Master Thesis – ML-Assisted Localization and Traceability of Data Captured from Complex Components (30 credits/20 weeks – 1 Student)

About us

GKN Aerospace is the world's leading multi-technology tier 1 aerospace supplier. With 33 manufacturing locations in 12 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

Throughout the lifecycle of complex aerospace components, different types of data may be captured from specific areas of a physical component. Examples include images, measurements, observations, scans and process-related information. However, this data may lack a reliable spatial connection to the component, making it difficult to determine exactly where and from which orientation it was captured. Automatically associating physical-world data with the corresponding location on a digital representation could improve traceability, visualization, comparison and reuse of information across manufacturing, inspection, maintenance and other industrial applications.

Assignment Description

The assignment is to investigate and develop a proof of concept for automatically determining where data captured from a physical component originates and associating it with the corresponding location or region on a digital representation of that component. The student will define the problem and relevant requirements, investigate potential approaches, select and develop a suitable method, and evaluate its accuracy, robustness and practical applicability. The work should consider challenges such as limited visual context, complex component geometry, varying capture conditions and partial component visibility. Key milestones include literature and technology review, requirement definition, concept evaluation, prototype development and experimental validation. Deliverables include a functional proof of concept, documented methodology, evaluation of performance and limitations, recommendations for future development, and a final thesis report and presentation.

Qualifications

- Master's student in Computer Science, Artificial Intelligence, Robotics, Automation, Applied Physics or a related field
- Knowledge of computer vision, machine learning, image processing or 3D geometry
- Programming experience, preferably in Python or C++
- Experience with experimental development and data analysis is beneficial
- Interest in industrial digitalization, aerospace manufacturing and emerging technologies

Apply by

Send your resume and cover letter to Sangeeth Sajan Baby – sangeeth.sajanbaby@gknaerospace.com.

Last date for application: 2026-11-20.