



Human-Machine Co-Design: Collaborative Personal Fabrication and Creation

Open Bachelor/Master Thesis

Background

To use personal fabrication devices like 3D-printers, laser cutters or CNC-mills, software tools are required. This includes, for example, vector drawing tools, 3D modelling tools or CAD. These applications are often merely a way to express a design intent and do not actively influence the users' design processes, apart from feedback and simulation.

Alternatively, one can consider a fabrication tool (a combination of software and hardware), which actively interferes with, supports and changes the design process or the fabrication process. The tool then becomes an active collaborator with a human designer, instead of being a passive medium for expression. This may leverage machine intelligence and precision, paired with user creativity and domain knowledge.

Research Goal

Goals of theses in this area cover the development of new, interactive fabrication methods, where a user collaborates with a machine in a design or fabrication process, instead of using it as a passive tool. This includes analysis of existing research, specification of new concepts, their implementation and evaluation in either soft- or hardware.

Based on the graduate level (Bachelor, Master) and interest, the scope of the thesis is adapted.

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