

# Foam Sensing in a Bioreactor using Machine Learning and Computer Vision

During gas fermentation of bacteria in a bioreactor, a highly explosive gas mixture is used as the cell growth nutrient. Thus, only explosion proof sensors can be used, which makes foam measurements difficult to obtain.

By using a camera-based system, these limitations could be overcome. Methods from machine learning, e.g. convolutional networks could be used to process and classify the camera data.

The goal of this project is to develop a vision-based method for foam measurements that can then be used to perform antifoam control strategies:

- development of camera-based antifoam measurement system
- integration of sensors into bioreactor and LabVIEW environment
- fermentation experiments

- Start: now
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