2019 MMPA CONFERENCE

Artificial Intelligence: Technology, Governance and Social Innovation

Institute for Management & Innovation
University of Toronto Mississauga
Mississauga, Ontario, Canada

November 15, 2019

Innovation Complex, Kaneff Centre
University of Toronto Mississauga
3359 Mississauga Road, Mississauga, Ontario

Artificial intelligence (AI) is changing our world rapidly and disrupting many industries such as health care, transportation, and financial services. AI and machine learning are also used to tackle some of the world's most challenging social problems, including environmental conservation and climate change. It is predicted that AI technology will dominate future economic growth and industrial innovations. The advancement of AI technology also creates challenges in privacy protection and data security. There are concerns that artificial super-intelligence may replace humans in many industries and that AI technology, if falling into the wrong hands, could be used for purposes that are not acceptable.

This conference provides an open forum to demystify AI technology and to explore issues and challenges that corporations, governments, and the accounting profession face when adapting to this technology. We have invited a group of best researchers in AI and industry leaders to speak at the conference, including Research Director of the Vector Institute, Advisor to the Governor of the Bank of Canada on Digitization, PwC's Global Leader on AI and Data & Analytics, and renowned scholars in AI and accounting research, among others. These experts will form three panels: AI Technology, AI Governance, and AI and Social Innovation. The expert panels will explore how AI technology may transform our world from different perspectives and share their vision on how the accounting profession can adapt to AI technology.

AGENDA

8:00 *Breakfast*

8:45 *Introductory Remarks*
Professor Irene Wiecek, Director, MMPA
Professor Amrita Daniere, Vice-Principal, Academic and Dean, University of Toronto,
Mississauga
Professor Soo Min Toh, Director, IMI
Davinder Valeri, Director of Strategy, Risk and Performance, CPA Canada
Professor Yue Li

Technology Pillar
Moderator: Professor Irene Wiecek

9:00 **Professor Richard Zemel,** Research Director, Vector Institute, Professor of Computer Science, University of Toronto, Senior Fellow, Canadian Institute for Advanced Research

Keynote Speech: Controlling the Black Box: Learning Manipulable and Fair Representations

Richard Zemel is a Professor of Computer Science and Industrial Research Chair in Machine Learning at the University of Toronto, and the co-founder and the Research Director at the Vector Institute for Artificial Intelligence. Prior to that he was on the faculty at the University of Arizona, and a Postdoctoral Fellow at the Salk Institute and at CMU. He received the B.Sc. in History & Science from Harvard, and a Ph.D. in Computer Science from the University of Toronto. He is also the co-founder of SmartFinance, a financial technology startup specializing in data enrichment and natural language processing. His awards and honors include a Young Investigator Award from the ONR and a US Presidential Scholar award. He is a Senior Fellow of the Canadian Institute for Advanced Research, an NVIDIA Pioneer of AI, and a member of the NeurIPS Advisory Board. His research is supported by grants from NSERC, CIFAR, Google, Samsung, Amazon, Microsoft, DARPA and iARPA.

10:00 -10:15   Q&A

10:15 **Professor Fakhri Karray**, University Research Chair Professor and co-Director of the Waterloo AI Institute, University of Waterloo.

AI and Industrial Innovations.

Dr. Fakhri Karray is the University Research Chair Professor in Electrical and Computer Engineering and the co-director of the Institute of Artificial Intelligence at the University of Waterloo. He is also the director of the University's Center for Pattern Analysis and Machine Intelligence. He holds the Loblaw's Research Chair in Artificial Intelligence. His research

interests are in the areas of intelligent systems design, augmented intelligence, concept mining, machine learning, and context-aware machines. His work has been applied to intelligent transportation systems, Internet of things, cognitive robotics, medical imaging and natural man-machine interaction. He is the co-author of two dozen US patents and has served as the associate editor/guest editor for more than 14 research journals.

