

EE5114 Continuous Assessment 2

Main steps	Constraints and additional requirements	Questions to be answered
<ul style="list-style-type: none"> Place all default MATLAB script (.m) files and data (.mat) files under the same folder. Read the default scripts and understand the overall structure of the FastSLAM codes. Fill in the missing codes in 'motion_estimation.m', 'slam_lidar_feat_extrn.m' and 'slam_lidar_split_merge.m' by searching for keywords 'Missing codes' in these .m files. Run 'motion_estimation.m' to observe motion prediction result and adjust your code if the result is not produced or not good. Motion prediction result will be used by 'slam.m', the FastSLAM main script, later. Fill in the missing codes in 'slam.m', 'slam_resample.m', 'slam_cnrn_kf.m' by searching for keywords 'Missing codes' in these .m files. Run 'slam.m' to observe SLAM result and adjust your code if the result is not produced or not good. Write a report to answer all questions in the 3rd column of this table. Provide clear explanations and relevant data plots and/or other evidence to support your answers. Submit both the report and MATLAB codes to Canvas, zip them to a single file named as 'EE5114_CA2_yourmatriculationnumber.zip' 	<ul style="list-style-type: none"> Except for the missing codes, other parts of the code have been verified to work correctly. Hence, do not change other parts of the code unless you have a very special and explainable reason. Codes <ul style="list-style-type: none"> Fully functional codes without run-time errors. Codes should be as clean and modular as possible, and with meaningful comments. Codes should produce all data plots or other evidence that have been used in your report. Report <ul style="list-style-type: none"> Cover page with report title, your name and matriculation number Main content fonts: Calibri, 11 Not more than 20 pages Deadline for submission: End of Week 10. Check Canvas student submission folder's setting. 	<ol style="list-style-type: none"> Please explain all your filled-in codes (6 parts in total) with a snapshot of those lines of code. List formulas you have used for that part of codes if applicable. Please explain what problem is line 11-40 in the original 'slam_lidar_split_merge.m' trying to solve? Why does the solution need to use if/else to consider two cases? Please explain what line 51-97 in 'motion_estimation.m' is trying to do? Please explain what 'slam_in_pi.m' function is trying to achieve. Where are the locations this function is called. Why are they necessary? In the last part of 'motion_estimation.m' (before plotting), what do you think is the advantage of constraining the change of x, y and theta?