Reflections on The Experimental Clay Residency

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Fig. 1. Vases with Varying Curvature, 2022.

Abstract: My experience as a resident artist in the Experimental Clay Residency was a unique collaborative experience. My background in clay and its intersection with digital fabrication as well as where I am in my artistic career made the experience extremely mutually beneficial. I was given the time, space, material, machines, and resources to explore new ways of making my work. I learned new technologies and engaged in a unique discourse between artists and scientist that cannot be found in many places. I was also able to contribute my many years of material knowledge about various ceramic processes. I also shared how I think about and use 3D modeling and digital fabrication to create art objects out of clay.

CCS Concepts: • **Social and professional topics**;

Additional Key Words and Phrases: collaboration, mutual benefit, art, craft, design

1 INTRODUCTION

In the summer of 2022, I participated in the Experimental Clay Residency in the Hand and Machine Lab at University of New Mexico. In this residency, I worked closely with Professor Leah Buechley, Amy Traylor, and Jared Tso. Leah runs the Hand and Machine Lab, Amy was a graduate student in the lab, and Jared was the other artist in residence for the summer. This was the first year of

the residency and for the most part the format was open with a lot of time for the artists to work on and develop any body of work we wanted to. We had a few meetings at the beginning of the summer to set up lab/studio norms surrounding use of the machines, clean up, and how to handle clay in a computer science lab. I found that everyone was very gracious and respectful of shared space.

2   STRUCTURE OF RESIDENCY

In addition to these initial meetings, we met one to two times a week to present and share our specific skills and projects with each other. These meetings were usually about two hours, and we often treated them like mini workshops. These included:

- Jared demonstrating the correct method for wedging clay so we could recycle clay.
- Camila doing introductory demonstrations to Rhino and Grasshopper (the CAD programs we primarily used).
- Leah showing how to use python code and turtle geometry directly in Grasshopper to write g-code for the 3-D printer [3].
- Amy showing the software she developed to print forms only given a cut out paper profile and a pattern.
- Camila showing how to use Rhino to unroll three-dimensional forms into two-dimensional patterns and then using tar paper templates to build them out of slabs
- Leah showing how to use the extensive Python library she built to construct more complex slicing of objects and g-code for the 3D printers.

We also met with the researchers and artists in the other branch of the residency at UC Santa Barbara. We spoke a few times over Zoom, and they came to New Mexico once over the summer. These meetings often operated like a show and tell and were an opportunity to share some of the challenges and successes that we were encountering in the residency.

Apart from these more formal planned meetings, our time in the residency was our own. Everyone was very committed to being in the lab, and I felt like so many of the most fruitful moments of collaboration happened in the conversations we all had when working. We all came from different places in our work and brought different skill sets, but we all had the common goal of being productive in the residency.

3   ARTISTIC INTEREST AND PRACTICE

I have an educational background in both math and ceramics. My work is centered around making the theoretical physical by using mathematical ideas and forms explicitly. I am enthralled by the fact that if a few simple rules are established, I can describe any point definitively and uniquely using three variables. This opens me up to a different way of thinking about space. In my work, I am looking to not only think about space in this way but also to perceive and experience it with my whole body. I use formulas and algorithms to find beautiful forms or create interesting paths in space. These forms can be visualized using a computer, but I want a more direct bodily connection. By rendering them out of physical material, I can touch the math and make a direct connection between my brain and my body. I am excited by the possibilities of making work rooted in an abstract space, the push and pull of being able to understand explicitly how something exists, and the mysterious and wondrous power these forms hold.

