



Association of Canadian Ergonomists
Association Canadienne d'Ergonomie

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ACE member feature – Dr. Steven Fischer

Interview by Christopher Moore, ACE-Ontario student representative



How long have you been an ACE member for?

I first joined ACE as a student member in 2005 if my memory is correct. My first exposure to ACE was as a presenter at an ACE Atlantic regional meeting that was hosted by Nancy Black at the Université de Moncton.

How did you first become interested in ergonomics?

My first exposures to ergonomics came during my 3rd year of undergrad. I enrolled in a research internship course in Dr. Richard Wells' lab. As a research intern, I helped his research team, led by his research assistant at the time, Tanya Morose, to conduct a study investigating relationships between EMG, grip force and perceived effort. The opportunity to witness Richard's passion for ergonomics and to learn about the ins and outs of ergonomics research under Tanya's day-to-day mentorship in the lab had me hooked.

What didn't you learn in school that you wish you had?

My educational journey was a little longer than some so I've had lots of time to learn about different aspects of ergonomics. One of my most formative learning opportunities came during my MSc work, under the supervision of Dr. Wayne Albert, where I was able to spend a few weeks directly on the shop floor, gathering data for a study on cumulative spine and shoulder loading. My "chaperone" or "shop floor mentor" was Richard Wotherspoon, the corporate ergonomist at the time for our workplace partner. The opportunity to talk with folks on the front line, to learn to see the work from their vantage point was invaluable. Also, the opportunity to see Richard in his role, firsthand, helped me to appreciate the many and varied hats that an ergonomist must wear to be effective. So, while I was able to have this unique experience in school, my advice for current student is to find opportunities to spend time in a workplace with the guidance of an CCPE. Ergonomics is about much more than the NIOSH or SNOOK or Duty Cycle equations that we learn in the classroom.



What is your favourite aspect of being an ergonomist? / What is your favourite aspect of being involved in ergonomics?

I love being involved in Human Factors / Ergonomics (HFE) because I love the challenge of trying to solve interesting problems and I firmly agree with the Ontario Ministry of Labour's tagline: Work Shouldn't Hurt. I really enjoy the opportunity to help (re)design and optimize work to promote productivity and prevent injury. My favorite aspect of ergonomics at this point in time is digital human modeling, or what I prefer to call task focused human behaviour prediction. As a researcher and consultant, most of my efforts in ergonomics these days are aimed at more fulsomely injecting human-in-the-loop modeling and simulation into upstream design, particularly so in the military defence and healthcare sectors. In today's day and age, it is rare to design something without first creating a computer aided design (CAD) and exposing that CAD to a range of virtual/computational tests as part of a rapid, iterative design process (e.g., finite element analysis, multi-body dynamics analysis, computational fluid dynamics analysis, etc.). I continue to wonder why human-in-the-loop modeling and simulation aren't routinely included? What can we do to improve the consideration of HFE principles in early stage design?

What do you see as the biggest opportunity for ergonomists in the future?

Great question! The world is changing rapidly. Industry 4.0 is upon us and is ripe with opportunities and challenges for human factors and ergonomics professionals. We will be sought out to provide guidance and insight regarding collaborative robots, exoskeletons, digital twinning, among many other industries 4.0 related advancements. These are great opportunities for ergonomists in the future. I may be a little biased, but I think HFE professionals also still have an incredible opportunity to affect change proactively by increasing engagement and participation in the design process. Whether attempting to model or simulate individual interactions between a human and a CAD representation of a product, piece of equipment or workplace using a digital human model, or whether attempting to model interactions at a higher, systems level using tools like discrete event simulation (see ACE student member Sadeem Qureshi's work as an example: https://www.researchgate.net/publication/330995414_Predicting_the_effect_of_Nurse-Patient_ratio_on_Nurse_Workload_and_Care_Quality_using_Discrete_Event_Simulation), HFE professionals continue to have tremendous opportunity to support upstream planning and design.

What advice would you give to a student or young professional starting out in ergonomics?

HFE is an exciting and fascinating field, flush with unique challenges and opportunities. My advice for students and emerging HFE professionals (e.g., Associate Ergonomists) is to build your network. Attend HFE related events like ACE regional meetings or the ACE national conference if you can, participate in webinars, and talk to folks working in the field. While all of us will learn about fundamental hazard identification tools, risk assessment tools, and perhaps have knowledge of common control approaches from our academic training and via resources like <https://www.msdpredvention.com/>, the day-to-day



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work and experiences of an ergonomists are broad. To understand and appreciate that breadth, and to better understand the supplemental skills that you may need to be effective as an ergonomist, in my experience it has been helpful to reach out and connect with those practicing every day, particularly for those practicing within a workplace as shop ergonomist or corporate ergonomist, and for those practicing in a consultant role. Oh yeah... and most jobs tend to be shared through networks more so than public job search sites, so it probably doesn't hurt to connect with folks that could be looking for someone like you in the near future.