

Topic for a Bachelor's/Master's thesis:

Evaluation of motion blur of thermograms taken with a drone.

Courses of study: Systems Engineering, Production Engineering, Physics and similar

Thermographic flow visualization is used to evaluate the aerodynamic condition of rotor blades on wind turbines. When monitoring a wind turbine in operation by means of a drone-based measurement system, blurred images occur during the measurements, which are mainly caused by two sources of motion. This motion blur is caused on the one hand by the moving rotor blade and on the other hand by the inherent motion of the flight-based measurement carrier. To introduce the processing of drone-based thermographic images, the influence of motion blur in thermograms due to drone movements is to be investigated and the state of the data is to be evaluated.

For this purpose, a catalog of requirements for the quality of the thermograms is first to be developed. Subsequently, the motion blur of thermograms due to drone movements during recording should be investigated experimentally. An automated evaluation of the data state is also to be implemented.



Bild 1: Monochrome Aufnahme eines Rotorblattes mit sichtbarer Bewegungsunschärfe

Work content:

- Creation of a catalog of requirements regarding the image quality
- Planning and execution of experiments using a drone
- Evaluation and interpretation of thermographic data with the help of Python
- Determination and evaluation of motion blur in thermograms due to drone movement during imaging

Your profile:

- Interest in laser or optical metrology
- Joy in experimental work
- Independent and responsible way of working
- Knowledge in python programming

Kontakt:

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