MATH COLLOQUIUM SERIES

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QUIVER REPRESENTATIONS IN NEURAL NETWORK AND TOPOLOGICAL DATA ANALYSIS

Neural networks, consisting of interconnected layers of neurons, have found widespread applications in various domains such as image recognition, stock market prediction, and speech recognition. However, understanding the structure and characteristics of neural networks can be challenging. In this talk, we will explore how quiver representations offer a valuable framework for describing neural networks.

Topological data analysis (TDA) is a rapidly evolving field that employs topological methods to analyze complex datasets. Its objective is to reveal the underlying structure of data by identifying topological features such as connected components and voids. Quiver representations have emerged as a promising approach within TDA, leveraging directed graphs to encode information about a system. Their effectiveness in representing topological structures, including persistence diagrams, has led to their growing popularity.

This talk will provide an overview of quiver representations in the context of topological data analysis. By understanding the role and significance of quiver representations, we can enhance our understanding of neural networks and apply this knowledge to various domains where these networks are utilized.

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**Wednesday, 1 August 2023
4:00 – 5:00 pm (Malaysia)
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