

HYPERSEEING

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International Convention on Shape, Solid, Structure & Physical Modeling

Shape Modeling International 2017

Fabrication and Sculpting Event

*Sixteenth Interdisciplinary Conference of the International
Society of the Arts, Mathematics, and Architecture*

Berkeley, California, USA

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Fabrication and Sculpting Event Chairs

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Fabrication and Sculpting Event Papers

Chairs

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Preface

Fabrication and Sculpting Event

There are at least two aspects to shape modeling: theoretical and practical. The mathematical and theoretical aspects of shape modeling have traditionally been supported by the SMI conference. With the Fabrication and Sculpting Event our goal is to include more hands-on, application-oriented ways by designers and sculptors who construct sophisticated real shapes. The Fabrication and Sculpting Event has its own program committee, and the accepted papers are published in *Hyperseeing*. With FASE, we hope to attract practitioners who might usually be less inclined to write papers containing formal algorithms or mathematical proofs, but who nevertheless have important things to say that are of interest to the shape modeling community and who also might provide visually stimulating material.

The Fabrication and Sculpting Event (FASE) started as an experiment in expanding the scope of shape modeling international (SMI) conference in 2012. We also had another FASE event in SMI'2013. There were very positive responses to the Fabrication and Sculpting Event papers and presentations both 2012 and 2013. Although we skipped FASE in SMI'2014, based on the success of earlier events, we continued the FASE event in both 2015 and 2016.

In 2013, Nat Friedman, the chair of the International Society of the Arts, Mathematics, and Architecture (ISAMA), asked us if we could organize the event as an annual ISAMA conference. The SMI steering committee unanimously agreed with the suggestion. As a result, the event can now be considered also as the Sixteenth Interdisciplinary Conference of ISAMA.

The ISAMA conference has a rich history. The first Art and Mathematics Conference (AM 92) was organized by Nat Friedman at SUNY-Albany in June, 1992. This conference was followed by annual conferences AM93-AM97 at Albany and AM 98 at the University of California, Berkeley, co-organized with Carlo Sequin. ISAMA was founded by Nat Friedman in 1998 along with the ISAMA publication *Hyperseeing* co-founded with Ergun Akleman in 2006. In addition, the Art/Math movement has taken off with the formation of many additional conferences and organizations. In particular, we mention the very successful conference Bridges organized by Reza Sarhangi in 1998 and the excellent Bridges Proceedings. The significance of the art/math movement is now recognized internationally and in particular by the extensive art/math exhibit at the annual Joint Mathematics Meeting of the American Mathematical Society and the Mathematical Association of America organized by Robert Fathauer.

The main difference with other math/art conferences is that FASE focuses solely on 3D shapes. We invite submissions mainly from practitioners such as sculptors and architects to describe their methods.

We expect that such papers and the following discussions can provide new problems, issues and questions for theoretical shape modeling research.

For this year's Fabrication and Sculpting Event, we solicited papers that pose new questions and motivate further research in designing, fabrication and sculpting. Topics should be useful, for example, in the following areas:

- Fabrication of digital models
- Advanced manufacturing techniques such as additive manufacturing, laser cutting or CNC milling
- Interactive or procedural design of manufacturable shapes
- Interconnections of complex modeling and fabrication processes
- Visually stimulating fabrication techniques techniques or printed structures

Thus, the scope of FASE is the intersection of shape modeling and fabrication methods/algorithms, and papers may focus on both the digital/theoretical and the physical domain or just one of these domains – as long as the connection to the other domain is clear. It is not a requirement that the techniques presented in the paper involve computation as such, but they need to have a clear algorithmic or mathematical element.

We received eight submissions this year and four of them were accepted as eight-page or longer full papers and one was accepted as a six-page short paper. The rest of the papers were also received nice reviews for their potential. We, therefore, accepted them as posters. Two of them will be presented as posters along with demos in the confefence. Five accepted papers span a wide range of topics and views on the fabrication process of various artistically interesting artifacts. We wish to thank the authors for their participation in the SMA/ISAMA 2015 Fabrication and Sculpting Event. Hopefully new ideas and partnerships will emerge from the FASE papers that can offer a glimpse into a much larger territory and the event can enrich interdisciplinary research in Shape Modeling. We hope that the attendees of SMI 2017 will enjoy this event of the conference.

Ergun Akleman,
Jakob Andreas Bærentzen
and Konrad Polthier

FASE chairs