CSE6344 – Homework #2 (Due: December 10th, 2008 before 3:00pm)

Submit all your source files (and scripts if you have any) and your pdf document in a zip or gzip archive to Hyun J. "Stella" Choe <choe@uta.edu>. Please do not submit object or executable files (no core files either).

Create a DE simulation tool to simulate a *p*-persistent mobile CSMA radio network. The simulation studies will concentrate on the average access delay (the time between the generation of a packet until it is passed to the medium link layer), and the normalized number of collisions (total number of collisions divided by (capacity*simulation time)). Assume load is generated according to a Poisson point process. Make enough experiments for each simulation run so that you can claim a 95% confidence that your error is less than 5% (make at least 15 runs with different seeds for each setup). Assume that each node has a transmission range of exactly r meters. Do not forget to show metrics on your axes.

Study: Use the simulator that you have created for study#2 in your homework#1 (ad hoc networks as well as the capability of dealing with propagation delays) as the basis. Use the same parameters as for study#2 in your homework#1.

1.1. Show a 3D surface graph of the average MAC packet delay vs. load (similarly as before) and density (use a reasonable metric – e.g., average nodal degree).

1.2. Show a 3D surface graph of the normalized collision measure vs. load (similarly as before) and density.

1.3. Devise an algorithm to estimate p-value online. Repeat 1.1

1.4. Devise an algorithm to estimate p-value online. Repeat 1.2

Required Documentation (in publication style): The document you need to turn in should have 3 (4) sections:

- section 1: description of your simulator. (1 page)
- section 2: description of scenario 2, your assumptions, results, and discussion of results.
- (section 3: optional - any other resources used - references)