville]</i></p> <p>Cleaning and disinfection of food processing machinery—The rigour of an unknown job <i>[Sylvie Beaugrand, Maud Gonella, Nellie Perrin, Laurent Giraud, Jean-Christophe Blaise, Yvin Chinniah, Pascal Poisson]</i></p> <p>The concept of enabling spaces: a promising theoretical avenue in ergonomics <i>[Pierre-Yves Therriault, Galaad Lefay, Sophie Guimont]</i></p>	<p>Session 5 PAPERS: Muscle Analysis and Fatigue Isometric wrist flexor and extensor muscle fatigue similarly impairs hand tracking performance using a haptic wrist robot <i>[Michael Holmes, Davis Forman, Garrick Forman, Maddalena Mugnosso, Jacopo Zenzeri, Bernadette Murphy]</i></p> <p>Surface EMG analysis of posture and muscle load for medical sonography tasks - a pilot study <i>[Arijit K Sengupta, Gul Ahmed]</i></p>	<p>Session 6 PAPERS: Effects of Sitting Monitoring calf circumference during prolonged sitting followed by walking <i>[Laura Lee Rigby, Kara-lyn Meta Alexander, Mona Frey, Diana De Carvalho]</i></p> <p>Is spinal stiffness affected by prolonged sitting? <i>[Mona Frey, Quinn Warren McGettigan, Maria Emma Colbert, Kathleen Marie Dyer, Diana De Carvalho, Greg Kawchuk]</i></p> <p>Comparison of whole-body vibration exposures when operating a bus with an active, passive and static suspension bus seat <i>[Peter W. Johnson, Jennifer Ibbotson-Brown, Serafin Menocal, Jim Parison]</i></p>
2:30 PM - 3:00 PM	BREAK & EXHIBITOR SHOWCASE (Salons B/C/D)		
3:00 PM - 4:00 PM	<p>Session 7 PAPERS: MSD Prevention and Postures (session is in French with translation available) Assigning a tutor in the workplace to support MSD prevention. <i>[Ingrid Lempereur, Ayse Kaya]</i></p> <p>Optimal duration of standing periods at the office according to perception. <i>[Nancy Black, Mathieu Tremblay, Fandrasena Ranaivosoa, Andilath Adjado, Mathilde Brossard, Maxime McGrath, Thomas Moynihan]</i></p> <p>Physiological and biomechanical comparison between different sit-to-stand postures to sitting and standing postures and short walks. <i>[Francois Taillefer, Jean P. Boucher, Dr. Michel Zummo, Roland Savard]</i></p>	<p>Session 8 PAPERS – General Biomechanics Using principal components to test reach patterns in 3 groups <i>[Colleen Dewis, Heather Johnston, John Kozey, Janice Moreside, Ivan Wong]</i></p> <p>Biomechanical demands of automobile tire changing <i>[Wayne John Albert, Alex VanIderstne]</i></p> <p>Finding, providing and implementing “ergonomic techniques” for outdoor workers <i>[Josie Blake]</i></p>	<p>Session 9 PAPERS – Analysis and Validation of Physical and Ergonomic Techniques Comparison of video-based and traditional physical demands description methods <i>[Colin David McKinnon, Michael W Sonne, Peter J Keir]</i></p> <p>Evaluating the prospective benefits of physical demands description (PDD) data created from job simulations <i>[Nicholas Patrick, Steven Fischer]</i></p> <p>Effects of three VO2 max estimation methods on the results of three heart rate-based energy consumption estimation models <i>[Sahar Arab, Daniel Imbeau, Philippe-Antoine Dubé, Denise Dubeau]</i></p>

