

## Internal Examiner Corrections

Michael Pound 25<sup>th</sup> June 2023

Beyond the following specific corrections, I highlight some minor corrections in an annotated copy of the thesis supplied to the candidate.

**Introductions and Conclusions to all Chapters.** Some chapters are missing introductions and/or conclusions. This makes it very hard for the reader to know how things link together, for example how the dataset in chapter 4 relates to those used in chapters 5 and 6. These should be added to each chapter to ensure that the thesis flows properly, and that it is possible to follow how the work in each chapter is built upon, used, or replaced in subsequent chapters. Revising the existing introductions and conclusions to add this information is also important.

**Further explanation of data capture, curation and the datasets used.** In chapter 4 there is a dataset analysed, in chapter 5 one is used as the target for machine learning, and again in chapter 6. It is often not clear which dataset is used in which instance. The external examiner has suggested a new chapter, this is an acceptable approach, or substantial revisions to chapter 4 as an alternative.

Beyond simply explaining which dataset is used where, much more detail is required on the data capture methodology, the tools used (which have been created during this thesis, and are important work achieved), the annotation process and the decisions behind these choices.

### Specific revisions within each chapter.

Chapter 2. Which of the techniques in this chapter are used throughout the thesis? What are the gaps or possible improvements in these that we can learn going into subsequent chapters? Parts of this chapter that are used or underlying techniques used later are fine, but this should be more clear.

As suggested by Melvyn I moved this chapter to the Appendix and created a new background section in the introduction Chapter. Section 1.4 and 1.5

Chapter 3. Background on animal behaviour should be added to the literature review chapter. As above an introduction and conclusion that explain to the reader the relevance of this review to the thesis is important.

As above. I added background to introduction and added literature on livestock behaviour (mainly cows) and predicting calving/dystocia to. Introduction and conclusion also added. Section 2.4

Chapter 4. Either within this chapter or a new one, please add more detail (as discussed in the notes above) on the collection and curation of this dataset. Any tools or techniques applied to create it, and how it relates to the rest of the thesis. If it is simply a proof of concept for later datasets in the thesis, this is also fine, but this should be stated in the conclusion.

Added a new Chapter 3 on Developing an Annotated Video Dataset for Classifying Cow Behaviour.

Chapter 5. It should be more clear what datasets are being used here, as above much of this may be handle by an introduction and small additions to the text.

Made it more clear to what datasets are being used through out the text

Chapter 6. Rephrase to link this to the rest of the thesis, at the moment it is standalone. This may involve rewriting sections, or moving sections into other chapters and then referring back to them.

Rewrote some of the chapter and moved sections mainly to the new Chapter 3. Referred back to sections as needed