Bremen Institute for Metrology,
Automation and Quality Science

BIMAQ

Master Thesis:

In-process analysis of laminar-turbulent transition at wind turbines.

Systems Engineering, Production Engineering,
Industrial Engineering, Electrical Engineering, Physics, and related

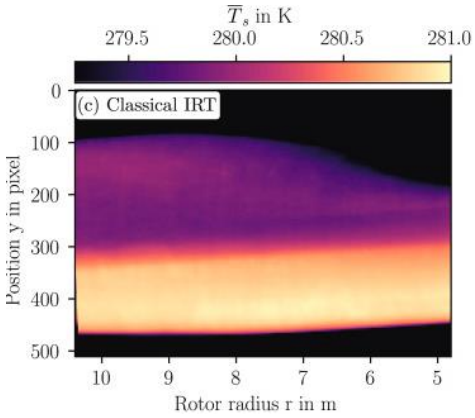

Figure 1:
Static thermographic measurement setup

Figure 2:
Thermographic image of a rotor blade

Have you ever wondered why wind turbines sometimes don't turn even though it's windy?
The answer may depend on the flow conditions at the rotor blades. This flow can be visualized by thermography from a great distance and without stopping the wind turbine. For this purpose, an innovative co-rotating measuring system has been developed at our institute.
We are looking for a student for a master thesis who will evaluate the measurement uncertainty in the localization of the laminar-turbulent transition and compare it with a static system. Furthermore, measures to reduce the uncertainty will be identified.
Technical skills for performing the measurements as well as programming skills in image processing/Python are needed, which can be extended during the course of the project.

Working areas:

- Thermal imaging measurements on wind turbines
- Automatic evaluation of the images
- Comparing measurement uncertainty between static measurement – rotating measurement

Your profile:

- Interest in carrying out measurements
- Knowledge in python programming
- Experience in image processing

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