Conference Sessions

TIME	DAY 2 – WEDNESDAY, AUGUST 14, 2019		
8:30 AM – 9:00 AM 9:00 AM - 10:00 AM	WELCOME ADDRESS (Salon A) PLENARY: Wayne Albert, Professor and Dean of the Faculty of Kinesiology at the University of New Brunswick		
10:00 AM – 10:30 AM	BREAK & EXHIBITOR SHOWCASE (Salons B/C/D)		
	Salon E	Salon F	Salon G
10:30 AM - 12:00 PM	Session 10 PANEL: IEA2021 Triennial World Congress: Opportunities for Canada on the world stage of ergonomics <i>[Nancy Black, Karen Hoodless, Sadeem Qureshi]</i>	Session 11 PAPERS: Office Ergonomics Office ergo, in the extremes <i>[Carrie Taylor, Josie Blake, Kristina Zucchiatti]</i> The expansion of the Rapid Office Strain Assessment (ROSA): An office ergonomics tool <i>[Ranny Michael, Michael Sonne, David M. Andrews]</i> A productivity analysis of 6 popular ergonomic mouse designs <i>[Jessica Cappelletto, Stevie Foglia, Jim Lyons]</i> Effect of a spine decompression chair design compared to a control on spine height and posture during prolonged sitting <i>[Adam Scott Blanchard, Ian Mitchell Skinner, Mona Felicitis Frey, Diana De Carvalho]</i>	Session 12 PAPERS: Rehabilitation and Paramedics Exploring personal, sport-related, and rehabilitation-related risk factors of rehabilitation over adherence among injured athletes <i>[Kristi R MacWilliam, John K Gotwals, Paolo Sanzo, Leanne Smith]</i> Case studies of recovering strength and reach following massive rotator cuff tear repair <i>[Colleen Dewis, Heather Johnston, John Kozey, Janice Morrison, Ivan Wong]</i> Relationship between functional movement screen performance and self-reported discomfort among experienced paramedics <i>[Mathieu Tremblay, Wayne J. Albert, Steven L. Fischer, Michel J. Johnson]</i> Evaluating an intervention to reduce neonate whole body vibration exposures during ambulance transport <i>[Dawn Ryan, Adam Lokeh, David Hirschman, Jesse Hemphill, June Spector, Rob Parker, Peter W. Johnson]</i>
12:00 PM - 1:00 PM	LUNCH & EXHIBITOR SHOWCASE (Salon B/C/D)		

Conference Sessions cont'd,

TIME	DAY 2 – WEDNESDAY, AUGUST 14, 2019 cont'd,		
	Salon E	Salon F	Salon G
1:00 PM - 2:30 PM	Session 13 SEMINAR Using the MSD prevention guidelines for Ontario: An employer's success <i>[Lisa Beech-Hawley, Don Patten, Amin Yazdani, Richard Wells]</i>	Session 14 PAPERS: Return on Investment and Risk Assessments Healthcare facility mock-up guidelines: Optimizing return on investment (ROI) for quality and patient safety <i>[Jonas Shultz, David Borkenhagen, Ben Higgins]</i> Human behaviour prediction for risk assessment in ergonomics: two case examples. <i>[Steven Fischer, Steve Beck]</i> Development of an integrated system and human modelling approach to quantify biomechanical load and care quality in nursing work <i>[Sadeem Munawar Qureshi, Nancy Purdy, Michael Alexander Grieg, W. Patrick Neumann]</i>	Session 15 SEMINAR Ergonomics: Unpacking the 2017 CSA Z412 Standard <i>[Lucy Hart]</i>
2:30 PM - 2:45 PM 2:45 PM - 3:00 PM	BREAK & EXHIBITOR SHOWCASE (Salon B/C/D) EXHIBITOR PIZES (Salon B/C/D)		
3:30 PM - 4:30 PM	Session 16 PAPERS: Ergonomics Awareness in the Workplace How does employer support effect an ergonomics practitioner's awareness of ergonomics and psychosocial hazard control? <i>[Linda Sagmeister, Scott MacKinnon]</i> Techniques for improving ergonomics awareness in workers <i>[Kristina Zucchiatti, Carrie Taylor]</i> In the 4th Industrial Revolution, ergonomics cannot be an afterthought!!! <i>[Kelly Hogan, Allison Stephens]</i> The application of HFE and ambulance design standards in Canada's EMS system <i>[Bronson Du, Steven Fischer, Amin Yazdani]</i>	Session 17 INTERACTIVE DISCUSSION: ACE National: Encouraging Member Retention and Engagement; a Discussion. This will be an opportunity for ACE members to give suggestions and feedback to national council in their ongoing efforts to encourage new members and how to get more people active in ACE. Moderator: Judy Village	Session 18 PAPERS: Systematic Supports for Health and Safety Workplace practices and policies to support workers with depression. <i>[Kim Cullen, Dwayne Van Eerdl, Emma Irvin, Morgane Le Pouesard, Judy Geary, Anita Dubey]</i> Relationship between psychosocial health status and simulated patient-care scenario performance among experienced paramedics <i>[Mathieu Tremblay, Wayne J. Albert, Steven L. Fischer, Michel J. Johnson]</i> Health & safety climate in a university setting <i>[Stephen Bornstein, Kara Arnold, Alan Hall, Barbara Neis, Amanda Butt, Amanda Hancock, Shasanka Chalise]</i> Workplace and system-based interventions on return-to- work and recovery for musculoskeletal and mental health conditions. Findings from two systematic reviews <i>[Kim Cullen, Emma Irvin, Ulrik Gens- by, Dwayne Van Eerd, Morgane Le Pouesard, Ben Amick]</i>

