



THE UNIVERSITY OF BRITISH COLUMBIA

**Data Science and Health**

Research Excellence Cluster

# DATA SCIENCE & HEALTH 2021: Impact and Lessons Learned From the COVID-19 Pandemic

## PROGRAM AGENDA

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*November 9, 2021*

# WELCOME TO DATA SCIENCE & HEALTH 2021

We are excited to welcome you to our annual CPD course, designed to bring together clinicians, researchers and students to understand the importance of data science in healthcare research and delivery.

# **SCIENTIFIC PLANNING COMMITTEE**

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Thalia Field, MD, MHSc, FRCPC

*Associate Professor, Division of Neurology, Department of Medicine, UBC*

Marianne Ho-Asjoe, MD, CCFP

*Family Physician*

Raymond Ng, PhD

*Professor, Computer Science, UBC*

*Director, Data Science Institute, UBC*

Anita Palepu, MD, MPH, FRCPC, MACP

*Head, Department of Medicine, UBC*

*Professor, Division of General Internal Medicine, Department of Medicine, UBC*

# **SCIENTIFIC PLANNING COMMITTEE**

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Alan Rabinowitz, MD

*Associate Professor, Division of Cardiology, Department of Medicine, UBC*

Scott Tebbutt, PhD

*Professor, Division of Respiratory Medicine, Department of Medicine, UBC*

Teresa Tsang, MD, FRCPC, FACC, FASE

*Associate Head, Research, Department of Medicine, UBC*

*Professor, Division of Cardiology, Department of Medicine, UBC*

# UBC CPD ACCREDITATION

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The University of British Columbia Division of Continuing Professional Development (UBC CPD) is fully accredited by the Committee on Accreditation of Continuing Medical Education (CACME) to provide study credits for continuing medical education for physicians. This event is an Accredited Group Learning Activity (Section 1) as defined by the Maintenance of Certification Program of the Royal College of Physicians and Surgeons of Canada, and has been approved by UBC CPD for up to 9.0 MOC Section 1 Group Learning credits. This program meets the certification criteria of the College of Family Physicians of Canada and has been certified by UBC CPD for up to 9.0 Mainpro+ Group Learning credits. Each physician should claim only those credits accrued through participation in the activity.

Accredited by UBC CPD



CONTINUING PROFESSIONAL DEVELOPMENT  
FACULTY OF MEDICINE

# PROGRAM STRUCTURE

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## Step 1

Learn about data science from ground up, and test your knowledge with a community of learners through self-paced **Canvas** modules.

**October 2021**

## Step 2

Join your peers in discovering and discussing cutting-edge data science applications in health care and research, live on **Zoom**.

**November 9, 2021**

## Step 3

Create interdisciplinary partnerships that move your data science project forward by attending our **workshop series**.

**Winter 2021/22**



# LIVE ZOOM SESSION

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11:45 AM Zoom registration begins

12:00 PM Opening Remarks

*Dr. Anita Palepu, Head, Department of Medicine, UBC*

12:05 PM **Session 1: Data-Driven Decision Making**

Applied Artificial Intelligence in Health: From Compute to Care

*Dr. Muhammad Mamdani, Vice President, Data Science and Advanced Analytics,  
Unity Health Toronto*

How to Predict the Risk of Overdose?

*Andy Tai, MSc Student, UBC*

Follow the Money - Characterization of Real-Life Care Pathways From Physician  
Billing Records Using Process Mining

*Dr. Stephen van Gaal, Neurologist, Vancouver Stroke Program*

# LIVE ZOOM SESSION

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1:00 PM

## **Session 2: Learning About COVID-19**

Opportunities and Challenges for COVID-Related Research

*Dr. Kim McGrail, Scientific Director, PopData BC & Health Data Research Network Canada*

Big Data (Pandemic Edition): Design and Implementation of the IMPACC Study of Hospitalized COVID-19 Patients

*Dr. Al Ozonoff, Associate Professor, Pediatrics, Harvard Medical School*

The BC COVID-19 Interdisciplinary Clinical Care Network: A Tale of 2 Processes - Integrating Clinical Care and Research

*Dr. Adeera Levin, Head & Professor, Division of Nephrology, Department of Medicine, UBC*

2:00PM

Break



# LIVE ZOOM SESSION

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2:15 PM

## **Session 3: Ethical and Social Implications of Data Science**

SARS-CoV-2 Emerging Variants: Genomic Data and the Benefits and Opportunities of Data Linkage

*Dr. Caroline Colijn, Professor, Department of Mathematics, SFU*

Bias in AI: What is It, Types and Examples, and Tools to Fix It

*Dr. Apurva Narayan, Assistant Professor, Department of Computer Science & School of Engineering, UBC Okanagan*

