

Capstone 2 Proposal – Personalized Alert System

This project is intended to build a personalized model which is able to distinguish between a set of situations given an image. In this case the model will be trained on determining if a dog is in or outside of its crate, however, this idea can easily be generalized to monitor and alert users for a number of different situations.

Although the model itself would only be capable of classifying these personal situations based upon an image it could easily be integrated into a system which monitors using a video camera and alerts a user based upon different classification readings. For instance, a sequence of situations could trigger an email or text message to a user which could provide valuable real time information making it a useful product for some consumers. The heart of this system would be the classification model engineered in this project.

A system such as this is useful for situations where simple electronic triggers are not applicable or too expensive to be useful in classifying what is going on. Going back to the example used in this project, a dog crate with electronic features is unnecessarily expensive and would arguably still lack the robustness of a machine learning monitoring system. Other useful situations could be monitoring a baby in a crib or monitoring places such as kitchen cabinets or a garage where you want to be alerted of certain people entering. These problems are simple to a human but have no easy automated solutions without the use of machine learning.

Briefly, to develop the model the system will use a set of videos labeled as situations that need to be recognized. In this case it will be the dog in the crate, the dog not in the crate, and the dog being taken out of the crate. The videos will be parsed into a set of still images to train the model. The model will use Deep Neural Networks for this classification process.

The project will be completed with all source code available online, a high-level PowerPoint presentation, and an in-depth pdf document analyzing the process and the results.