

# **ChronoSwarm: A Multi-Swarm Particle Swarm Optimization Solution for the University Course Timetabling Problem**

Gian Myrl D. Renomeron  
CMSC 199.2: Research in Computer Science II  
University of the Philippines Tacloban College  
Tacloban City, Leyte, Philippines  
gdrenomeron@up.edu.ph

## **I. Introduction**

- A. Background of the Study**
  - i. University Course Timetabling Problem (UCTP)
  - ii. Swarm Intelligence
- B. Basic Definitions and Notations**
- C. Problem Statement**
- D. Aim of Work**
- E. Theoretical and Conceptual Framework**

## **II. Review of Related Literature**

- A. Approaches in UCTP**
  - i. Non Swarm Approach
  - ii. Single Swarm Approach
- B. Multi Swarm Approach**

## **III. Methodology**

- A. Data**
- B. Data Processing**
- C. MSPSO For UCTP**
  - i. Initialization Phase
  - ii. Optimization Phase
- D. Evaluation Details of the MSPSO Solver**
- E. Deployment Details**

## **IV. Results and Discussion**

- A. Dataset**
- B. Experiment Configurations**
- C. Results**
- D. Observation**

## **V. Conclusions and Recommendations**