

Ceragami

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Ceramics is one of the oldest mediums of creating works of art over the past centuries; however there has been a significant improvement and advancements towards creating different forms with it. Ceramics has played a major role in the progress of mankind and has found its importance of application in various areas such as creating pottery and developing glazes to provide a variety of colors. Similarly an imperative substance, paper has also carved its niche and importance in the society since the past centuries. It allows us to go about our daily routines and with greater efficiency from being used as documentation of texts to creating images on its surface. While there are many ways in which we make use of paper, the Japanese developed an art form known as origami, it is believed to have began in the 17th century and soon spread in many different countries of the south east and Europe Origami is a complex process that involves folding paper in a certain fashion by following instructions to attain the desired forms. Geometry plays an important role in construction of these forms therefore the folding comprises of geometric shapes. The importance of Geometric forms and patterns can be traced throughout history as many cultures use patterns and symbols to express themselves in many different materials to create textiles, mosaic decoration and so forth. It is fascinating for me as a maker to see what a few geometric folds can do to a plain sheet of paper, simply by modifying to generate the surface of highs and lows Origami plays a chief role in my works of art where there appears to be a fusion of two mediums: paper and clay. I intend to capture the outcomes of the interdependent qualities of these materials. As the work is a combination of ceramics and Origami, I originated the term 'Ceragami'.

The aspects of material, process and transformation play a key role in my works. . The choice of material, medium and methodology by the artist in creating art transmits emotional

responses like happiness, calmness and/or anxiety. 1Martha Buskirk explains in her book 'The Contingent Object of Contemporary Art, that 'The genre hierarchies of the academic tradition, with divisions based on subject or the modernist division of art into broad categories according to medium, held out the promise that comparison and judgment could take place within the boundaries set out by each classification system'. Material has always held importance in the pictorial representation. My practice focuses on finding the best way to blend my skills of working with paper and clay in a harmonic manner. I intend establishing a pleasing combination of origami and ceramics.

The process of creating something can be directly linked with 'Becoming' and transformation as the material takes shape of an object. This 'becoming' factor can be related to what Deleuze suggests after analyzing Francis Bacon's paintings that represent a movement from body to flesh.' Bacon's painting constituted a 'zone of indiscernibility or undecidability' i.e. a blurred line between two or more things. The two exist for each other but on their own terms. Deleuze further explains that the subject no longer dwells in its territory of stability and is mended into a varied mode of existence, which does not possess its own identity anymore. This relation is observed in Ceragami works as the pictorial tension rooted between paper and clay. The clay attempts to become paper and it tries to indulge the paper's identity within itself. This eventually results in the becoming of a sculptural object.

The notion of changing a material into a work of art holds immense significance to my practice. As the usage of both these materials is observed in the works, I try to make clay imitate paper. Clay attempts to duplicate itself by taking the shape of the paper folded in a

particular manner and by inheriting paper-like qualities such as lightness and translucency. Ceragami works leans on the ability of clay being able to mend itself accurately in accordance with paper to build a mystery behind the medium. The material as it is almost undetectable. Therefore my work strives to illustrate the evolution of paper to clay.

There are many substances that cannot endure against time, and as a result the materials start to lose their strengths and tend to become more and more vulnerable. But material like clay after it is fired is able to sustain its form. Thus my ideas are based on this state of the vulnerability of the paper. As they work together I attempt to maintain a balance and harmony between the two materials so that as a maker I can appreciate their interdependent qualities without one overshadowing the other. Clement Greenberg, complained that illusionistic painting 'dissembled the medium using art to, conceal art' the important distinction could not be found in the subject of a painting, but in the exploration of the medium itself.

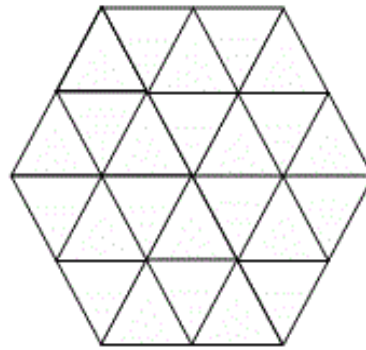
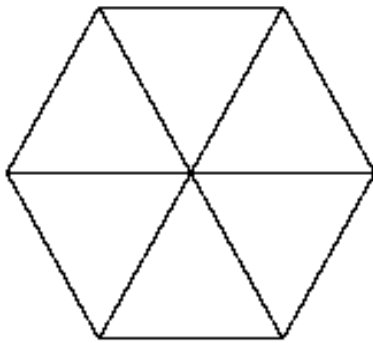
Being the creator of Ceragami works, I relish the journey and time spent in the creation of those works of art rather than the final object. It is not only an expression of careful folding but following the definite rules that origami has constructed and keeping in mind the intense process that the paper would have to go through in the future. The term process itself holds immense content in my works conceptually. As I enjoy making more than the final outcome I yearn to give a similar experience to the viewers. I do this by allowing the phase in which transformation is still in progress, to be visible with the notions of complete and incomplete surrounding it. Capturing moments in process, I provide an experience of the work being frozen

in time. The viewers are allowed to play a part of the maker, by visually completing the art work, which in turn results in being a collaborative work of art.

