

Computer Science 226

Assignment #3 (Winter 2006)

Due: 11:59pm on Friday, February 17, 2006

Written Assignment #3 is due Friday, February 17th, 23:59pm via Email to jcchuang@stanford.edu. No teaming.

The questions are designed to help you get started on your project. If your project involves estimating the state of a system, feel free to substitute your system in answering the following questions.

1. Suppose you have a system with states $x = (x_1, x_2, \dots, x_N)^T$. Suppose you have a state transition model $x' = \text{UPDATE}(x, u)$ and a measurement model $p = \text{SENSOR}(x, z)$ where x' = next state, u = control, and z = measurement. Describe three techniques for estimating/modeling the system. Provide a short pseudo code and discuss briefly the advantages and limitations of each technique.
2. Considering the three paradigms we covered in class: Particle Filters, Extended Kalman Filters, and Information Filters. Given an example of a situation that “breaks” each of the paradigms.