

PROGRAM

Alberta Society of Radiologists 2024

October 18-20, 2024 - Banff, Alberta





GENERAL INFORMATION

Alberta Society of Radiologists 2024 Annual Scientific Conference - i, Radiologist

Location:

The Fairmont Banff Springs Hotel: 405 Spray Ave, Banff, AB T1L 1J4

Date and Time:

October 18th, 2024 at 7:00 pm to October 20th, 2024 at 12:00 pm

General Information:

Welcome to the Alberta Society of Radiologists 2024 Annual Scientific Conference - *iRadiologist*, our premier CME event focused on AI in radiology, at the breathtaking location of the Fairmont Banff Springs in Banff, Alberta. This unique gathering brings together radiologists from across the province, offering unparalleled opportunities for attendees to learn from and network with leading professionals at the forefront of AI innovation in healthcare.

The ASR Scientific Planning Committee has carefully curated a program with 14 local, national and international speakers sharing their expertise ranging from the theory behind AI, diagnostic and workflow applications, ethical and privacy considerations, and regulatory frameworks.

Target Audience:

This meeting is designed for all general and subspecialty radiologists whose work involves performing or interpreting images, determining appropriateness, and using advanced equipment and tools to help guide therapeutic decision-making and help improve clinical outcomes. It is also intended to benefit clinic leadership and IT managers who may be assessing or implementing AI tools in their context.

Conference Learning Objectives:

After attending the conference, participants will be able to:

- Identify the main types of AI tools available or being developed for use in radiology, including for workflow enhancement, human resources administration, and image analysis.
- Describe ethical and regulatory considerations associated with AI including those related to data privacy, data ownership and liability.
- Gain ability to critically assess the suitability of an AI product pitched by a vendor for application to a particular clinical environment.
- Describe the process steps required to integrate an AI product into clinic workflow in radiology.

Accreditation:

The Alberta Society of Radiologists 2024 Annual Scientific Conference has been accredited by the Royal College of Physicians and Surgeons of Canada for 7.75 hours of MOC Section 1 credits.

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PROGRAM

*Program is subject to change

FRIDAY, OCTOBER 18, 2024

7:00 pm - 8:30 pm	Welcome Reception (unaccredited)	Alberta Room	Mezzanine Level 2
8:30 pm - Onwards	Socializing (self-directed and optional) (unaccredited)	Rundle Bar	Mezzanine Level 1

SATURDAY, OCTOBER 19, 2024

8:00 am - 9:00 am	Breakfast	New Brunswick Room	Mezzanine Level 2
9:00 am - 10:15 am	Introduction to Conference Theme: Dr. Jacob Jaremko and Jeff Vandersteen - "Overview of Al Opportunities in Radiology in 2024"		
	Didactic Lectures - "Al 101" - Featuring:		
	Dr. Abhilash Hareendranathan, "Deep Learning for Medical Image Analysis"	Cascade Ballroom	Mezzanine Level 2
	Dr. Kumar Punithakumar, "Automating Medical Image Segmentation Using Machine Learning"		
	Dr. Matthias Wilms, "Basics of Explainable and Generative AI in Radiological Image Analysis"		
	Moderated by: Dr. Matthew Li		
10:15 am - 10:45 am	Wellness Break	Conservatory	Mezzanine Level 2 *Connected To Cascade*
10:45 am - 12:15 pm	Didactic Lectures - "Al for Diagnosis" - Featuring:		
	Dr. Alex Bilbily, "Will AI Shift the Paradigm of Osteoporosis Screening?"		
	Dr. Justin Ezekowitz, "You Can't Spell Cardiac Without Al"	Cascade Ballroom	Mezzanine Level 2
	Dr. Roberto Souza, "Medical Image Segmentation in the Age of AI: Is the Problem Solved?"		
	Moderated by: Dr. Cody Pollock		
12:15 pm - 1:15 pm	Lunch	New Brunswick Room	Mezzanine Level 2
1:15 pm - 2:45 pm	Didactic Lectures - "Al for Workflow" - Featuring:		
	Dr. William Parker, "Becoming a Constructive Al Critic"		
	Dr. Kyle Nishiyama, "Integrative AI: Creating Seamless Workflows While Ensuring Patient Safety"	Cascade Ballroom	Mezzanine Level 2
	Dr. Seema Toso, "Implementing AI in the Radiology Department"		
	Moderated by: Jeff Vandersteen		
2:45 pm - 3:15 pm	Wellness Break	Conservatory	Mezzanine Level 2 *Connected To Cascade*

