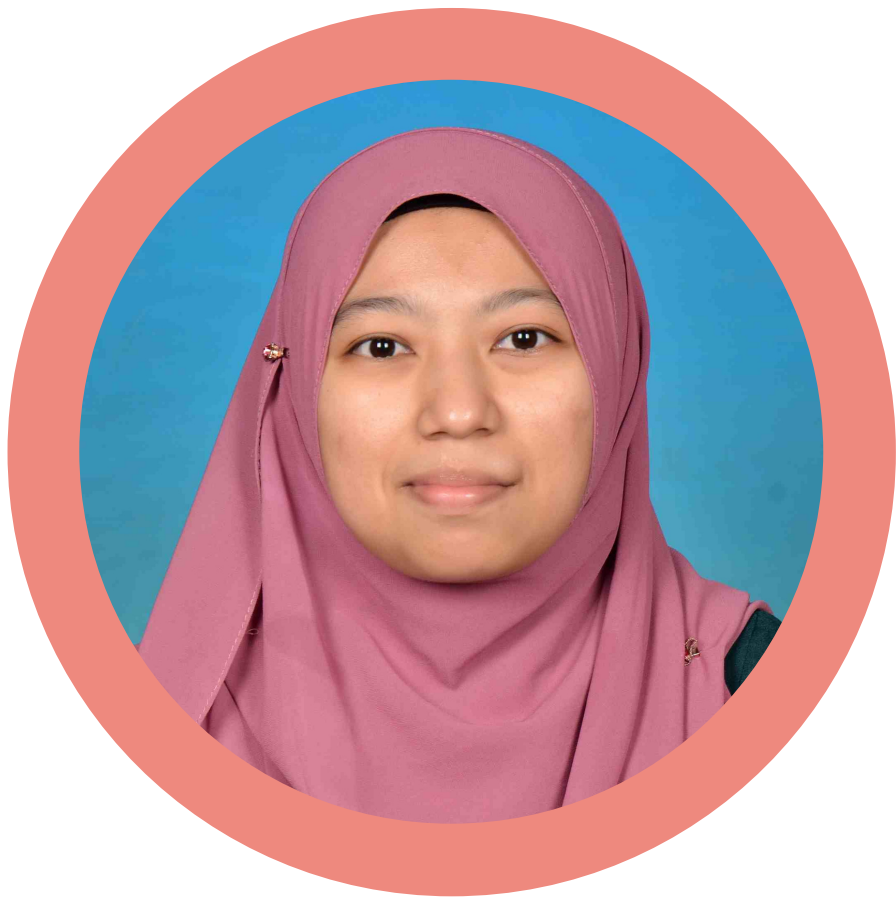## TOPOLOGICAL DATA ANALYSIS (TDA) IN ANALYSING PM10 TIME SERIES DURING HAZE EPISODES
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Background. Nur Fariha Syaqina binti Mohd Zulkepli joined School of Mathematical Sciences, Universiti Sains Malaysia as a lecturer in November 2021. She received her BSc (hons) (Mathematics) from Universiti Sains Malaysia in 2014 and MSc (Mathematics) from Universiti Kebangsaan Malaysia in 2016. Recently, she obtained her PhD from Universiti Kebangsaan Malaysia in 2021. Her PhD research focused on topological data analysis (TDA) in analyzing the PM10 time series, which is the major pollutant during haze episodes. As for future research, she is interested to explore more on environmental data, in particular, air quality data involving other parameters such as O3, CO, and SO2 by using TDA tools.

Abstract. Topological data analysis (TDA) is a branch of applied mathematics and is used to study the shape of datasets by extracting their qualitative features. The main tool in TDA is known as persistent homology and the qualitative features in question encompass topological features like connected components, holes, voids and more. These particular features of the dataset are captured accordingly as specific parameters change. The basic features' elements of interest would be their birth points, death points and lifetime of the features. Significant differences in terms of qualitative features can be seen through the behaviour of topological features. This qualitative approach is used to analyse the PM10 time series, the major pollutant during haze episodes in Malaysia. In this session, a brief introduction of this technique and several findings related to the application persistent homology on PM10 time series will be presented.

Date: 23 November 2021 (Tuesday)
Time: 10:00-11:00 AM (Malaysia time)
Link: https://bit.ly/3DwAFp8 (Via Webex)

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