Problem Chosen	2025 MCM/ICM Summary Sheet	Team Control Number
B		9555

Submersible Rescue

Summary

This is a summary.

Keywords: AHP; SAR(submersible search and rescue); Monte Carlo sampling; Runge-Kuta; Sensitivity Analysis.

Contents

1 Introduction

According to historical research, the reservoir was first built around 600 BC. With the development of science and technology, the function of reservoirs has gradually expanded to irrigating farmland, supplying domestic water, preventing floods and developing hydropower to help maintain people's normal life.

1.1 Background

1.2 Problem Restatement and Analysis

1.3 Overview of our work

2 Assumption

3 List of Notaion

This is List of Notaion.

Table 1: Symbols and explanations

symbol	explanation
$Score_{A/B}(i)$	The total score won by player A/B at time step i
$\theta_{A/B}$	The ability of player A/B to maintain “momentum"
$M_A(i)$	The relative “momentum" of A at the time step i
J	Loss function for the multiple regression model
α	Multiple regression weights for each feature

4 Model I: Randomized roaming models and equipment selection

5 Model II: Search and rescue model

6 Extension of the model

7 Sensitivity Analysis

8 Strengths and Weaknesses

8.1 Strengths

8.2 Weaknesses

Appendices

Memorandum

To: MCM office

From: MCM Team 9555

Subject: MCM

Date: January 20, 2025

This is a memorandum.

Appendix A First appendix

Here are simulation programmes we used in our model as follow.

C++ source code:

```
#include <iostream>

int main (int argc, char *argv[]) {
    std::cout << "hello" << std::endl;
    return 0;
}
```

Appendix B Second appendix

Python source code:

```
print("Hello World!")
```