Before participating in the residency, I had many years of experience using 3D modeling and digital fabrication tools to make objects out of clay. I primarily used laser cutters and CNC routers to fabricate my work, so working with the 3D clay printers was new to me. I also knew Rhino and Grasshopper very well going into the residency but did not have much experience using Python

Fig. 2. Horned Torus and Buggle Surface, 2022.

with these programs. My previous experience and knowledge of modeling and digital fabrication tools allowed me to hit the ground running and make a lot of work I was excited about over the course of the residency. I had spent many years building a digital library of algebraic surfaces that I found both through research and play and discovery [1][4]. I quickly figured out that I could use the 3D clay printers to print these forms, which allowed me to work through ideas quicker than if I had used the methods I previously employed.

4   MUTUALLY BENEFICIAL COLLABORATION

My previous experience also affected how I worked with and collaborated with others in the lab. I really enjoyed working with Jared in the residency. His approach to making was different from mine and he had very little experience working with digital fabrication tools like the 3D printers and laser cutter. At the beginning of the residency, I helped him problem solve his way through using Rhino and Grasshopper. Like me Jared has a background in science and art, and he was incredibly fast at picking up the software. He often would share an approach to using the software that I had never seen. We were also figuring out the 3D clay printers at the same time. We were very open about the consistency of clay, loading techniques, and settings we were using. It helped to have both of us making different forms on the same printers. I learned so much more than if I was the only artist using the printers. Since all the digital fabrication was new to Jared, he was so enthusiastic about it all. I could not help but to feed off his energy and excitement in the lab.

   I also loved working with Leah. She was so knowledgeable but also so open and curious about my work and process. I do not think I have ever been in a studio situation where someone was so curious about all the details of how I was making my work. So much of making as an artist is quiet, solitary problem solving. All that is shown at the end is the final product. Leah asked questions about my work like a scientist. She was interested in the details of how I modeled my forms and how I put them together. I have made whole bodies of work about how to show more of my problem-solving process in my final work, so I found it helpful to be asked and to talk about many of the details of my work and process. In my work, I am asking math and art to coexist in the same space. The concepts fundamental to math such as logic, problem solving, and geometry can be looked at through an artistic discourse. The rigid rules that govern mathematics can be softened and interpreted in new ways. I am equally interested in what happens when a scientific discourse is brought into art. I use 3-D modeling and programming in my work, which are governed by the types of boundaries found in math and science [2]. My conversations with Leah in addition to

**Mutual Benefit of the
Experimental Clay Residency**

What I Gained
Time and Space
Access to Machines and Materials
Coding and Fabrication Knowledge
Enthusiasm and Energy
Engaging Discourse

What I Contributed
Material Expertise
Software Expertise
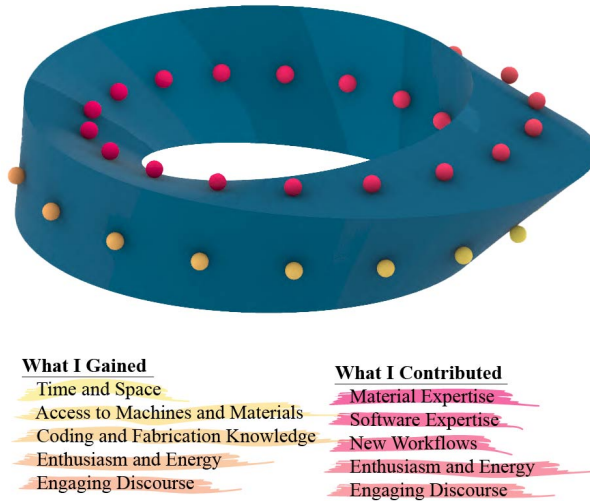New Workflows
Enthusiasm and Energy
Engaging Discourse

Fig. 3. Diagram that represents how I saw the mutual benefit in my time as an artist in the Experimental Clay Residency.

making work in a computer science lab helped me deepen my understanding of how my work straddles these two worlds.

Since my work is conceptually rooted in mathematics and problem solving, this residency suited me very well. I was not in a place with my art practice where I needed to sell work to make a living, but I was struggling to find dedicated, meaningful studio time. This residency provided the perfect place and opportunity for me to experiment, learn, and make work that excited me.

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