

Post viva report

Appearance-based methods for object recognition and visual localisation from hand-held and wearable cameras (José Rivera Rubio)

Examiners: Professor Andrea Cavallaro and Dr Mengxing Tang

You will find below a list of recommended changes to the thesis based on the discussion during the viva voce examination.

1. There are a few repetitions of concepts across the thesis and the overall ‘story’ is sometimes fragmented. Remove the repetitions and improve the flow of the description as discussed during the viva.
2. Define all key terms in a table
3. Improve the quality of the Introduction chapter as discussed during the viva, including referencing to the state of the art
4. Use punctuation for all equations
5. Clearly define in the Introduction chapter your assumptions and the associated limitations of the modelling (intrinsic calibration, camera pose, occlusions, impact of the framerate, lack of tracking, motion blur)
6. Clearly state in the Introduction why estimating a 1-dimensional position in the path is more desirable than estimating the 6-dimensional position (location and pose) as related methods do
7. Several figures are inaccurate or contain insufficient information in the caption
 - a. Remove Fig. 1
 - b. Remove Fig. 3
 - c. Improve the captions of the figures so that they are self-contained.
8. Discuss why using a dimension of 4000 for the dictionary size is reasonable for the problem at hand
9. Discuss why using a dimension of 256 for the GMM is reasonable for the problem at hand
10. Clarify the meaning of the sentence on page 56: “Using visual information is towards the higher end . . .” (or remove that sentence)
11. Discuss why using a dimension of 2000 for the descriptors (HOG-3D) is reasonable for the problem at hand

12. Remove Sec. 4.8 as discussed during the viva
13. Remove the last sentence of Point 1 on page 97
14. Provide a reference to Lowe's work for the choice of the value of α (0.7)
15. Clearly summarise in the Conclusion chapter the limitations of your methods, based on the experimental validation
16. The formatting of the references should be improved and made uniform
17. References [54] and [55] are corresponding to the same paper
18. Reference [26]: two authors are missing
19. Important information is missing in several references [87], [77], [33], [144] (revise all references)
20. The thesis report would benefit from proofreading
21. Add and comment on the following reference

A. Giusti, J. Guzzi, D. Ciresan, F. Lin He, J. P. Rodriguez, F. Fontana, M. Faessler, C. Forster, J. Schmidhuber, G. A. Di Caro, D. Scaramuzza, L. Gambardella. A Machine Learning Approach to Visual Perception of Forest Trails for Mobile Robots. IEEE Robotics and Automation Letters, 2015. <http://ieeexplore.ieee.org/xpl/articleDetails.jsp?reload=true&arnumber=7358076>

22. Some figure captions can be improved to help understanding (e.g. in Fig2, state what the colour means)
23. Remove on page2 the sentence "In recent years at all"
24. Define "feature" and "descriptor"
25. Consider removing section 2.2.6 & Fig4?
26. Page 24, 1st paragraph, revise the sentence starting "Since. . ."
27. Page40, define what positive and negative queries are.
28. Page60: consider removing section 4.2.6?
29. Section 4.3.2, revise title
30. Page 91, consider removing section 4.8
31. Page97, paragraph 1, last sentence, the claim is invalid, revise or remove
32. Page143, fig53, consider moving it to introduction?