*Program is subject to change

SATURDAY, OCTOBER 19, 2024 (continued)

3:15 pm - 3:45 pm	Dr. Jacob Jaremko, "Data Privacy and Liability in Medical Imaging AI"	Cascade Ballroom	Mezzanine Level 2
3:45 pm - 4:30 pm	"Ask the Experts" Panel: Dr. Justin Ezekowitz Dr. Kyle Nishiyama Dr. William Parker Dr. Roberto Souza Dr. Seema Toso Moderated by: Dr. Sarah Koles	Cascade Ballroom	Mezzanine Level 2
4:30 pm - 6:30 pm	Break & Free Time		
6:30 pm - 9:00 pm	Gala (unaccredited)	Alhambra Room	Mezzanine Level 2
9:00 pm - Onwards	Socializing (self-directed and optional) (unaccredited)	Rundle Bar	Mezzanine Level 1

SUNDAY, OCTOBER 20, 2024

8:00 am - 9:00 am	Breakfast	New Brunswick Room	Mezzanine Level 2
9:00 am - 10:30 am	Didactic Lectures - "Regulatory Frameworks" - Featuring:		
	Dr. Rebecca Bromwich, "The Pledge, The Turn, and the Prestige: Critically Assessing Legal and Ethical Implications of Artificial Intelligence in Radiology"	Cascade Ballroom	Mezzanine Level 2
	Dr. Dornoosh Zonoobi and Dr. Jacob Jaremko, "What it's Like to Start an Imaging AI Company"		
	Dr. Emil Lee, "Artificial Intelligence in Radiology: CAR Involvement, the HAIVN Project & Incorporation of AI in a Health Authority"		
	Moderated by: Dr. Steven Boyd		
10:30 am - 11:15 am	Update from CAR: (unaccredited)	Cascade Ballroom	Mezzanine Level 2
	Nick Neuheimer, CEO, Canadian Association of Radiologists and Dr. Ania Kielar, President, Canadian Association of Radiologists		
	Closing Remarks From: (unaccredited)		
	Dr. Robert Davies, President, Alberta Society of Radiologists		
	Dr. Jacob Jaremko, Chair, Alberta Society of Radiologists Scientific Planning Committee		
12:00 pm	Check Out		

LEARNING OBJECTIVES

TITLE	OBJECTIVES
Overview of AI Opportunities in Radiology in 2024	 Describe possibilities for Al in enhancing radiology practices in Alberta in 2024. Define relevant Al terminology. Recognize the scope of current and upcoming real-world Al applications in 2024. Reflect on possible applications that may benefit your own practice.
Deep Learning for Medical Image Analysis	 Define and differentiate between Artificial Intelligence (AI), Machine Learning (ML), and Deep Learning (DL), and explain their interrelationships. Explain the fundamental concepts of Convolutional Neural Networks (CNN) and supervised learning. Evaluate the applications of CNN models in medical image analysis.
Automating Medical Image Segmentation Using Machine Learning	 Describe the various categories of image segmentation. Discuss AI-segmentation tools for common medical imaging modalities. Recognize clinical tools that assist with image segmentation tasks and post-processing.
Basics of Explainable and Generative AI in Radiological Image Analysis	 Recognize the need for explainable AI in radiological image analysis. Describe basic techniques for explainable AI. Describe the basic ideas of generative AI and how those approaches can improve explainability.
Will AI Shift the Paradigm of Osteoporosis Screening?	 Describe the current status of osteoporosis screening and the new screening opportunities available with AI. Describe the regulatory path to market for AI-based Software as a Medical Device's (SaMD's). Assess the real world impact of AI screening software for low bone density.
You can't spell Cardiac without Al	 Explain the fundamental principles of artificial intelligence (AI) and machine learning (ML) as they apply to cardiac imaging. Describe the current applications of AI in cardiac imaging, including automated image analysis, diagnostic support, and prognostic assessment. Discuss the advantages and limitations of AI technologies in the context of cardiac imaging.
Medical image segmentation in the age of Al: Is the problem solved?	 Describe the historical context that led to the success of AI techniques in medical imaging. Identify the main frameworks and AI architectures used to develop medical image segmentation solutions. Describe the overall process of developing an AI solution for a medical image segmentation problem.
Becoming a Constructive Al Critic	 Assess ethical and regulatory considerations associated with AI in Radiology. Discuss medical data privacy, data ownership and liability. Apply first principles associated with critically assessing the suitability of an AI product pitched by a vendor for application to a particular clinical environment.

