

ACCS Winter School – Afternoon hands-on session, 6-July-05

Startup

- Login with your allocated Student a/c into Linux
- Install latest Files according to README file in work directory:

Exercises

1. Familiarisation

- Run Simulator by:
 - Starting a shell window (ask a tutor if you have trouble)
 - type `cd controller3 <Enter>`
 - type `./sim scen1<Enter>`
- Play with sliders and replay buttons on 2D and 3D Visualiser
- Repeat for each of scen1 to scen7
- Explore the data.q1 file with a text editor and familiarise yourself with parameters. For example, note the following parameters:
 - `controller_percept_distance(185200)`. % 185200m = 100nm
 - `horizontal_separation_violation_distance(9260)`. % 9260 = 5nm
 - `scanning_time(2)`. % Time it takes the operator to scan the sector looking for conflicts
 - `no_action_required_distance(18520)`. % DOMS at which controller considers a pair not of concern – 10nm
 - The various weights constants
 - Weight calculation functions

(45 minutes)

2. Modification of Parameters

- Reduce and increase “`time_out_to_monitor_aircraft(X)`” and observe results, e.g. does incidence of separation violation increase?
- Change “`maximum_separation_for_classification(148160)`” to a smaller value, e.g. 40nm (in metres) and observe.
- Select other interesting parameters (with Tutor's help if required) to change and try out different values.

(45 minutes or until afternoon tea time, whichever comes first).

3. Analysis of results of Monte Carlo Simulation

- After a demonstration of the use of a spreadsheet method to analyse output statistics, calculate the average number of separation violations and other measures as a function of time, and plot.

(30 Minutes)

4. Modification of Weight Functions

- Modify `classify_weight_near_hsep`. Try using :
“.....Weight is $(\text{Const} * \text{Mem}) / \sqrt{\text{Ndist}}$.”
- You may need to modify Const and Mem to preserve relative weight.
- Tricky Problem: Find the right combination of parameters (with tutor's help) to reduce the probability of selection of the Conflict Resolution activity to something close to the probability of choosing the classification activity.

(60 Minutes)