

# Reading and Homework

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Read and then write a 1-page summary of your experience with the readings below and share it with me ([karl.yerkes@gmail.com](mailto:karl.yerkes@gmail.com)) as a Google Doc.

- *Vehicles - Experiments in Synthetic Psychology* (1986 Braitenberg)
- *Perceptually-based Color Assignment* (2014 Kim)
- *The Nature of Code - Chapter 4 - Particle Systems* (2012 Shiffman)
- *The Nature of Code - Chapter 6 - Autonomous Agents* (2012 Shiffman)

The homework has 3 parts:

1. Implement collisions in the gravitation-based system we developed in class. Find the started code [here](#). Your collision implementation should use spring forces (see [Hook's law](#)) to make the objects bounce off of one another. Place your solution in the file `gravity/gravity.cpp` in your github repository. The naming of your files and folders is **strict**. [Letter case](#) matters. Each character in the path I just described matters. I should be able to do these steps:

```
cd path/to/AlloSystem
git clone http://github.com/your.handle/mat201b your.handle
./run.sh your.handle/gravity/gravity.cpp
```

2. Implement a "flocking" agent system as described in Chapter 6 of *The Nature of Code*; DO NOT try to use the Processing code shown in the chapter. Instead, find equivalent methods within AlloSystem. You might need `a1::Pose`, `dot`, `cross`, `a1::Vec`, `a1::Quat`, `faceToward`, `nudgeToward`, and many others. Your system will be in 3D while the system described in the chapter is 2D. Place your solution in the file `agents/agents.cpp` in your github repo. Feel free to adapt the starter code for part 1.
3. Add sound to each of the simulations above. This may be sound clips that are triggered on collisions or synthesized sonification.

Mark your code with comments at the top that show your name, the name of this class, the approximate date, your email, and the license you're using. **Push your solutions to github with the commit message *MAT 201B Agent Systems*.**

This work is due by **2018-02-07 1700** or next Wednesday by 5pm.