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Generative Explorations into Baroque Helical Columns

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Fig.1 Interlocking 3D printed fragments

Abstract

This abstract presents a series of fragments of 3D printed ceramic elements that are to be considered architecturally informed artworks, based on baroque Solomonic columns.

The pieces came out of discarded elements from another project aiming to create a 3D printed ceramic skin for structural steel that used parametric and generative processes to develop the geometry for the column.

When working on the original project, I noticed the beauty in the ruinous and unfinished quality of the rejected pieces when they were assembled as fragments.

This work is a result of these observations and is the embodiment of the failures, successes and quirks of translations of generative geometries into real materials. It represents the gap between an original ambition, what is seen on the computer screen and unpredictability in the fabrication process.

The works are described as baroque due to the direct reference of the voluptuous geometries of the Solomonic column and the great potential of variations from both generative and parametric approaches.

Rather than copy these types of columns, I aim to interpret their geometries and rules and reproduce them through the medium of 3D printed ceramics. In this series I adopt a helical form and a curved cross section and generate print paths to be sent to the machine.

There is a selection process that happens on the screen once geometries have been generated, another after the prints have been made and finally, in how they are assembled.

These works embody aspects of both precision and the unknown, when working in the intersection of generative processes in architectural design, unruly materials and digital fabrication technologies.

Fig 2. Larger helical column fragment

At present, I have the works attached as photographs to this abstract that include one large piece 1.2 meters in length and several fragments.

As this is a project that is exploratory and work in progress, I am in the process of developing further large- and small-scale pieces over the course of the next few months that may also be ready for the conference.

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