Output Data Analysis

3-23-2011

Opening Discussion

- Do you have any questions about anything?

- Suggested topics

    - Particle simulations

    - Cloud/light scattering

    - Molecular pathways

    - Evolution processes

    - Data structures for different problems

    - Radiation movement in air/groundwater

    - Wave/tsunami modeling

Data Analysis

- Having a simulation that works is pretty much useless unless you do a proper analysis of the results.

- Your book stresses that for stochastic simulations, doing multiple simulation runs is critical. You have to do multiple runs and characterize the collection of outputs for these systems.

- There are many ways to analyze data depending on the type of data.

Initial Conditions and Transient States

- Many simulations go through a transient state that is determined by the initial conditions before settling on the equilibrium behavior of the system.

- Normally you want to ignore the transient state and do data analysis on the steady state behavior.

- Let's consider examples of this in different domains.

Visualization

- One of the areas that the text doesn't focus on at all, but which I have found to be quite useful is visualization.

- While numbers have certain value, our brains are very good at processing images. We can often pick out information from from images that we wouldn't pick out with just the numbers.

Doing a Visualization

- I want to spend a little time having us take some data from a simulation and decide how to look at it.

Minute Essay

- What tools do you normally use for plotting or looking at data in a graphical way?