**MSc Thesis Project**

Video coding, processing and communication of drone images and video.

Introduction: The project concerns on-drone real-time processing of visual and infra-red imaging from a drone to the ground. Drones with video and infra-red have many applications. We are conducting research in projects on video drone based inspection of energy systems. The research project is conducted jointly with industrial partners, e.g. Sky-Watch and Zeuxion.
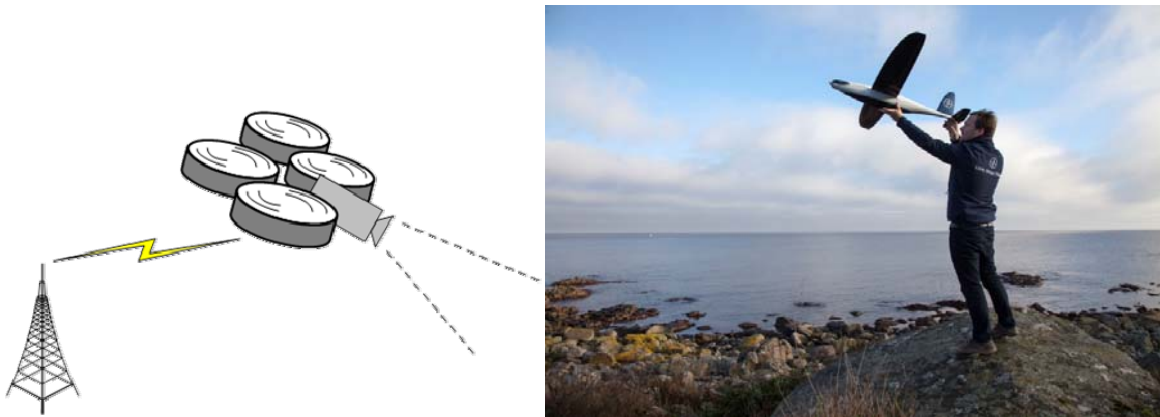
The visual and infrared imaging must be coded on-board the drone for on-board storage and transmission to the ground. Initial processing may be performed onboard to match the image format to the compression. The image and video compression shall be optimized to either visual or infrared imaging and for the specific application. After transmission to the ground, on-ground decoding and processing will be performed. The on-ground processing shall aim at optimal reconstruction of the image data and thereafter for detection of energy leakages.

Contents: The project will be focused on implementing and optimizing on-board drone coding and processing. The solution may utilize both existing hard-ware coders, as well as software components of the selected platform. This can be combined, controlled and enhanced by embedded software implemented in the project. The goal is to provide efficient real-time compression and data for inspection of energy systems.

The project will be tailored based on the student's interests.

Prerequisites:

- 34240/34241/34250 or interest in digital image and video technology

- Basic skills in programming (Matlab or C/C++).

Additional information and references: Contact teacher

Practical details: The project is intended for 1 or 2 students with 30 ECTS-points per student.

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