Conference Sessions

TIME	DAY 3 – THURSDAY, AUGUST 15, 2019	
8:30 AM – 9:00 AM 9:00 AM - 10:00 AM	OPENING REMARKS (Salon A) PLENARY: Heather Neyedli, Faculty member in Kinesiology, School of Health and Human Performance, Dalhousie University, Departments of Industrial Engineering, Psychology and Neuroscience and Physiotherapy	
10:00 AM – 10:30 AM	BREAK (Salon A)	
	Salon E	Salon G
10:30 AM—12:00 PM	Session 19 PANEL: Fatigue Risk Management- Panel Discussion of Workplace Strategies <i>[Jason Kumagai, Linda Sagmeister]</i>	Session 20 PAPERS: Considerations for Comfort Evaluating the efficacy of sharps-proof clothing for reducing biomechanical exposure in municipal waste collectors <i>[Christopher A. B. Moore, Daniel P. Armstrong, Steven L. Fischer]</i> The neck-shoulder comfort tradeoff: effects of large touchscreen monitor tilt angles on standing tasks. <i>[Cleyton Vargas, Carolyn MacGregor]</i> Blue eyes: A look at blue-light emissions and the potential hazard to vision and sleep <i>[Karen Hoodless]</i> Exploring the impact of critical incident exposure on psychological fatigue as a risk factor for musculoskeletal injury during firefighting tasks <i>[Sara T. Sayed, Regan Bolduc, Kathryn E. Sinden]</i>
12:00 PM - 1:30 PM	LUNCH – Student Awards and Conference Closing (Salon A)	

Posters – August 13 – 15, 2019

We are pleased to bring back poster presentations for our students! This year we have four poster displays at the conference. The posters will be on display in Salons B/C/D on August 13th & 14th and in Salon A on August 15th. Please visit the posters at any time during the conference. The students will be with their posters at designated times to answer any questions (please see below).

Poster Schedule

Poster Topics	Student Availability	Room
Postural state sequence duration and musculoskeletal disorder marker perception at sit-stand workstations <i>[Kassandra Raymond, Andrew Hamilton-Wright, Nancy L. Black]</i>	Tuesday, August 12 th – 10:15am-10:45am	Salons B/C/D
Characteristics of work accidents in microbreweries and the analysis of the organizational context related to health and safety at work <i>[Michael Tremblay, Suzy Ngomo, Cheikh Faye, Martin Lavallière]</i>	Wednesday, August 13 th – 10:00am – 10:30am	Salons B/C/D
Does the amount of lumbar and pelvic range of motion influence lumbar and pelvic angles during sitting in females? <i>[Mona Frey, Diana De Carvalho]</i>	Thursday, August 14 th – No designated student time	Salon A
The effects of a one-hour exposure to sitting on the flexion-relaxation response in the thoracic erector spinae, lumbar erector spinae and lumbar multifidus muscles <i>[Sarah Mackey, Mona Frey, Samuel Howarth, Diana De Carvalho]</i>		



Delegate Social Events & Technical Tours



Join the fun with McCarthy's Party on Wednesday night!

ACE has partnered with McCarthy's Party this year to provide a truly Newfoundland experience. Enjoy a fish and chips dinner at a local pub, a screech-in on the infamous George Street, and a final destination at a local venue with live entertainment! For more information go to:

<https://2019conference.ace-ergocanada.org/en/conference-program>

St. John's boasts one of the most sophisticated and comprehensive concentrations of ocean technology organizations anywhere in Canada!

