



University
of Victoria

School of Health Information Science

Seminar Series



Dr. Toni Mitovski Presents:
**Predicting 30-day Hospital Readmissions
for Patients Diagnosed with Mental Health
or Substance Use Conditions: Logistic
Regression vs. Machine Learning Approach**

Wednesday, March 9th, 2022

11:00 am – 12:00 pm Pacific

Online via [Zoom](#)

Abstract:

In Canada, readmissions to hospitals within 30 days of discharge cost an estimated \$2.1 billion per year. Additionally, the rate of readmissions reflects the overall quality of the health care system. Between April 1, 2015 and March 31, 2020, British Columbia's readmission rate (within 30 days past hospital discharge), for patients diagnosed with mental health or substance use conditions, was 13.9 %, higher than the national average of 12.8 %. Although not all readmissions are preventable, these events could be reduced through targeted interventions.

In this study we integrated five healthcare datasets and applied a supervised machine learning (ML) algorithm to predict the risk of hospital readmission within 30 days of discharge for patients diagnosed with mental health or substance use conditions. We then compared the performance of the ML algorithm with the performance of a logistic regression model and identified the most important predictive factors that led to hospital readmission.

Dr. Mitovski graduated with MSc and PhD in Physics from Dalhousie University, Halifax, NS, Canada. After graduation, he worked as postdoctoral fellow at the University of California, San Diego and then at the Environment and Climate Change Canada in Toronto. As postdoctoral fellow, Dr. Mitovski worked on improving the simulation of cloud processes in the American and Canadian Climate Models. During the time at Environment and Climate Change Canada, he also worked on implementing novel model algorithms for data analysis and forecasting, some of these algorithms include, random forests, neural networks, and sequential models. For the past 3 years, Dr. Mitovski works as an Economist/Researcher at the Ministry of Health in Victoria BC.

Join LIVE online: <https://uvic.zoom.us/j/86014433976?pwd=NG5wTGJqcXNhOWpycFd2TDhTb1lwUT09>

Meeting ID: 860 1443 3976

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