



Figure 1: First Large Particle 3D Concrete Printing prototype produced at the Digital Building Fabrication Laboratory at Technische Universität Braunschweig

At the Institute of Structural Design (ITE) at Technische Universität Braunschweig, the position of a

Research Assistant in Digital Fabrication and Additive Manufacturing

is to be filled in full or part-time employment. Recruitment will take place on the next possible date, initially for a period of two years.

We are looking for a motivated person to work on the interdisciplinary research project "Large Particle 3D Concrete Printing", funded by Zukunft Bau / BMI. While conventional particle bed printing processes are based on the selective binding of a fine-grained powder bed, Large Particle 3D Concrete Printing investigates the geometric scalability of this manufacturing technology. Instead of fine powder, large recycled aggregates are reused and bound using the "Shotcrete 3D Printing" (SC3DP) printing process, which is also under development at ITE. Compared to other additive manufacturing processes with concrete, the use of recycled material leads to a significant reduction in the CO₂ footprint, and can thus make a considerable contribution to climate protection. In cooperation with the Institute for Building Materials (IBMB), the architectural-constructive potential of this process is to be investigated experimentally at ITE.

The research project is closely linked to the Collaborative Research Centre / TRR 277 "Additive Manufacturing in Construction" with its more than 70 scientists at TU Braunschweig and TU Munich, which promotes not only a strong scientific but also an interpersonal exchange.

Please find more information at the following addresses, or simply contact us personally by e-mail.

Further information is available under the following links:

Publication related to LP3DCP: <https://doi.org/10.3390/ma14206125>

Website: <https://www.tu-braunschweig.de/ite>

Research: www.tu-braunschweig.de/trr277

YouTube: [DBFL - TU Braunschweig](https://www.youtube.com/channel/UCBFL)

Your profile:

- You have completed a diploma or Master's degree in architecture or civil or mechanical engineering with very good results.
- You ideally have 1-2 years of professional experience or have completed postgraduate studies in the field of digital fabrication.
- You are interested in the interaction of construction, material and form.
- You are motivated for interdisciplinary research in the field of digital fabrication and additive manufacturing in construction.

Your tasks:

- Leading and implementing an interdisciplinary Zukunft Bau research project.
- Supervision of research-related teaching.
- To a small extent, participation in the organisation and administration of the institute.
- The completion of a doctorate is aspired to.

We offer:

- Interesting, independent work in an interdisciplinary environment at the intersection of architecture, civil engineering and mechanical engineering.
- The opportunity to participate in shaping the future direction of the Institute.
- Participation in innovative research projects.
- A pleasant working atmosphere in a highly motivated team.
- Payment is made depending on the assignment of tasks and fulfillment of personal requirements up to salary group 13 TV-L.

TU Braunschweig and the ITE strive in all areas and positions to reduce under-representation in the sense of the NGG and expressly invite women to apply. Handicapped persons with equal qualifications are preferred. Proof must be enclosed. Applications from people of all nationalities are welcome.

Please send your application by no later than 15.11.2021 with the usual application documents to:

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Prof. Dr.-Ing. Harald Kloft
Jun. -Prof. Dr. Norman Hack
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Please do not hesitate to contact us if you have any questions.

Application costs cannot be reimbursed. Please understand that applications that have not been considered can only be returned against a self-addressed and sufficiently stamped envelope. Unfortunately, the reimbursement of costs for an interview is not possible. Personal data will be stored for the purpose of the application procedure (according to EU-DSGVO).