

Dissertation Revision – Summary of changes

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Compared with the original draft, this version of the thesis contains the following modification:

1. The formula for the loss term $\Delta(\cdot, \cdot)$ are explicitly given in Section 3.2, a main technical section. In the original draft, $\Delta(\cdot, \cdot)$ is only mentioned in the experiment section.
2. Section 4.2.3 is new. It first describes an alternative formulation for early event detection that uses margin rescaling and then discusses its disadvantage compared with the proposed formulation.
3. Figure 4.4 is new. It graphically illustrates the monotonicity requirement.
4. Discussion about limitation and directions for future work have been substantially extended.
5. The discussion about the BoW representation (Section 2.3) is extended. It includes an explanation for the roles of local descriptors and why the dynamics and ordering of observation values are not totally ignored. This section also describes an extension to the BoW representation that is inspired by HMMs; in the original draft, this is only described in the experiment section.
6. The algorithm to find k-or-fewer segments that minimize the total sum of energies is given in Section 6.4.2 and Appendix A. This algorithm requires unary node potentials, but the node potentials can be computed over multiple frames. In a follow-up discussion with Carlos, I realize that the confusion arises from the defense talk, not the dissertation. Due to the time limitation for the talk, the algorithm was not presented and its required input/output was not explained clearly. The dissertation did not have this problem. Nevertheless, I made sure this is clear in Section 6.4.