# Department of Computer Science

## St. Francis Xavier University

## Presents

# Data-Driven Quantitative Analysis on Strength Training Programs and the Discovery of New Training Methods for High Performance Athletes with Artificial Intelligence

by

Mbongeni Ndlovu
St. Francis Xavier University
M.Sc. Thesis Proposal Presentation
Feb 17, 2022 11:15 AM Halifax
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Training methods for athletes need to evolve, the competitive environment in sports is always changing. The current methods we employ today have not changed very much in the last 50 years and were not designed for the competitive environments we see today in sport and often leads to athletes either getting injured or overtrained. The lack of standard physical exercise data repositories which can fully explain all properties found in any given physical has also crippled the sports science community in getting computers to search for new training methods which are better, than the ones we employ today.

The goal of this project is to present a gold standard data repository that will house all of the properties for each exercise (biomechanics characteristics, exercise prescription elements, physiological effects, general information, associated injuries, and relationships with other physical exercises). The repository will give specialists like coaches and therapists access to more information regrading their training programs and will also be used to build machine learning algorithms which are capable of understanding everything a physical exercise has to offer and search for better training methods than the already existing ones.