Dr. Karray's research work has been featured on Discovery Channel, CBC, Globe and Mail, among others. He is the recipient of the University of Waterloo Best Performance Award. He also received national and international awards, including the Premier Research Excellence Award, the Pattern Recognition Society Best Paper Award, the World Automation Congress' Anderson Best Paper Award, and the IEEE Appreciation Certificate for Notable Services and Contributions to IEEE and the Engineering Profession. He has served as the University of Waterloo's Academic Advisor for Amazon's Alexa Fund Fellowship Program and is a Fellow of the Canadian Academy of Engineering. He serves as the president of the Association for Image and Machine Intelligence and is on the Advisory Board of a number of research journals and high tech companies in North America.

11:00 to 11:15   *Coffee Break*

11:15 Professor Parvin Mousavi, Professor and Director, Medical Informatics Laboratory, School of Computing, Queen's University

Machine + MD: Role of AI in Computer Integrated Interventional Medicine.

Parvin Mousavi is a professor of Computer Science and Electrical and Computer Engineering at Queen's University, Canada, and a member of the Royal Society of Canada, College of New Scholars, Artists and Scientists. She received her PhD in Electrical and Computer Engineering from the University of British Columbia (UBC), Canada. Previously, she has held industrial positions with Molecular Mining Inc. and Biosystemix Inc., Canada. She has had visiting professorships at University of British Columbia and Harvard Medical School. Her research interests are in machine learning and artificial intelligence applied to oncology, computer-assisted interventions, and neurology. She has received over 30 international and national recognitions for research and has led numerous multi-national collaborative initiatives in these areas.

Prof. Mousavi represented Royal Society of Canada in the Summit of the G7 Academy of Sciences on the topic of AI and Society. She serves on and chairs several national and international granting committees, and is an Associate Editor for PLOS One and BMC Bioinformatics. She is the General co-Chair of Information Processing in Computer Assisted Interventions (IPCAI), and an executive member of Medical Image Computing and Computer Assisted Interventions (MICCAI) in 2017 and 2020, and a founding member of Women in MICCAI. She is a senior member of IEEE, IEEE EMBS, and IEEE Women in Engineering.

11:45 *Panel discussion on how AI Technology may transform our world*

12:00 to 1:00 *Lunch*

1:00   **Dr. Eric Santor,** Advisor to the Governor of the Bank of Canada on Digitalization

AI and Digitalizing the Financial System

Dr. Santor was appointed Advisor to the Governor on Digitalization in March, 2019. In this role, he leads the Bank's digitalization work, including research into the impact of digitalization on the economy and financial system. Mr. Santor also leads the initiative to incorporate technologies such as artificial intelligence and machine learning as well as big data into the Bank's operations. This involves leveraging programs such as Partnerships in Innovation and Technology (PIVOT) and the Bank's relationship with the Creative Destruction Lab.

Dr. Santor joined the Bank in 2001 as an economist in the former Monetary and Financial Analysis Department. He moved to the International Economic Analysis Department in 2003, where he assumed increasing responsibilities until becoming Managing Director in 2013. Before his appointment as Advisor to the Governor on Digitalization, Mr. Santor served as Managing Director of the Bank's Canadian Economic Analysis Department.

Dr. Santor's research has focused on issues relating to the incidence and effects of unconventional monetary policy, the international monetary system and global financial architecture, and the impact of ownership structure on Canadian firms. Dr. Santor was born in London, Ontario. He completed his BA in History and Political Science at Huron College, University of Western Ontario, and his PhD in Economics at the University of Toronto.

1:30   **Dr. Anand Rao,** Global & US Artificial Intelligence and US Data & Analytics Leader, PwC US

Risks of AI and Responsible AI

Dr. Anand S. Rao is a Partner in PwC's Advisory practice. He is the Global Artificial Intelligence Lead, Cross-vertical Analytics Champion, and the Co-Sponsor for the AI Center of Enablement within PwC. With over 33 years of industry and consulting experience, Anand leads a team of practitioners who work with C-level executives at some of the world's largest organizations. As the global lead for AI, he is responsible for research and commercial relationships with academic institutions and start-ups, research, development and commercialization of innovative AI, big data and analytic techniques.

