

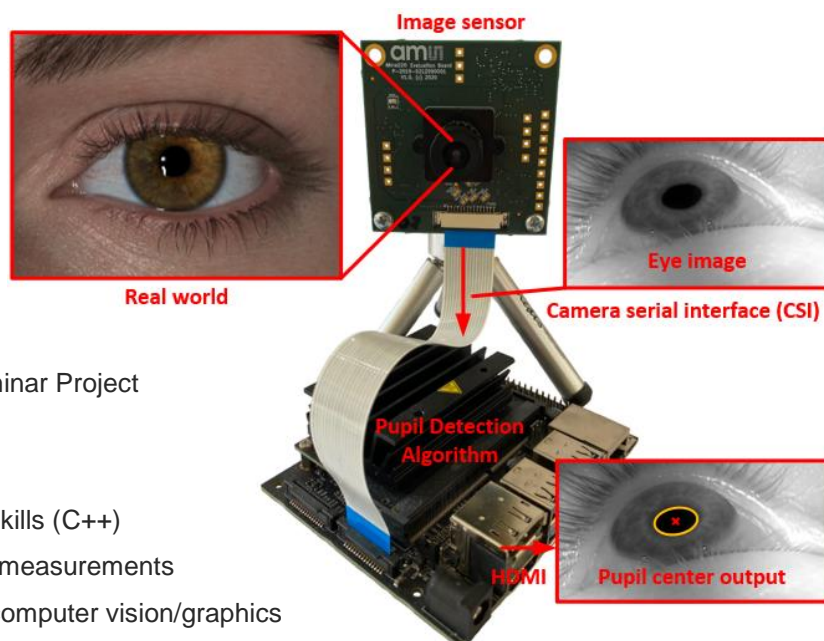
## Bachelor Thesis

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 thesis is to split up an existing pupil detection algorithm into several processing stages. Each processing stage should generate an output, which can be used as the input for the next stage. The power consumption of the image processing system (Mira220 Evaluation Kit) should be measured for the different enabled processing stages with different resolutions and different numbers of enabled processor cores. An Analysis of the power consumption and processing times should be made.

Student Target Groups:

- Target of this thesis is the measurement of the power consumption for different system settings and the processing time of the processing stages of the pupil detection algorithm. Students of ICE/Telematics, Informatics



Thesis Type:

- Bachelor Thesis/Seminar Project

Required Prior Knowledge:

- Good programming skills (C++)
- Knowledge in power measurements
- Basic knowledge of computer vision/graphics

Goals and Tasks:

- Modification of the pupil detection algorithm into several processing stages.
- Power consumption and processing time measurements for different configurations of the image processing system.
- Analysis of the power consumption

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