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CSC630- Interactive Computer Graphic  
Assignment 3

# Spaceship

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## 1 Introduction

In this assignment I implement a motion simulator for a pair of objects (space ships) flying amidst a collection of colored spherical objects (clouds).

The ships are controlled through input from the keyboard. Each ship is drawn as a union of a vertical torus and a horizontal torus. Torus is a geometric shape that resembles a donut. Each ship is associated with a translational velocity (in distance/unittime) and a rotational velocity (in degrees/unittime). The viewer is positioned in one of these space ships. By clicking left mouse button, the program switches the viewpoint from one space ship to the other (i.e. you beam yourself to the other ship). When sitting in one space ship, you can observe the other ship as it moves. In addition to the ships, there are a collection of spherical clouds and a large square patch which forms the ground over which ships are flying.

## 2 Instruction

- Left mouse button: switch between two space ships.
- Middle mouse button: pause and resume the game.
- Right mouse button: move one step and output all information to standard output.
- 'a': speed up the heading velocity of current ship.
- 's': slow down the heading velocity of current ship.
- 'l': speed up the spinning velocity of current ship.
- 'k': slow down the spinning velocity of current ship.

### **3 Files**

1. main.cc: main file of the program
2. ship.h: definition of class Ship.
3. ship.cc: implementation of class Ship.
4. Makefile: makefile for GNU make.

### **4 Features**

I implement all the features that required.

### **5 Bugs**

There's no bug spotted right now. If there's one you find, please contact me.