Choose between two Technical Tours with the Marine Institute:

Centre for Marine Simulation (CMS) provides training for challenging offshore situations in an environment that does not just mimic reality but looks and feels unquestionably real. CMS conducts research for real world applications; arctic exploration, investigating effects of motion and marine equipment on human psyche and vessel design and navigation. Immerse yourself in the 3D Marine Bridge Simulator experience; where mariners who work in some of the most hazardous conditions in the world train.

www.mi.mun.ca/facilities/fullmissionshipsbridgesimulator

The Offshore Safety & Survival Center treats you to an overview of the various training and research activities taking place at the Center including visiting the Firefighting Training ground. The Fire Training ground is equipped with multiple mock training props (including a 2-level ship structure and two-level Oil Rig Structure). With additional capability to conduct pressurized firefighting, confined space training and fire extinguisher training the OSSC is an excellent place to feel the heat of real-world emergencies in the marine and offshore sectors.

www.mi.mun.ca/facilities/firefightingfacilityandoutdoortesttank/

SAVE THE DATE! ACE is proud to host the 21st Triennial Congress of the International Ergonomics Association (IEA), coming to Vancouver, June 13-18, 2021, and looks forward to welcoming over 1500 delegates from over 70 countries! The theme, "Human Factors and Ergonomics in a Connected World, L'ergonomie 4.0", speaks to the role of emerging G5 technologies to human applications at work and at play in helping to improve human performance and well-being. Equally important is the application of HFE to the effective



design of emerging technologies. The Congress will cover the full breadth of traditional and emerging HFE topics and applications. For more information go to: <https://iea2021.org/>

See and enjoy St. John's!

COME TO LEARN, BUT STAY TO PLAY!

St. John's and the Avalon Region provides a wealth of activities for our delegates and their families to do outside of conference hours. Visit our [Destination St. John's](#) website for an introduction to the city and for lots of **delegate discount programs**! Here are some suggestions that are timeless favourites!

1. Signal Hill and Cabot Tower

Get a full view of St. John's and learn a lesson in the province's military history at this National Historic Site overlooking the capital city. Have a gelato or a coffee at the interpretation center! <https://www.pc.gc.ca/en/lhn-nhs/nl/signalhill>

2. Cape Spear Lighthouse

Cape Spear Lighthouse National Historic Site, features the oldest surviving lighthouse in Newfoundland. Located on the most easterly point of land in Canada, the building has been restored to its 1839 appearance. <https://www.pc.gc.ca/en/lhn-nhs/nl/spear>

3. Johnson Geo Center

Swing by the Johnson GEO for interesting exhibits and tours based on a wide range of topics, from science and technology to facts about geology and insects. Open daily. www.geocentre.ca

4. MUN Botanical Gardens

Located within the boundaries of Pippy Part, this botanical research facility features a wide number of flowers and plants native to the province, and some beautiful walking trails. Buy some healthy feed for the ducks at the pond; they'll be happy to see you! www.mun.ca/botgarden

5. The Rooms

For a mix of art and historical records rooted in Newfoundland and Labrador culture, check out The Rooms museum and art gallery. (Visit the Red Oak restaurant for a meal or a snack and a breathtaking view of the city!) www.therooms.ca

6. Boat Tours

Experience the shoreline from a different perspective! See whales, puffins and majestic shorelines that you will never forget! There are many boat tours from the St. John's Harbour and from other nearby locations. www.newfoundlandlabrador.com/things-to-do/boat-tours

Exhibitor Showcase

Exhibitors registered at the time of publishing are included in this program.



Contour Design

Contour Design has specialized in manufacturing ergonomic input devices since 1995. Our core philosophy is to continue to provide evolutionary products that allow computer users to work on their computers for extended periods of time without the risk of physical pain or injury. Our RollerMouse products help eliminate the need to grip, or reach for, the mouse. Visit our booth to experience unrivaled comfort, control, and pinpoint accuracy with RollerMouse Red; an innovative, ergonomic mouse that sits in front of the keyboard allowing users to stay in the optimal work zone with relaxed hands and a neutral wrist posture.

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ergoCentric Seating Systems is a Privately-Owned Canadian Company, with over 25 years in quality seating manufacturing. Our main focus is on health and productivity, while producing unique and modular chair designs and features. Working closely with ergonomists and health practitioners to continuously improve and refine our chair designs, ergoCentric Seating Systems offers a wide range of aesthetically pleasing task, executive, guest and stackable seating for the office environment.

