Recommended Corrections for John McDonagh's PhD Dissertation

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In addition to the required alterations listed below, I also attach a marked-up copy of the dissertation with other comments and suggestions.

The following alterations should be made to the dissertation:

Chapter 2 (Background)

At present this contains much textbook material covering a basic introduction to neural networks. Consider moving some or all of the existing text to an appendix. Add new background text on detecting animal behaviours (in line with the title of the dissertation). If any of the existing text is kept, better place it within the context of detecting animal behaviour. If it helps, consider merging this background chapter with the introduction.

Background moved to appendix. New background added to introduction.

Section 1.4 and 1.5

Chapter 3 (Literature Review)

At present this comprises a summary of deep learning for action recognition using spatiotemporal data. Add new literature review text on detecting animal behaviour (in line with the title of the dissertation). There is a great deal of published work in this area that should be cited. Some of the existing text on machine learning could remain or be moved to the background section, but either way, it should be better placed within the context of detecting animal behaviour (using images and/or video).

Literature Review is now Chapter 2

Added new section to literature review for animal behaviour and predicting calving.

Section 2.4

A new Chapter (entitled 'Equipment Setup, Data Capture, and Labelling', or similar)

Add a new chapter dedicated to equipment setup, video data capture, and labelling (ground truthing). This should include the experimental design, hardware setup (including choice of camera location and field of view), real-world practical issues addressed (eg lighting, environmental structuring, animal position / pose, etc), any data processing / augmentation, and the data labelling (detailing how this was done). There needs to be enough detail here to allow another to replicate the work.

Added a new chapter on behavioural dataset.

Chapter 3 detailing everything mentioned above.

Chapter 6 (Student's paper)

Change the title and contents of this chapter to 'Results and Discussion' or similar. At present this chapter consists, word-for-word, of the student's paper entitled 'Detecting dairy cow behaviour using vision technology' and as such is self-contained, repetitious, and out of context. While much of the text here is very good, it should be redistributed to other chapters, especially to the introduction and background, and also the literature review chapter.

Chapter 6 – refactored chapter and linked back to previous Chapters.

Chapter 7 (General Discussion and Conclusions)

Expand the text here by revisiting the overall aims and objectives, issues surrounding the practical application, the results obtained, and any recommendations for further follow-on work.

Expanded text, added conclusion (section 7.2) and future directions (section 7.3)