

Artificial Intelligence
464/664
Assignment #3

General Directions for this Assignment

00. We're using MATLAB for this assignment,
01. Read the entire document before beginning your work,
02. Check submission deadline on Gradescope,
03. Rename the file to Last_First_assignment_3,
04. Submit swarm.m (as .m, not PDF) using Gradescope, and
05. Do not submit any other files.

Download the codebase robotarium.zip from Canvas > Modules.

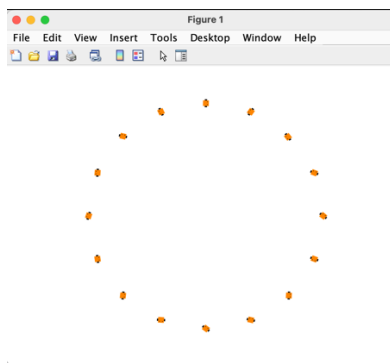
To start, run the `robotarium/init.m` file.

```
Command Window
New to MATLAB? See resources for Getting Started.
>> run('/Users/haquema1/Documents/robotarium/init.m')
Initializing MATLAB simulator
MATLAB simulator initialized successfully!
fx >> |
```

To check your MATLAB installation and Robotarium connection, run the `robotarium/examples/formation_control/make_a_circle.m` example provided by the Robotarium (<https://www.robotarium.gatech.edu/>).

```
Command Window
New to MATLAB? See resources for Getting Started.
>> run('/Users/haquema1/Documents/robotarium/init.m')
Initializing MATLAB simulator
MATLAB simulator initialized successfully!
>> run('/Users/haquema1/Documents/robotarium/examples/formation_control/make_a_circle.m')
fx >>
```

If everything is installed correctly, you'll see the robots make a circle, as shown below:



The portion of the code related to Assignment 3 lives in `robotarium/examples/AI/` and you'll run `robotarium/examples/AI/Assignment_3.m` (this is your “main”).

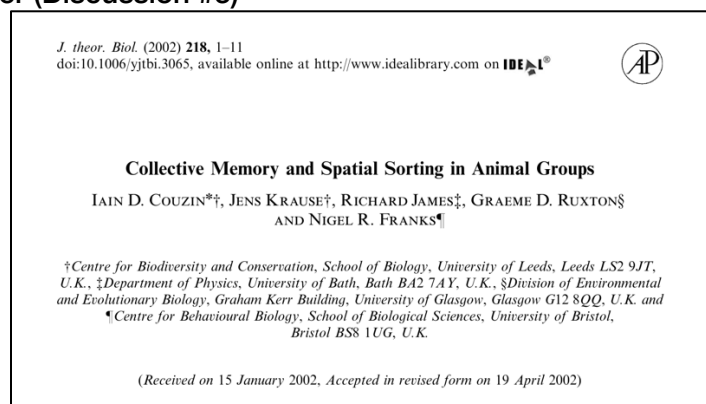
```
Command Window
New to MATLAB? See resources for Getting Started.

>> run('/Users/haquema1/Documents/robotarium/init.m')
Initializing MATLAB simulator
MATLAB simulator initialized successfully!
>> run('/Users/haquema1/Documents/robotarium/examples/formation_control/make_a_circle.m')
>> run('/Users/haquema1/Documents/robotarium/examples/AI/assignment_3.m')
fx >>
```

The codebase contains calls to functions outside the scope of this semester's version of the assignment. We'll discuss those topics in class, so having the code allows you to follow along on Wednesday (04-Oct). Complete and submit `swarm.m` using Gradescope. No other files should be submitted. Agents should swarm using repulsion (30 Points), orientation (40 Points), and attraction (30 Points) rules.

Available resources are below:

- 1) Lecture slides on Canvas
- 2) Iain Couzin paper (Discussion #3)



- 3) Processing example available: <https://processing.org/examples/flocking.html>

