

Computer Science (/english/)

FACULTY OF ENGINEERING, LTH

Assignment 3: Probabilistic Reasoning over Time (HMMs)

Probabilistic reasoning over time - HMM: Robot localisation

This task is essentially corresponding to task 15.9 in the course book, with slightly more elaborated instructions for the sensor model.

In short

You are assumed to work with robot localisation based on a Hidden Markov Model. The robot's position in a grid is unknown, but there is a (noisy) sensor that reports the robot's position. You also know the sensor and motion models for the robot.

In detail

You'll find a zip-file containing a) the detailed instructions, b) another zip-file with a Java-based tool for visualisation of your transition model, your sensor model and your estimation, and c) some sort of user's guide for the tool [HERE](http://fileadmin.cs.lth.se/cs/Education/EDA132/Labs/HMM_Localisation.zip) (http://fileadmin.cs.lth.se/cs/Education/EDA132/Labs/HMM_Localisation.zip)!

Feel free to use other programming languages (C++, Matlab, Python are ok as well) or tools, but if you choose Java, please make use of the visualisation - it presumably helps me a lot to understand your implementation!

The **deadline** for this assignment is Friday, 3rd of March, by which you **MUST** file in your working solution to the assignment (i.e. testing of your implementation according to your guide of usage should be possible).

Important remark: Remember that the time frame allotted to this assignment is approximately three days of your work, so please don't overdo it: a decent program and report will suffice to get a pass.

If you decide to base your solution on someone else's code (e.g., some library found on the web), please mention it both in the code and in your report: it is a matter of academic honesty. Lund University is committed to fighting every case of dishonesty or plagiarism.

The report (PDF!!!) should be sent to tai@cs.lth.se as an attachment to a mail message with the following subject line:
Assignment 3 by username1 and username2,
where username is your user name in the student computer system, like ada09jam.

The resulting programs should remain in your directory until you have been notified of the result, e.g. on the notice board and/or web or by e-mail. You may expect that your report and implementation will be examined within two weeks. If your report or implementation is unsatisfactory you will be given one chance to make the corrections and then to hand it in within a week after you have been notified (on the notice board and/or web or by e-mail).

Please send any requests for clarification to Elin_Anna.Topp@cs.lth.se or visit her personally at her office - preferably on Tuesdays between 9:30 and 11:30. In case she is not there when you attempt to meet her at other times you should try to make an appointment by e-mail.