Preparation of Papers for IEEE Sponsored Conferences & Symposia

Albert Author[1] and Bernard D. Researcher[2]

***Abstract*— This electronic document is a live template.**

I. INTRODUCTION

This template provides authors with most of the formatting specifications needed for preparing electronic versions of their papers.

II. OBJECTIVE

This study examined how the whole movements efficieny would change as the proportion of agents whose movement algorithms are different.

III. METHOD

A. Simulation Environment

The simulation environment was set as a 500 by 500 pixel virtual space, where the simulation agents could move in two dimensions. (Figure 1). The size of each agent was defiend as the radius of 5 pixel circle. Therefore, when more than two agents approached each other at the distance of closer than 5 pixel, those agents' collision count was added. In one trial, all agents moved 500 steps. All agnets' initial positions and initial velocities were randomized each time the simulation started.

B. Avoidance Algorithms

Based on the collision avoidance algorithms, agents were classified into two types.

For one of types, simple avoidance agent, their avoindace vectors were generated to the opposite direction of the other agents which approached within a 50 pixel. The size of avoidance vectors were fixed as either 1, 2, 3, 4, or 5 pixel in one trial. For another type of agent, which we call as the dynamic avoidance agent, their avoidance vector were generated based on the braking index. When an agent approch to another agent within 50 pixel, the braking rate was calculated based on their relative positions and velocities, and their avoidance vectors were determined from 1 to 3 pixel. This way of avoidance enabled agents to avoid other agents considering how much potential danger they are facing; in safer situations, agents avoid slightly, on the contrary, in more dangerous situation, agents avoid widely not to collide each other.

C. Metrics of movement efficiency

The movement efficiency was measured from two perspectives: completion times and number of collisions. Completion times was calculated as the mean steps for each agent took to reach their goals. Number of collisions is the mean of how many times each agent collided with other agents. These two metrics were expected to be inverse-proportional to each other.

D. Change of the Proportions of Dynamic Agents

To verify how the change of proportions of dynamic avoidance agents affects the whole movement efficiency, we performed simulations varying the proportions of dynamic avoidance agnets in the whole simulation environment. The variations of proportions were a range of 0 to 1. Therefore, when the proportion was 0, all agents in the environment move based on the simple avoidance algorithm, and when the proportion was 1, all agents in the environment move based on the dynamic aovidance algorithm.

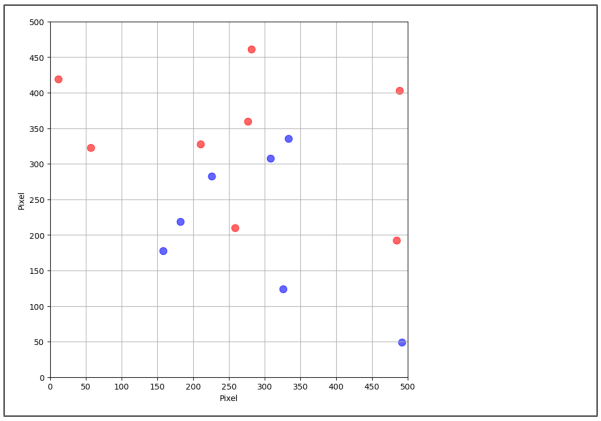

Fig. 1. Overview of the simulation environment

IV. RESULTS

A. Change of Movement Efficiency

B. Abbreviations and Acronyms

Define abbreviations and acronyms the first time they are used in the text, even after they have been defined in the abstract.

C. Units

- Use either SI (MKS) or CGS as primary units.

D. Equations

The equations are an exception to the prescribed specifications of this template.

$$z\alpha + \beta = \chi \tag{1}$$

Note that the equation is centered using a center tab stop.

E. Some Common Mistakes

- The word data is plural, not singular.

V. DISCUSSION

Use this sample document as your LaTeX source file to create your document.

A. *Figures and Tables*

Positioning Figures and Tables.

TABLE I
AN EXAMPLE OF A TABLE

One	Two
Three	Four

We suggest that you use a text box to insert a graphic because, in an document, this method is somewhat more stable than directly inserting a picture.

Fig. 2. Inductance of oscillation winding on amorphous magnetic core versus DC bias magnetic field

Figure Labels: Use 8 point Times New Roman for Figure labels.

VI. CONCLUSIONS

A conclusion section is not required. Although a conclusion may review the main points of the paper, do not replicate the abstract as the conclusion. A conclusion might elaborate on the importance of the work or suggest applications and extensions.

APPENDIX

Appendixes should appear before the acknowledgment.

ACKNOWLEDGMENT

The preferred spelling of the word on the first page.

REFERENCES

[1] G. O. Young, Synthetic structure of industrial plastics (Book style with paper title and editor), in Plastics, 2nd ed. vol. 3, J. Peters, Ed. New York: McGraw-Hill, 1964, pp. 1564.