Prior to joining management consulting, Anand was the Chief Research Scientist at the Australian Artificial Intelligence Institute. He has received widespread recognition for his extraordinary contributions in the field of consulting and Artificial Intelligence Research. He has received the Most Influential Paper Award for the Decade in 2007 from the Autonomous Agents & Multi-Agent Systems organization for his contribution on the Belief-Desire-Intention Architecture; MBA Award of Distinction from Melbourne Business School in 1997 and University Postgraduate Research Award (UPRA) from University of Sydney in 1985; Distinguished Alumnus Award from Birla Institute of Technology and Science, Pilani, India; He was recognized as one of Top 50 Data & Analytics professionals in USA and

Canada by Corinium; one of Top 50 professionals in InsureTech; and his recent paper on "A Strategist's Guide to Artificial Intelligence" has won the National Gold Award by ASBPE for the Best Technical article in 2017 and the FOLIO editorial award.

Anand is on the Advisory Board of a number of educational and not-for-profit institutions focused on AI including, AI Global, Nordic AI Institute, and International Congress for the Governance of AI. He has co-edited four books and published over fifty papers in refereed journals and conferences. He is a frequent speaker on Artificial Intelligence, behavioral economics, autonomous cars and their impact, analytics, and technology topics in academic and trade forums.

2:00   **Professor Miklos Vasarhelyi,** KPMG Distinguished Professor, Director of Rutgers Accounting Research Center and Continuous Auditing & Reporting Lab, Rutgers Business School, Rutgers University

AI and the Future Accounting Profession

Professor Miklos A. Vasarhelyi is the KPMG Distinguished Professor of Accounting Information Systems and Director of the Rutgers Accounting Research Center (RARC) & Continuous Auditing & Reporting Lab (CAR Lab) at Rutgers University. He is credited with developing the original continuous audit application and is the leading researcher in this field. He also leads the Rutgers AICPA Data Analytics Research Initiative supported by the 8 leading CPA firms, AICPA, and CPA Canada.

Professor Vasarhelyi received his Ph.D. in Management Information Systems from UCLA and his MBA from Massachusetts Institute of Technology. He has published more than 200 journal articles, 20 books, and directed over 40 Ph.D. theses. He is the editor of *the Artificial Intelligence in Accounting and Auditing* series and the *Journal of Emerging Technologies in Accounting*. Before joining Rutgers, he taught at USC, Columbia and worked at the Bell Laboratories. He was awarded the Outstanding Accounting Educator by the AAA in 2015 and received ISACA's Wasserman Award among many distinctions

**2:30 Panel discussion on the impact of AI on the accounting profession and financial industry**

3:00 to 3:15 Coffee Break

3:15   **Professor Graham Taylor,** Canada Research Chair in Machine Learning, Canada CIFAR AI Chair, School of Engineering, University of Guelph and Vector Institute.

Machine Learning and Social Innovation.

Graham Taylor is an Associate Professor at the University of Guelph where he leads the Machine Learning Research Group. He is the academic director of NextAI, non-profit initiative to establish Canada as the AI hub for research, venture creation and technology commercialization and a member of the Vector Institute for Artificial Intelligence.
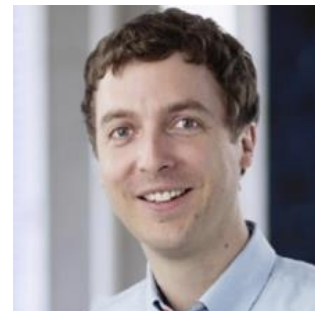
Professor Taylor received his PhD in Computer Science from the University of Toronto. His research focuses on statistical machine learning, with an emphasis on deep learning and sequential data. Much of his work has focused on "seeing people" in images and video. He is especially interested in time series, having applied his work to better understand human and animal behavior, environmental data (climate or agricultural), audio (music or speech) and financial time series.

Dr. Taylor was recently selected by the Canadian Institute for Advanced Research as one of two Azrieli Global Scholars appointed to the Learning in Machines and Brains Program: an international competition recognizing excellence in research and leadership. He has received over $2M in external research funding, including a highly competitive NSERC-French National Research Agency Strategic Partnerships Grant, and trained 50 Highly Qualified Personnel since his appointment. Papers he has authored or co-authored have been cited over 3000 times.

3:45   **Q&A**

4:00   **Concluding remarks by Professor Irene Wiecek**