The University of Stuttgart emphasizes the compatibility of private life, family and career as well as equal opportunities for persons of all genders. Disabled individuals are given preference in the case of equal suitability.

**Student thesis**

**Transfer of lightweight construction principles from nature to lightweight fiber composite construction**

Student (m/f/d) Biomimetic, Mechanical Engineering, Computer Science, Lightweight Construction or similar.

**application deadline**
May 6, 2023

**start**
as of now

**duration**
4 – 6 month

**workplace**
Denkendorf

**Job Description**

The Institute for Textile and Fiber Technologies (ITFT) of Stuttgart University conducts research in the future-oriented field of lightweight construction using fiber composite structures.

As part of a research project with partners, the unique structural intercalations of plant structures are to be analyzed using concrete examples and made transferable biomimetically. Several textile processing technologies as well as material systems are available at our site in Denkendorf for the production of such structures. The focus of the work is on the abstraction of biological design rules, taking into account the differences in material and manufacturing systems. The work will be done in direct collaboration with our partners and your ITFT supervisor. Your working hours and possible home office portion can be flexible. Collaborative publishing in peer-reviewed journals is strongly encouraged. An interview will take place on site together with the project leader of the research partner at DITF Denkendorf.

**Tasks**
The work mainly includes the following points:

• Analysis of the construction principles of plants also by means of FEM
• Abstraction of the findings and transfer to fiber composite processes
• Manufacture and testing of equivalent bionic test specimens

**Qualifications**

• Interest and intrinsic motivation for fiber composite technologies in lightweight construction
• Basic knowledge of CAD, preferably Autodesk Fusion360
• Basic knowledge in FEM
• Craftsmanship skills in fiber composites preferred

The University of Stuttgart emphasizes the compatibility of private life, family and career as well as equal opportunities for persons of all genders. Disabled individuals are given preference in the case of equal suitability.