3:15PM

## **Session 4: Building a Learning Health System: How has COVID-19 moved us forward?**

Multi-Omics and Medical Imaging (MOMI) Platform: Embracing Complexity

*Dr. Alan Rabinowitz, Co-Founder & Chief Medical Officer, PHEMI*

Machine Learning and AI for Causal Inference from Healthcare Data

*Dr. Ehsan Karim, Scientist & Biostatistician, Centre for Health Evaluation and Outcome Sciences*

# LIVE ZOOM SESSION

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## **Session 4 cont'd: Building a Learning Health System: How has COVID-19 moved us forward?**

Success Aside: Where Did Our Health Research System Fall Short and What Have We Learned About How to Fix It?

*Dr. David Patrick, Professor, School of Population and Public Health, UBC*

Insight from Digital Patient Voices Using a Text Messaging Platform to Support the COVID-19 Pandemic in Rwanda and Canada

*Dr. Richard Lester, Co-Founder & Director, WelTel International*

4:15 PM      Wrap Up

4:25 PM      Closing Remarks

4:30 PM      Session ends

*The views, information, and opinions expressed during Data Science and Health 2021 are solely those of the speakers and do not necessarily represent those of the DASH Cluster.*

# CANVAS CURRICULUM

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## WELCOME + PERSPECTIVES

*President Santa Ono*

## DATA SCIENCE: WHAT IS IT?

Basics of Data Science

*Dr. Raymond Ng, Director, Data Science Institute, UBC*

*Dr. Ehsan Karim, Professor & Data Scientist, School of Population and Public Health, UBC*

## DATA SCIENCE: HOW DO YOU DO IT?

Basics of Statistics

Basics of Programming

Algorithms and Data Structures

Accessing Computing Resources

*Dr. Tiffany Timbers, Professor, Master of Data Science, UBC*

*Dr. Mike Gelbart, Professor, Master of Data Science, UBC*

# CANVAS CURRICULUM

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## DATA SCIENCE: HOW DO YOU SPEAK THE LANGUAGE?

Presentation, Interpretation, and Communication of Data Science Findings

*Dr. Firas Moosvi, Professor, Master of Data Science, UBC*

## DATA SCIENCE: HOW DO YOU USE IT IN HEALTH RESEARCH?

Applications in Cognition

*Dr. Thalia Field, Division of Neurology, Department of Medicine, UBC*

Artificial Intelligence in Echocardiography

*Dr. Teresa Tsang, Division of Cardiology, Department of Medicine, UBC*

MS, MRI, and Deep Learning

*Dr. Roger Tam, Department of Radiology, UBC*

Emergency Medicine and Digital Health

*Dr. Kendall Ho, Department of Emergency Medicine, UBC*

Applications in Personalized Oncogenomics

*Dr. Marco Marra, Department of Medical Genetics, UBC*



# CANVAS CURRICULUM

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## DATA SCIENCE IN HEALTH RESEARCH AND INNOVATION

BC Digital Supercluster: Funding, Partnership, Innovation

*Dr. Evgueni Loukipoudis, Chief Technology Officer, Digital Technology Supercluster*

Digital Innovation Science

*Dr. Tibor van Rooij, Lead, Digital Health Research Initiative, BC Children's Hospital Research Institute*

WelTel: Case Study in Innovation

*Dr. Richard Lester, Co-Founder & Director, WelTel International*

MetaOptima: Case Study in Innovation

*Dr. Maryam Sadeghi, Co-Founder & CEO, MetaOptima Technology Inc.*

# CANVAS CURRICULUM

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## DATA SCIENCE IN HEALTH CARE MANAGEMENT AND DELIVERY

PopData BC: Leveraging Administrative Data for Health Research

*Dr. Kim McGrail, Scientific Director, PopData BC & Health Data Research Network Canada*

Federated Learning: Privacy in the Era of Big Data and Artificial Intelligence

*Dr. Aline Talhouk, Director, Data Science & Informatics, OVCARE*

The Role of Data Analytics in Health Care: Perspectives and Future Directions

*Dr. Diane Gutiw, Vice President, Consulting, CGI*

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# WORKSHOP SERIES

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## **Engineering Perspective**

November 24, 2021 | 4:00 - 5:00 PM

This workshop covers the basics of AI, its potentials and limitations to address clinical problems, and what is required to collaborate on an AI project.

## **Clinical Perspective**

January 2022 (TBD)

Participants will share their clinical challenges and get insight on potential data science solutions from engineers specialized in health applications.

## **Monthly Workshops**

January - June 2022 (TBD)

Monthly meetings with clinician and engineer mentors and peers to enable knowledge sharing and build collaborative links between disciplines.

# THANK-YOU

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