ASTR 288C

Homework 4

Due: 5 October 2009

1. Use SEXTRACTOR to create a graph of the number of source detections as a function of the detection threshold. Identify the detection threshold that gives a good balance between detecting as many faint sources as possible and discarding as many noise spikes as possible. Explain why you picked this value. *This is the work that you will do in this week's lab.*

2. Give the following data set

   {1, 1, 1, 1, 1, 2, 25}

   a. What is the mean?

   b. What is the standard deviation?

   c. Is the mean a reasonable estimate of the typical value of this data set?

   d. What is a reasonable estimate of the typical value of this data set? Why is this reasonable?

3. Given the following data set, how many points would be detected using a 3σ detection threshold?

   {1.0, 1.5, 1.3, 1.6, 1.2, 2.3 1.6, 3.0, 0.4, 0.9, 4.2}