

To extend our team, we are looking for a full-time

Research Associate (m/w/d) in the field of additive manufacturing and structural simulation

About us

The Chair of Carbon Composites (LCC) at the Technical University of Munich pursues an interdisciplinary research approach from raw materials to production engineering up to complete composite components of fiber-reinforced composite materials and their applications. This includes the development of new manufacturing methods, new approaches for process and structural simulation, as well as research in the field of material characterization and testing

We are currently seeking new, motivated colleagues for a research project aimed for development of an additive manufacturing process with digital planning methods for custom orthopedic footbeds with the following focus areas:

- Development of multimaterial combinations and bonding techniques for complex load cases
 - Development of printing strategies for the sequential deposition of materials with varying processing temperatures
 - Investigation of the effect of cooling rates on material bonding strength
 - Planning and execution of mechanical test series to analyze failure modes
 - Development of material models for additively manufactured multimaterial structures allowing tailored footbed properties
 - Investigation of the correlation between the properties of 3D-printed geometric structures and multimaterial bonding
 - Development of a material model to link geometric structures to degrees of hardness and damping properties
- Development of printing strategies for bonding multimaterial structures

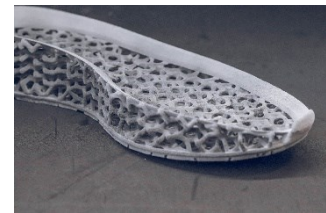


Fig. 1: 3D-printed shoe sole by the company voxeljet¹

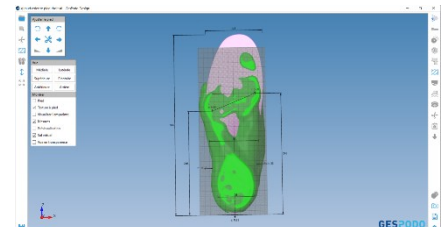


Fig. 2: 3D-design software for the development of foot and lower leg orthoses by company gespodp²

Requirements

- Above-average university degree (Diploma or Master's degree) in the fields of materials science, composite materials, plastics engineering, manufacturing technology, or similar
- General interest in manufacturing processes and design of composite structures
- Enjoyment of experimental work and digitalization methods
- Determination, independent and structured working style and pronounced teamwork and communication skills
- Proficiency in writing longer texts with complex content in German and English

¹ Image Source: <https://www.voxeljet.com/additive-manufacturing/case-studies/consumer-goods/additive-shoe-production-4-0/> Access 22.10.2024

² Image Source: <https://podo.gespodp.com/en/footcad3d/> Access 22.10.2024, <https://www.gespodp.com/en/3d-design-cnc-3d-printing>

Tasks

- Independent handling of various tasks in a research project with partners from industry and science
- Participation in the preparation of research proposals
- Supervision and guidance of student theses
- Involvement in teaching in the field of materials science/composite materials
- Supervision of scientific equipment

We offer

- Exciting research and working environment within a young, committed team
- Opportunity for a doctorate aiming for professional and personal development
- Remuneration according to the collective agreement (TV-L)

Application

- The position is initially limited to two years
- Disabled persons will be given preference if they have the same qualifications and suitability
- TUM strives to raise the proportion of women in its workforce and explicitly encourages applications from qualified women
- TUM does not cover any costs associated with attending interviews
- Please send your application via email to personal_24_01.lcc@ed.tum.de. In the case of a written application, we kindly ask you to submit only copies, as we cannot return your application documents after the procedure is completed

Data Protection Notice:

As part of your application for a position at the Technical University of Munich (TUM), you will transmit personal data. Please note our privacy policy in accordance with Art. 13 General Data Protection Regulation (GDPR) for the collection and processing of personal data as part of your application. By submitting your application, you confirm that you have taken note of TUM's Privacy Policy.

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