Master Thesis - “Miniaturized methods for visual inspection of small geometries” (30 credits/20 weeks – 1 students)

About us

GKN Aerospace is the world’s leading multi-technology tier 1 aerospace supplier. With 55 manufacturing locations in 15 countries, we serve over 90% of the world’s aircraft and engine manufacturers. We design and manufacture innovative smart aerospace systems and components. Our technologies are used in aircraft ranging from the most used civil aircraft to the world’s advanced 5th generation fighter aircraft and the Ariane orbital rockets used by ESA.

Project Background

Inspection of components is vital to ensure quality in aerospace production. Visual inspection requires skilled operators and tiring work. Automation has the potential to assist the operators and save time, but in many cases it is difficult to access confined areas with available sensors.

The thesis should investigate an automated method for measurement of small geometric features that has the potential to be miniaturized. Focus variation is an established method, but available instruments are not suitable for confined spaces. Image processing for desired features while changing focus would make it possible to shorten measuring time and increase robustness. The method should be tested as a proof of concept to understand the performance regarding accuracy, speed and potential for miniaturization.

Assignment Description

The task will include theoretical as well as experimental investigations to select and demonstrate a suitable method. The work will be performed at GKN in Trollhättan.

- Survey of topic and literature study
- Define the use case and relevant requirements and metrics for the benchmark
- Investigation of alternative and selection technology to benchmark
- Set-up and perform tests
- Analyze and evaluate results

Qualifications

Student in the final year of their M.Sc. studies in the field of Engineering Physics, Mechanical Engineering, or similar with an interest in inspection and measurement methods. Some programming will be required.

Contact

Send your resume and cover letter to edvard.svenman@gknaerospace.com.