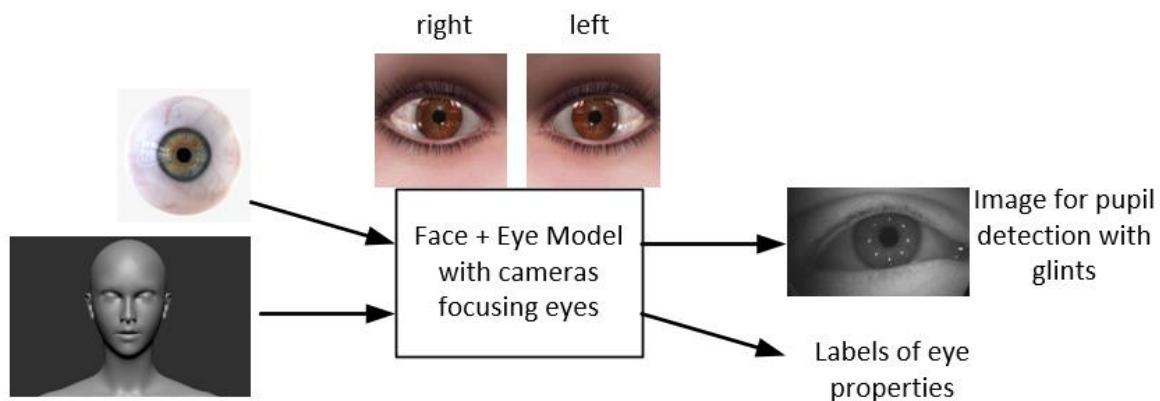


## Master Thesis

Embedded image processing and analysis close to the image sensor is gaining more and more momentum since it allows to reduce required communication bandwidth to the next layer of the processing hierarchy. This saves energy and enables significant efficiency improvement for different use cases. Image processing on a smart image sensor not only comes with benefits but also includes technical challenges.

The focus of this master thesis is on the automatic generation of training data for neural networks for pupil detection. Therefore, a 3D-Eye Model should be designed with tunable parameters to create synthetic training data. The tunable parameters should include, the camera, the eye, skin tone, color of the iris, eye lids, pupil size, different number of glints, reflections and blur. The application should create images with labels of eye properties (e.g. gaze vector, pupil center, pupil segmentation...).



Student Target Groups:

- Target of this master thesis is the development of a 3D-eye model for automatically creating synthetic training data for neural networks for pupil detection. Students of ICE/Telematics, Informatics

Thesis Type:

- Master Thesis

Required Prior Knowledge:

- Good programming skills (C#, Python)
- Good 3D-modelling skills (e.g. Blender, Unity)
- Basics of image processing

Goals and Tasks:

- Design and Implementation of a 3D-eye model.
- Creation of training data with eye property labels

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