

ILEK

Student assistant position (HiWi 40 h/month)

Shape-morphing bridge prototype

A shape-morphing bridge prototype, first developed at École Polytechnique Fédérale de Lausanne (Switzerland), will be tested to investigate the potential of damage mitigation through structural adaptation at the Institute for Lightweight Structures and Conceptual Design (ILEK), University of Stuttgart. This project is part of the Collaborative Research Centre (CRC) 1244 *Adaptive envelopes and structures for the built environment of tomorrow*.

The bridge is designed to adapt to target shapes that are optimal to take external loads, this way achieving minimal material embodied carbon requirements. The structure is a simply supported spatial truss that spans 6.6 m with a span-to-depth ratio of 44/1. Shape adaptation is performed through controlled length changes of 12 linear actuators that are strategically integrated into the structural elements.

There is a great opportunity for a Student Assistant (HiWi) to help with: **(1)** inventory organization and preparation of the working space; **(2)** assembly of the bridge prototype; **(3)** installation, calibration as well as diagnostics of strain gauges, motion cameras, electric actuators, and communication protocols.

The primary working language for this project is English. Communication in German with technical collaborators and industrial partners may be necessary.

Key requirements:

- High motivation to carry out hands-on tasks, and confidence in working with hand tools.
- Good organizational skills.
- Basic knowledge (or interest to learn) of sensors, actuators, and low-current electrical systems.
- Good knowledge of both English and German.

Contact:

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Earliest start date: 01.04.2023