LEARNING OBJECTIVES

TITLE	OBJECTIVES
Integrative AI: Creating seamless workflows while ensuring patient safety	 Assess the suitability of AI tools and how to seamlessly incorporate them into their workflows. Select tools that best integrate their human expertise with AI. Evaluate and maintain patient safety when using AI tools.
Implementing AI in the Radiology Department	 Describe the 11 step approach to AI implementation and integration Recognize commonly encountered difficulties faced in implementation and possible solutions Use needs assessments to identify potential solutions to overcome the obstacles in AI integration Predict challenges and determine how to manage them for the future
Data Privacy and Liability in Medical Imaging Al	 Define a biased data set and identify risks associated with this in medical imaging AI. Recognize how medical DICOM images provide uniquely sensitive privacy concerns. List the types of consent and how these relate to medical imaging AI. Recognize the relation between levels of AI autonomy and liability.
The Pledge, The Turn, and the Prestige: Critically Assessing Legal and Ethical Implications of Artificial Intelligence in Radiology	 Consider ethical concerns raised by AI use in radiology. Consider legal liability implications of AI use in radiology. Critically assess claims that AI will revolutionize medical practice.
What it's Like to Start An Imaging Al Company	 Recognize the potential benefits and implications for radiologists of combining point of care ultrasound and AI. Review an example of a journey from an idea in medical imaging AI to establishing a startup company. Identify common obstacles to developing a commercial AI product. Review tips and lessons regarding strategies to move from an AI idea to real-world impact.
Artificial Intelligence in Radiology: CAR Involvement, the HAIVN project & incorporation of AI in a Health Authority	 Describe the history of CAR involvement in AI in Canadian Healthcare. Describe the HAIVN project and recognize its goals and objectives. Consider how a Canadian Health Authority MI department can incorporate AI into its workflows in a safe, efficient and effective manner.

Dr. Alex Bilbily, MD, FRCPC



BIOGRAPHY

Dr. Alexander Bilbily is a Toronto-based academic radiologist, nuclear medicine physician, and computer scientist. Dr. Bilbily is an Assistant Professor at the University of Toronto and Co-Founder & Co-CEO of 16 Bit Inc, an internationally award-winning AI medical imaging company with the vision of augmenting physician diagnostic ability using artificially intelligent tools. 16 Bit currently offers Health Canada approved SaMD for osteoporosis screening and pediatric bone age assessment. Dr. Bilbily also serves as the director of the Augmented Precision Medicine (APM) lab at Sunnybrook Hospital and is a Scientific Advisory Committee member at Osteoporosis Canada. Dr. Bilbily believes that AI will be the foundation of next-generation tools that will improve the efficiency, quality, and reliability of care that physicians can offer to their patients.

SESSIONS

Will AI Shift the Paradigm of Osteoporosis Screening? Saturday, October 19, 2024 • 10:45 am - 12:15 pm

Dr. Rebecca Bromwich, PhD, LLM, LLB, MBA



BIOGRAPHY

Dr. Rebecca Jaremko Bromwich, PhD, LLM, LLB, MBA is a policy advisor and senior program manager with the Law Society of Nunavut. She is also a faculty member at Carleton University in the department of Law and Legal Studies who also teaches at Sprott School of Business. She has published widely on legal and ethical issues relating to technology. Rebecca has been a practicing lawyer for twenty-two years and is a member of the Bars of Nunavut, Ontario, Manitoba, and Alberta.

