

COSC150: Scientific Investigations Using Computation
A Gallery of N-Body Models
Spring 2023

IN CLASS:

1. **GalaxSee:** Movement caused by sum of pair-wise FORCES

Javascript (right-click(PC) or cntl-click (mac) to open in new tab):
<http://shodor.org/~aweeden/galaxseeJS/>

2. **SimSurface:** Configuration evolves to minimize total system ENERGY

Javascript (right-click(PC) or cntl-click (mac) to open in new tab):
<http://shodor.org/~aweeden/simsurfaceJS/>

3. **Game of Life:** Configuration evolves in response to ENVIRONMENT.

EXCEL: <http://shodor.org/talks/ncsi/excel/GameOfLife2a.xls>

ASSIGNMENT 4: Due before class 11 April 2023

For each of the following, write a brief story that explains how the system evolves. First, *identify the parameters for each model*. Explore the parameter space for each model (size of the model, probabilities, durations, etc). What are the Nouns, Adjectives, Verbs, Adverbs.

Using the ***Expectation, Observation, Reflection*** framework, write 1-2 paragraphs per model about what have you learned about each system? Use screen shots and report specific parameters to support your conclusions.

Models in Interactivate (right-click(PC) or cntl-click (mac) to open in new tab):

<http://www.shodor.org/interactivate/activities/LifeLite/>

<http://www.shodor.org/interactivate/activities/Fire/>

<http://www.shodor.org/interactivate/activities/RabbitsAndWolves/>

(Include: for what parameters can you keep all three species in co-existence the longest?)

<http://www.shodor.org/interactivate/activities/SpreadOfDisease/>

(Include: what is effect of loss of immunity?)

Submit PDF of your write-up by class on Tuesday 11 April 2023.