Company: Lely

About the company:
As an international family business in the agricultural sector, we spend every day making farmers' lives easier with innovative solutions and tailored services. We offer solutions for almost all activities in the cowshed: from milking to cleaning. We provide advice on how to organise a dairy farm smartly with the use of management systems. Our vision and the needs and demands of our clients are the things that drive and inspire us.

Something we do since 1948, in this year brothers Cornelis en Arij van der Lely introduced the finger wheel rake to the market. One of our first inventions that made a substantial change in the traditional way of working on the farm. There were many more innovations with only one purpose making agrarian life easier and working together for a sustainable, profitable and enjoyable future in the agricultural sector.

Assignment description:
When a cow is having contractions, it is necessary that the farmer is quickly on site to help a cow during the birth process. Since the farmer cannot be in the barn for the whole time that a cow is in labor, Lely is developing a product that can notify a farmer when a cow is having contractions. This is done by making use of cameras in the barn and using machine learning/deep learning techniques in order to evaluate whether or not a cow is having contractions. For this, the cameras will look at the belly of the cow and check if there are some patterns that could indicate contractions. The basis of the algorithm behind this is already under development. However, currently the number of false positives is way too high, which results in the farmer being notified when it is not necessary. In order to make the algorithms more accurate, the student is going to look at different features that can be used in order to improve the model. In addition, the student is free to train, test, and evaluate different machine learning models on the features that were extracted from the dataset. The dataset was created from around 19 hours of video of cows having contractions, and cows just living their normal life. These 19 hours of video are split up into smaller videos and manually labelled whether or not there was a contraction in the video.