

Title	Scribbler : On demand fabrication of personal artifacts in daily life
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Author	佐山, 明裕(Sayama, Akihiro) 稲見, 昌彦(Inami, Masahiko)
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Abstract	<p>This thesis proposes a method for users to fabricate tangible 3D artifacts on demand of the user. Users do not undergo a design stage through software, and are able to fabricate practical and sustainable artifacts using Scribbler, a modeling system consisting of Scribbler tubes and a Scribbler tube gun. Scribbler tubes are hard hollow tubes with a temperature dependent rigidity. A Scribbler tube gun controls the rigidity of the Scribbler tube by controlling its temperature. Users can model the Scribbler tube while it is soft, and proceed to cool it with the Scribbler tube gun to keep it in shape.</p> <p>Users can experience fabricating artifacts on demand, that are useful for their current environmental needs, whether it is for practical use or for rapid prototyping. Scribbler enables ideas in the minds of the users to be printed out into real-space to solve problems that they may face in various scenarios. Scribbler also allows users the freedom of thinking while designing, enabling them to change what they want to fabricate during their construction process.</p> <p>A user test was conducted to evaluate the intuitiveness of Scribbler, the ranges of artifacts that could be fabricated, and the practicality of them. Results showed that users were able to understand quickly how to use the Scribbler, and to be able to use its properties to their advantage, fabricating artifacts that were practical and sustainable. artifacts fabricated in the user test were tested for practical use as soon as they were made.</p>
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Master's Thesis

Scribbler

**On Demand Fabrication of
Personal Artifacts in Daily Life**

by

Akihiro Sayama

Submitted to the Graduate School of Media Design
in partial fulfillment of the requirements for the degree of

MASTER OF MEDIA DESIGN

at the

KEIO UNIVERSITY

February 2012

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Certified by
Professor. Masahiko Inami
Professor, Graduate School of Media Design
Thesis Supervisor

Certified by
Professor Masa Inakage
Professor and Dean, Graduate School of Media Design
Thesis Co-Supervisor

Accepted by
Asst.Professor, Kazunori Sugiura
Asst.Professor, Graduate School of Media Design

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Graduate School of Media Design

Keio University
Hiyoshi, Yokohama, Japan

Date _____

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Master of Media Design

Abstract

This thesis proposes a method for users to fabricate tangible 3D artifacts on demand of the user. Users do not undergo a design stage through software, and are able to fabricate practical and sustainable artifacts using Scribbler, a modeling system consisting of *Scribbler tubes* and a *Scribbler tube gun*. Scribbler tubes are hard hollow tubes with a temperature dependent rigidity. A Scribbler tube gun controls the rigidity of the Scribbler tube by controlling its temperature. Users can model the Scribbler tube while it is soft, and proceed to cool it with the Scribbler tube gun to keep it in shape.

Users can experience fabricating artifacts on demand, that are useful for their current environmental needs, whether it is for practical use or for rapid prototyping. Scribbler enables ideas in the minds of the users to be printed out into real-space to solve problems that they may face in various scenarios. Scribbler also allows users the freedom of thinking while designing, enabling them to change what they want to fabricate during their construction process.

A user test was conducted to evaluate the intuitiveness of Scribbler, the ranges of artifacts that could be fabricated, and the practicality of them. Results showed that users were able to understand quickly how to use the Scribbler, and to be able to use its properties to their advantage, fabricating artifacts that were practical and sustainable. artifacts fabricated in the user test were tested for practical use as soon as they were made.

Keywords: 3D modeling, fabrication, polyester resin, thermoplastic resin, interactive, real-time, tangible, creativity, user-generated design

Thesis Advisor: Professor. Masahiko Inami
Thesis Co-Advisor: Professor Masa Inakage