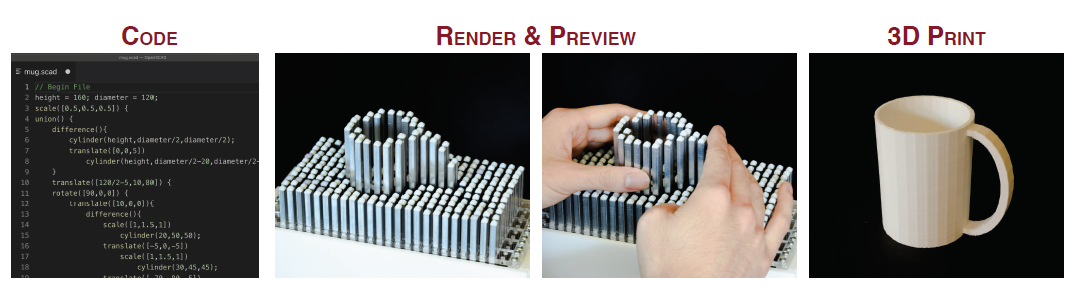
Advancing Accessible 3D Design for the Blind and Visually-Impaired via Tactile Shape Displays

【Summary】：

The thesis aims to create accessible 3D design and printing workflows for BVI by using a 2.5D haptic display, and a strict understanding of how BVI uses work in the context of perception, interaction, and learning.



【Thesis focuses on 3 questions】：

• How can complex 3D information be effectively encoded through tactile representations?

• What are the interaction techniques necessary to create and manipulate 3D models on tactile displays with limited resolution?

• How does access to 3D design and printing in the wild for BVI people change their self efﬁcacy of making and their attitudes towards STEM?

【Thrust 1: Representing Spatial 3D Information】：

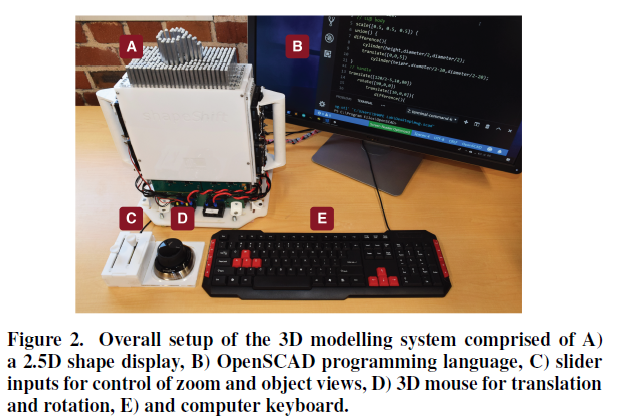
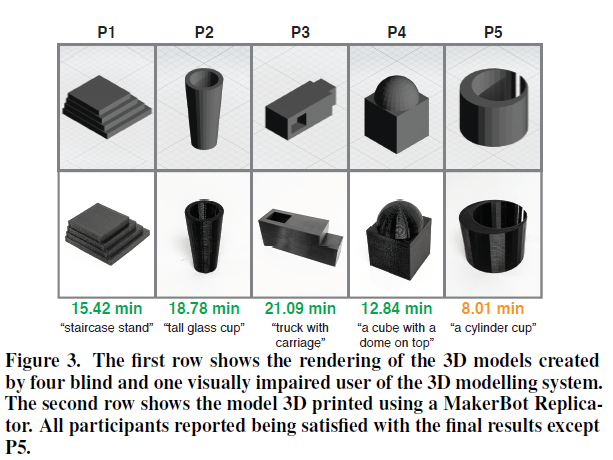
1. to elucidate on the beneﬁts of the different encoding representations for 3D spatial information; compare contours versus reliefs.
2. to understand the in-terplay of tactile array resolution (low, medium, high).

【Thrust 2: Co-Design of an Accessible 3D Modelling System Supported by Tactile Displays】:

Look at the paper in detail, and his previous work

【Thrust 3: Long-Term Deployment To Assess Learning and Self-Efﬁcacy】：

back gathered will allow me to frame insights for future educators and researchers on: 1) guiding tenets and continuing challenges for accessibility in Makerspaces, 2) necessary software and hardware support, 3) a repository of 3D models to inspire future domain speciﬁc design tools, and 4) recommendations for course design and integrated classroom dynamics.

【Important Reference】:

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