

# MSC PROJECT PROPOSAL

IMPERIAL COLLEGE LONDON

COMPUTATIONAL METHODS IN ECOLOGY AND EVOLUTION

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## Placing UK Research within the International STEM Funding Landscape

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## 1 Introduction

The funding strategy for STEM discipline differs among countries, leading to differences in their development and contribution to the world. Understanding the allocation of different countries' funding could be beneficial to optimising resources. As the countries with the highest GDP, we analyse the data of the following countries: Australia, Canada, European Union (EU), India, New Zealand, the United Kingdom (UK), the United States of America (USA) and China. Machine learning will be applied for the data analysis.

## 2 Methodology and Ideas

Fine-scale data will be used for our project. Mallet will be applied for the Machine Learning procedure. As the data for the other countries have already been collected, we will focus mainly on the task of collecting data from China. This could be retrieved from the public resources of China, such as the China Statistical Yearbook, the website of National Data, etc. We will apply pre-processing to the raw data, and the clean fine-scale data will be used for the analysis. HPC could be employed if the data is too big; the results from different countries will be compared for the final analysis.

We will look into the following questions:

- How the research topics change in individual countries over decades;
- Is there any bias in the funding of research;
- The differences in the funding priorities of each country;
- Is there any impact of the current funding strategy on the development of the countries?

### 3 Project Feasibility

The timeline for this project is displayed as follows:

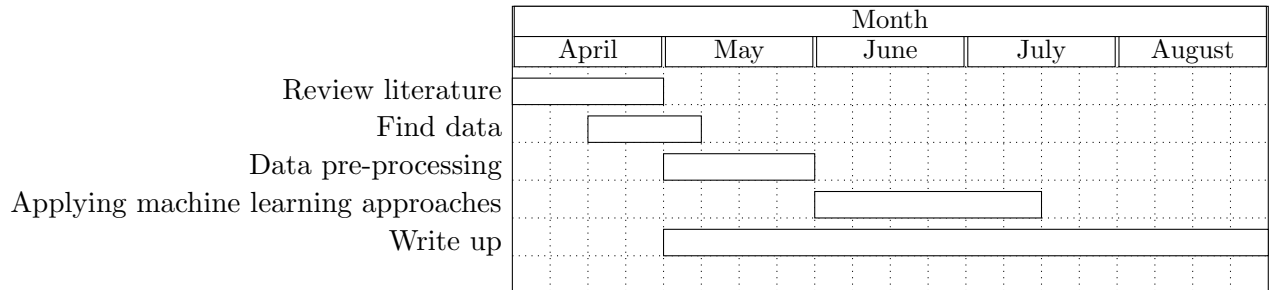


Figure 1: Gantt Chart

The writing will be covered throughout most of the time. The aim is to complete the first write-up by early August, and then modify it for the rest of the weeks.