

# HiWi for the Adaptive Repair of Components using Robotic Arc Welding

## Current situation

At the Institute of Machine Tools and Industrial Management (iwb), we seek motivated students eager to challenge existing paradigms in the repair industry. For decades, weld repair has relied on the expertise of highly skilled welders. However, labor shortages and increasing workloads are driving the industry to pursue more cost-effective and efficient solutions, such as robotic welding. Despite these advances, robotic arc welding still lacks the adaptability and autonomy of human welders. In this position, AI algorithms will be implemented to enable robotic welding systems to detect defects, control the process, and adapt to the environment much like a human welder.

## Scope of the work

- Seven (8) hours weekly. It can be increased to 10 hours, depending on performance
- Preparation of samples using robotic welding
- Research collaboration with top-ranked companies



Repair of components using robotic arc welding

## Prerequisites

- 1<sup>st</sup> or 2<sup>nd</sup> semesters of the M. Sc.
- Interest in doing the SA and MA in our department
- Outstanding English level and intermediate German level

## Contact

The application must include the CV and the grade report.

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