SESSIONS

The Pledge, The Turn, and the Prestige: Critically Assessing Legal and Ethical Implications of Artificial Intelligence in Radiology

Sunday, October 20, 2024 • 9:00 am - 11:15 am

Dr. Justin Ezekowitz, MBBCh, MSc



BIOGRAPHY

Dr. Justin Ezekowitz is a Professor of Medicine in the Division of Cardiology, Director of Cardiovascular Research, and Co-Director of the Canadian VIGOUR Centre (thecvc.ca) at the University of Alberta. He is a cardiologist at the University of Alberta Hospital and Mazankowski Alberta Heart Institute. His research and clinical focus is on heart failure. He is involved in numerous multicenter international clinical trials in heart failure. He is also involved in the design, leadership and implementation of several investigator-initiated trials funded through governmental and non-governmental research agencies. In addition, he works with population health, registry-data and other data sources on clinically applicable research using advanced data analytics around health system change and disease risk. In his role as Director of Cardiovascular Research at the University of Alberta he has been involved in inaugurating and establishing the CardioVascular Research Institute (cvri.ualberta.ca) and holds the AHS Chair in Cardiac Sciences. He is also the President, Canadian Heart Failure Society.

SESSIONS

You can't spell Cardiac without AI Saturday, October 19, 2024 • 10:45 am - 12:15 pm

"Ask the Experts" Q&A Panel Saturday, October 19, 2024 • 3:45 pm - 4:30 pm

Dr. Abhilash Hareendranathan, PhD



BIOGRAPHY

As an Assistant Professor in the Department of Radiology at the University of Alberta, Dr. Abhilash Hareendranathan's research focuses on artificial intelligence (AI), medical image analysis, and ultrasound imaging. His international experience includes collaborating with diverse research teams in Singapore, Germany, and Canada. During his Ph.D. at Nanyang Technological University (NTU) in Singapore, he developed machine learning techniques for image-guided non-invasive surgery. Following this, he worked with the ultrasound team at Panasonic R&D Center in Singapore, improving ultrasound beamforming, and later as an image segmentation specialist at Curefab in Germany. As the R&D lead at MEDO.ai Inc., an AI start-up, he guided the development of AI solutions for medical ultrasound. His work focused on creating AI approaches for automatic biomarker discovery, improving the speed and reliability of ultrasound assessments, and optimizing clinical workflows to enable lightly trained users to perform effectively.

SESSIONS

Deep Learning for Medical Image Analysis Saturday, October 19, 2024 • 9:00 am - 10:15 am

Dr. Jacob Jaremko, MD, PhD, FRCPC



BIOGRAPHY

Dr. Jacob Jaremko is a Professor of Radiology and Adjunct Professor of Computing Science at the University of Alberta, a practicing board-certified Pediatric and Musculoskeletal radiologist and partner at Medical Imaging Consultants, and co-founder of 2 startup companies including MEDO.ai. He has a PhD in Biomedical Engineering. He is a Canada CIFAR AI Chair and Fellow of the Alberta Machine Intelligence Institute. His research has focused on developing objective imaging biomarkers of disease in ultrasound and MRI, and on implementing AI-augmented medical imaging diagnostic tools at the clinical point of care — building the 21st-century stethoscope.

SESSIONS

Overview of AI Opportunities in Radiology in 2024 Saturday, October 19, 2024 • 9:00 am - 10:15 am

Data Privacy and Liability in Medical Imaging AI Saturday, October 19, 2024 • 3:15 pm - 3:45 pm

What it's Like to Start an Imaging AI Company Sunday, October 20, 2024 • 9:00 am - 11:15 am

Dr. Emil Lee, MD, FRCPC, FCAR



BIOGRAPHY

Dr. Emil Lee is a community radiologist, with a subspecialty in interventional radiology, of the Valley Medical Imaging group in the Fraser Valley of beautiful British Columbia. Dr. Lee was the President of the Canadian Association of Radiologists from 2017-2019 when he and the CAR Board invited Canadian Radiologists to form the CAR Al working group, of which he became a founding member. He is a co-author of CAR white papers on de-identification of medical imaging and ethical and legal issues related to artificial intelligence in radiology. Dr. Lee is the Regional Medical Director/ Regional Department Head of Medical Imaging, Fraser Health Authority providing healthcare for 1.9M Canadians. He is Past President of the British Columbia Radiological Society and the Doctors of BC Section of Radiology, having served as President from 2010-2012. He is now on the Representative Assembly of Doctors of BC and President of the Canadian Radiological Foundation, a charity dedicated to the future of Canadian radiology, investing to drive innovation in imaging, intervention, informatics and artificial intelligence education and research. He was made a Fellow of the CAR in 2019. Dr. Lee attended the University of British Columbia for medical school and his diagnostic radiology residency. After completing a fellowship in interventional radiology at the University of Iowa, he returned to British Columbia where he has been practicing since. Dr. Lee's outside interests include travel, running, scuba diving, skiing and having spirited debates with his wife and two children.

