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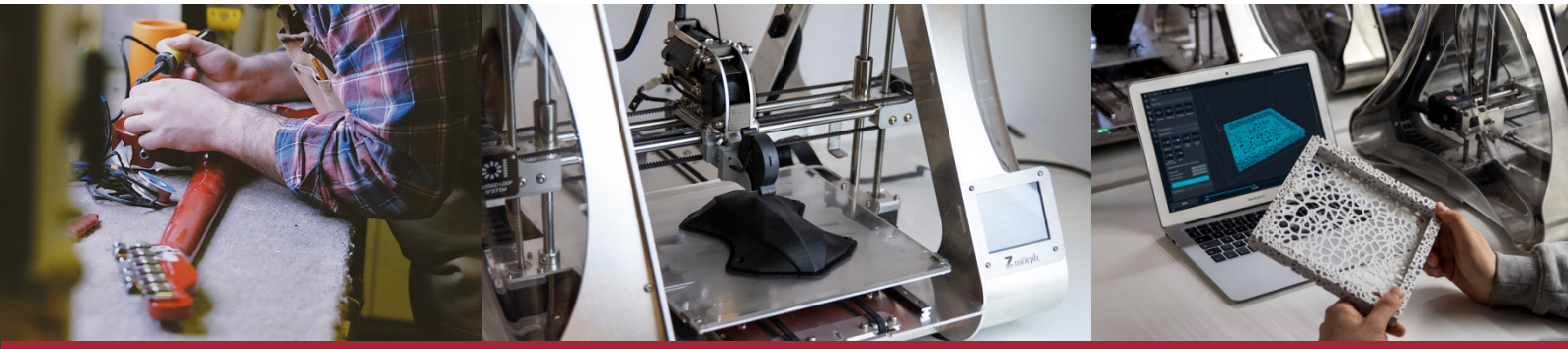

The 3D Printer as a Workbench: Interactive In-Place Fabrication

Open Bachelor/Master Thesis

Background

Devices like 3D printers are a common tool in enthusiasts' workspaces. They allow their user to transfer digital models into the physical world. Such models are often designed by hand, tailored for the users' requirements. However, unlike traditional craft and fabrication methods, the design of the part is fully disconnected from its fabrication. Users model their object in CAD and print it afterwards, without being able to reference the real world directly or change the printing process. A design iteration involves a full cycle of design and printing.

Such a design process disconnects users from their workpiece and disconnects the workpiece from the physical world, where it is meant to be used later. This limits the designers, as they can rarely use partial designs and results, can not refine their design during the process and receive feedback from the fabrication machine only at the end of the process. If the 3D printer is used as a modern workbench, where human and machine create together, these aspects may be improved.

Research Goal

Goals of theses in this area cover the development of new, interactive fabrication methods. This includes analysis of existing research, specification of new concepts, their implementation and evaluation. Based on the graduate level (Bachelor, Master) and interest, the scope of the thesis is adapted.

Evgeny Stemasov
Institut für Medieninformatik
O27 / 3302

evgeny.stemasov@uni-ulm.de