



**INFORMATICS
INSTITUTE OF
TECHNOLOGY**

INFORMATICS INSTITUTE OF TECHNOLOGY

In Collaboration with

UNIVERSITY OF WESTMINSTER

Forecasting CO₂ emissions based on time series.

A dissertation by

Mr. M. H. Nivin Sajanaka Hennadige

2019452/ w1761354

Supervised by

Ms. Theja Perera

Submitted in partial fulfilment of the requirements for the BEng (Hons) Software degree at the University of Westminster.

May 2023

ABSTRACT

The primary goal of this study is to forecast CO₂ emissions using time series data. The objective of this research is to create a reliable prediction model that can help decision-makers make educated judgments about reducing CO₂ emissions. Previous studies have shown that the accuracy of CO₂ emissions prediction models might be increased by utilizing other variables including economic and population growth, technological breakthroughs, and governmental activities.

To forecast future CO₂ emissions based on time series data, the suggested prediction model will make use of information on past CO₂ emissions as well as other pertinent factors. By comparing the expected findings with actual CO₂ emissions data, the study will assess the accuracy of the model. Additionally, the initiative will examine how excessive CO₂ emissions affect the ecosystem, global food security, and human health.

People and the government are working together to find solutions to climate change, which has been identified as a serious problem worldwide, in order to prevent suffering for our children and grandchildren. 80% of all Greenhouse gas (GHG) emissions come from Carbon dioxide (CO₂), a significant GHG gas. Therefore, lowering CO₂ emissions will contribute to lowering the annual GHG emissions produced by each and every country.

Keywords : LSTM, Carbon dioxide CO₂, Greenhouse gas, Time Series Forecasting, Machine Learning