SESSIONS

Artificial Intelligence in Radiology: CAR Involvement, the HAIVN Project & Incorporation of AI in a Health Authority

Sunday, October 20, 2024 • 9:00 am - 11:15 am

Dr. Kyle Nishiyama, PhD



BIOGRAPHY

Dr. Kyle Nishiyama is currently the CEO and co-founder of Mikata Health, a health tech company focused on using AI to take care of tedious tasks burdening providers and their teams so they can focus on care. Prior to starting the company he was a Research Scientist at Columbia University Medical Center in New York City, where he developed image and data analysis tools specifically applied to bone imaging. He has led global collaborations with scientists, clinicians, and developers, published over 35 manuscripts, and worked within health systems around the world. Kyle's training includes an undergraduate degree in Biomedical Computing from Queen's University and a PhD in Biomedical Engineering from the University of Calgary.

SESSIONS

Integrative AI: Creating Seamless Workflows While Ensuring Patient Safety

Saturday, October 19, 2024 • 1:15 pm - 2:45 pm

"Ask the Experts" Q&A Panel

Saturday, October 19, 2024 • 3:45 pm - 4:30 pm

Dr. William Parker, MD, FRCPC



BIOGRAPHY

Dr. William Parker is a General Radiologist with training from UAlberta, UBC and Stanford University, now working in a busy community practice on Vancouver Island, with frequent coverage for groups in Calgary and Lethbridge. He also runs a company called Sapien, which is a technology based healthcare consultancy that helps clinical practices with all things AI; from data management to implementation and auditing. He has a busy family life, with his wife, two kids and dog, filling up any remaining free time.

SESSIONS

Becoming a Constructive AI Critic

Saturday, October 19, 2024 • 1:15 pm - 2:45 pm

"Ask the Experts" Q&A Panel

Saturday, October 19, 2024 • 3:45 pm - 4:30 pm

Dr. Kumar Punithakumar, PhD



BIOGRAPHY

Dr. Kumar Punithakumar holds a B.Sc.Eng. in Electronic and Telecommunication Engineering from the University of Moratuwa, and M.A.Sc. and Ph.D. in Electrical and Computer Engineering from McMaster University. He worked as an Imaging Research Scientist at GE Healthcare, Canada (2008-2012). He is an Associate Professor at the University of Alberta's Department of Radiology and Diagnostic Imaging and an Alberta Health Services Chair in Diagnostic Imaging. He also serves as the Operational and Computational Director at the Servier Virtual Cardiac Centre, Mazankowski Alberta Heart Institute. Dr. Punithakumar has supervised over 70 trainees and has published more than 60 peer-reviewed journal articles and 60 conference proceedings. He holds seven granted patents and two pending applications. He received the Industrial Research and Development Fellowship from NSERC in 2008 and the Outstanding Associate Editor award from IEEE Access each year from 2020 to 2023.

SESSIONS

Automating Medical Image Segmentation Using Machine Learning

Saturday, October 19, 2024 • 9:00 am - 10:15 am

Dr. Roberto Souza, **PhD**



BIOGRAPHY

Dr. Roberto Souza is an Assistant Professor in the Electrical and Software Engineering Department at the University of Calgary. He has PhD in Computer Engineering from the University of Campinas (UNICAMP). Before becoming an Assistant Professor, Roberto was a postdoctoral scholar in the Radiology Department at the University of Calgary for three years. He has international experience, having worked at the Grenoble Institute of Technology in France and the University of Pennsylvania in the United States. Roberto's research focuses on developing AI solutions for medical imaging problems. He has developed methods to make MRI scans up to 20 times faster. He has also proposed numerous methods for brain, bone and vessel segmentation problems.