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Exhibitor Showcase cont'd.



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Ergotron uses movement to remove constraints from how people create, collaborate and work with technology. With a focus on healthcare, education, general office and custom solutions, we rely on ergonomic principles and user-centered designs to build kinetic work environments that help people thrive.

Our products support healthier, more productive environments for life and work, and they create an innovative portfolio of wall, ceiling and desk mounts; desk stands; office and tech furniture; sit-stand workstations; device charging stations; carts and vertical lifts. Our award-winning brands, including Work-Fit™, CareFit™, LearnFit®, JUV™ and OmniMount®, support everyday wellness and productivity by infusing movement into offices, classrooms and healthcare environments. Ergotron is moving you forward.

www.ergotron.com/en-ca



Advanced Ergonomic Studies at Fanshawe College (London, Ontario) – Ontario College Graduate Certificate

Advanced Ergonomic Studies is a full-time program that leverages a Kinesiology undergraduate education with the discipline-specific knowledge, skills and experience required to prepare graduates to enter the workforce as ergonomists. Graduates are well-positioned to pursue the Associate Ergonomist (AE) designation from the Canadian College for the Certification of Professional Ergonomists (CCCPE). The first of its kind in North America, this intensive program is delivered at Fanshawe's London, Ontario campus in two 15-week semesters followed by an 8-week field placement. Apply now for September! Ask us about being a Field Placement host!

www.fanshawec.ca

ACE Corporate Member

Fellowes

Fellowes Workspace Wellness isn't about one product or a single wellness initiative. Wellness is a journey. Different people in different professions work in different ways and need customized solutions that make their workspace better and healthier for the way they work. Our wellness products, including ergonomic tools and adjustable desk innovation, mitigate the negative effects of everyday tasks and promote the benefit of body movement and comfort in your workspace.



We are a 100-year company with a commitment to bringing value and performance into the workplace from the corporate office to the home office. We want professionals to be the best they can be. More Productive. More Efficient. That is why we are committed to creating best-in-class business machines, storage products, workspace wellness solutions and air purifiers. Our other brands include Bankers Box, AeraMax and Work Solutions (Shredders, Binding and Lamination).

Visit us at www.fellowes.ca

ACE Corporate Member

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Exhibitor Showcase cont'd.



The Global Group

We believe ergonomics is an integral part of a successful workplace.

- Designing products that fit.
- Educating the architect and design community about the importance of sound ergonomics in the work place.
- Service ACE members as an ergonomic resource.
- Continuing to support ACE as the longest standing Corporate Member.
- Leadership in the development of office-related standards and guidelines.

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Kinetic Life Solutions Ltd.

Serving employers and employees in Labrador since 2017. President, Kathy-Lynn Shaw, has been practicing ergonomics, musculoskeletal injury prevention, and occupational health for over 20 years! She is a member of the Association of Canadian Ergonomists and has worked in private health clinics, workers' compensation boards, and industry with a professional, reliable, and knowledgeable approach. Kinetic Life Solutions deeply values the health and safety of both workers and workplaces and takes great pride in providing our community with high quality proactive and preventative services.

<https://kathylynn5.wixsite.com/website>



Exhibitor Showcase cont'd.



NexGen Ergonomics

NexGen Ergonomics, provides the most extensive product line of software and instrumentations for ergonomic and biomechanical job-analysis, design and research in the world. These include: 3D human modeling software, motion analysis solutions, ergonomic design systems, video analysis and other job analysis systems, force measurement systems, EMG & physiological analysis systems and data acquisition systems. Whether your requirement is for simple ergonomic job analysis software, systems to synchronize various sensors, or for sophisticated human modeling software, we have the solutions for you.

www.nexgenergo.com



TEA – Technologie Ergonomie Applications

TEA develops analysis tools in cooperation with INRS for workplace analysis, ergonomics assessment, biomechanics, human motion and eyetracking: - CAPTIV-L2100 software for video-based Task Analysis, - CAPTIV-L7000 system: complete range of fully wireless sensors for unobtrusive data collection (ECG, EMG, force, 3D motion and angles, etc.) with recording on tetherless portable datalogger or via real-time receivers. - FOVIO remote eyetracker and Dikablis Glasses eyetracker.

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V

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