

**Problem Chosen**

**C**

**2026  
MCM/ICM  
Summary Sheet**

**Team Control Number**

**111111**

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# Your Paper Title

## Summary

**Keywords:**



## 1 Introduction

- 1.1 Problem Background
- 1.2 Clarifications and Restatements
- 1.3 Our Work

## 2 Preparation for Modeling

- 2.1 Model Assumptions
- 2.2 Notations
- 2.3 Data Preprocessing

## 3 Problem 1: Medal Prediction

- 3.1 Medal Ranking
  - 3.1.1 PCA: Reducing Dimensions
  - 3.1.2 LSTM: Trends Based on Time
  - 3.1.3 XGBoost-Bootstrap Modeling
  - 3.1.4 Results Display
- 3.2 Breaking the Zero
- 3.3 Olympic Events and Medal Counts
  - 3.3.1 Spearman: A Mathematical Analysis
  - 3.3.2 SHAP: Revealing Correlations and Importance
  - 3.3.3 Analysis of Relationships and Importance

## 4 Problem 2: The "Great Coach" Effect

- 4.1 DID Modeling
- 4.2 Hypothesis Testing and Contribution Coefficient Analysis

## 5 Problem 3: New Insights

- 5.1 Dynamics of Medal Counts in Space and Time
  - 5.1.1 Insight
  - 5.1.2 Decision Support
- 5.2 Correlation Between Olympic Medal Counts and Specific Events
  - 5.2.1 Insight
  - 5.2.2 Decision Support