SESSIONS

Medical Image Segmentation in the Age of AI: Is the Problem Solved?

Saturday, October 19, 2024 • 10:45 am - 12:15 pm

"Ask the Experts" Q&A Panel

Saturday, October 19, 2024 • 3:45 pm - 4:30 pm

Dr. Seema Toso, MD



BIOGRAPHY

Dr. Seema Toso (formerly Patel) is a Canadian physician specializing in Diagnostic Radiology. Concurrently, she conducts her research in the assessment of diagnostic tools for clinical decisionmaking, particularly in the field of radiology and surgery, health economics and systematic reviews. Her current focus has been on Hepatobiliary surgery and PET/CT scans. She completed her Doctorate of Medicine at the University of Toronto Medical School in Toronto, Canada and received a Masters of Science in Health Technology Assessment, specializing in Health Economics at the University of Alberta. Previously, Seema completed her surgical intern year and went on to train in General Surgery at the University of Alberta. Seema spent time at the Toronto Sick Children's Hospital conducting research with the hepatobiliary and interventional radiology groups, as well as a researcher for the Institute of Health Economics in Alberta. She is currently based in Geneva, Switzerland.

Implementing AI in the Radiology Department

Saturday, October 19, 2024 • 1:15 pm - 2:45 pm

"Ask the Experts" Q&A Panel

Saturday, October 19, 2024 • 3:45 pm - 4:30 pm

Jeff Vandersteen, MBA, ISP



BIOGRAPHY

With nearly two decades of experience in radiology informatics, Jeff Vandersteen is the Director of IT at MIC Medical Imaging, where he has supported Alberta's radiology landscape since 2005. Jeff's career began with enterprise IT solutions at the Government of Alberta and Telus, providing him with a robust foundation in managing complex technological ecosystems.

Jeff holds an MBA from the Edinburgh School of Business, a credential that enhances his ability to align business objectives with emerging technology opportunities. At MIC Medical Imaging, Jeff collaborates closely with radiologists to identify and implement AI and advanced technologies that elevate practice standards and support clinical excellence.

SESSIONS

Overview of AI Opportunities in Radiology in 2024 Saturday, October 19, 2024 • 9:00 am - 10:15 am

Dr. Matthias Wilms, PhD



BIOGRAPHY

Dr. Matthias Wilms is a computer scientist who has been working in the field of AI-based medical image analysis for more than 10 years. He received his PhD from the University of Luebeck (Germany) in 2018 for a thesis on respiratory motion modeling approaches in radiation therapy and came to Calgary in 2019 for his postdoctoral training in machine learning-based neuroimaging. Since 2022, Dr. Wilms has been working as an Assistant Professor at the University of Calgary in the departments of Pediatrics, Community Health Sciences, and Radiology where he leads a research program that particularly focuses on the development of explainable and generative AI approaches for medical image analysis and related areas.

SESSIONS

Basics of Explainable and Generative AI in Radiological Image Analysis Saturday, October 19, 2024 • 9:00 am - 10:15 am

Dr. Dornoosh Zonoobi, PhD



BIOGRAPHY

Dr. Dornoosh Zonoobi is Exo Imaging's Vice President of Artificial Intelligence. Exo (pronounced "Echo") is a health information and devices company on a mission to modernize medical imaging with its high-performance, handheld ultrasound platform and artificial intelligence. Previously, Dornoosh was the co-founder and CEO of Medo.ai, a health-tech startup focused on developing AI technologies to simplify ultrasound use, which Exo acquired. She led Medo from ideation to two FDA-cleared products and through its eventual acquisition.

Dornoosh earned her Master's and Ph.D. in computer vision and machine learning from the National University of Singapore and completed a post-doctoral fellowship in 3D ultrasound analysis at the University of Alberta's Radiology Department.

SESSIONS

What it's Like to Start an Imaging Al Company Sunday, October 20, 2024 • 9:00 am - 11:15 am

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THANK YOU to the Scientific Planning Committee

Jacob Jaremko, Chair

Steven Boyd

Bethany Kaposhi

Sarah Koles

Matthew Li

Cody Pollock

Jeff Vandersteen

