APSC 200 P2: Week 2 Outline

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1 Objectives

The main objectives of this week are listed below.

1. Select an algorithm to apply to your topic and familiarize yourselves with the relevant mathematics
2. Identify areas of your simulation where system behaviour will vary for different designs
3. Identify the parameters that correspond to the variations in design alternatives. Begin to derive/evaluate parameters for all alternatives *with justification!*
4. Complete Proposal Report. This will include, but is not limited to (refer to marking rubric for detailed breakdown):
   (a) Background Research
   (b) Problem Definition
   (c) Key Stakeholders
   (d) Design Criteria
   (e) Parameter Derivation

1.1 Formation Algorithm

1. Derive different adjacency matrices that you want to test in the simulation. These could be various communication methods, various number of agents in the system or other parameters.
2. Conduct research in application area to establish ranges for other simulation parameters

1.2 Flocking Algorithm

1. Research for suitable ranges for K, σ and β for the adjacency matrix based on your application.
2. Conduct research into application area to establish ranges for other simulation parameters.

1.3 Opinion Algorithm

1. Research for suitable ranges of communication for each agent for nodes to be used in the adjacency matrix based on your application.
2. Conduct research into application area to establish ranges for other simulation parameters.

1.4 Lloyd's Algorithm

1. Determine arena dimensions
2. Determine radii of communication and observation for each different design
3. Begin research into economic analysis, density metric, movement behaviour, energy metric, etc.

2 Lectures and Workshops

There is no lecture scheduled for this week. There are two workshops scheduled this week. The workshop periods to act as work periods and opportunities to get answers to project related questions.

3 Deliverables

This weeks deliverables are:

1. Proposal Report