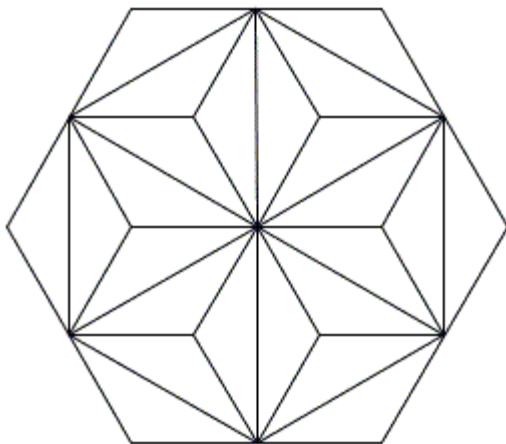
In our daily lives we are surrounded by shapes and patterns, which we learn about from Mathematics. Math has proven its proficiency to support artists by providing tools of various kinds. Precise mathematical calculation leads to an appropriate direction of creating patterns. A major tool for analyzing a pattern's accomplishment is to observe if it has been prepared with symmetry using geometry as a tool. A pattern is considered to be accurate when it is symmetrical in a mathematical sense. A continuous geometric pattern is when a shape has been made in grids with perfect symmetry. Origami is a type of art that makes appropriate use of geometric shapes in harmony to achieve symmetry. **3** 'The art of Origami - folding uncut sheets of paper into beautiful objects - is deeply connected to the worlds of mathematics and science.' The laws of origami – folding without cutting – would seem on their surface to be so restrictive as to prevent any significant variety of accomplishment'. There are absolute limits on the physical structures foldable with origami. Those limits are defined by the underlying mathematics of origami. A large part of Ceragami works intends to address the way I have been influenced by these practices and the meaning in relation to the different outcome that are generated in through the investigation. One of the major factors of origami is the study of crease patterns, which is the arrangement of lines on paper that can be folded flat. They are generally used as guidelines to understand the intricate folding of the single sheet of paper. My works have been highly influenced by the use of geometry in creating free flowing continuous patterns perfected by visual symmetry. Upon researching more about Origami as an art practice, I stumbled upon another kind of training known as 'Tessellations. The most intricate

crease pattern is observed in an origami tessellation. In this form of origami many molecules are folded in an identical and repetitive manner to create panels, these panels can be assembled with the help of folded pleats and twists. It can be created in 2D and 3D forms.

Tessellation is the continuous repetition of certain shapes in grids that are folded on the single sheet. It tends to merge with the concept of tiling geometric shapes until it occupies the whole surface area. Tiling speaks about the repetition of a finite number of polygons in a specific order to cover the whole plane without any gaps or overlaps. 2 -Polygons are formed when it has identical edges and identical interior angles regardless the number of sides. Tile patterns are created in a way that the interior angles of the polygonal tiles fit around one another to form a 360 degree angle. 4 'A pattern is considered to be periodic if a lattice can be super imposed upon the pattern. Tiles are created with a pattern that consists of one kind of polygon only. The individual shape used to tile is a proto-tile. Tiling one by one is called monohedral tiling, and there are only three edge -to- edge monohedral regular tilings: equilateral triangle, square or regular hexagon. The tiling pattern prominently observed in my work is the monohedral regular tiles created with the use of equilateral triangle. Equilateral triangles can tile the plane periodically as the interior angles are 60° , and 60 divides 360 evenly resulting in 6'. Therefore, 6 equilateral triangles can fit together around one point with no gaps to ultimately compose a hexagon. Similarly 3 hexagons fit together around one center point.



Ceragami1 is created in the pattern Truncated Hex Tiling it is an example of a semi-regular tiling of the Euclidean plane. It is said to be semi-regular as it is a combination of many equilateral triangle forming continuous hexagons. There exist 2 dodecagons (12 sides) and one triangle on each vertex. It is meant to be an equilateral triangle with each triangle divided into 3 obtuse triangles (30:30:120) to form the center point.

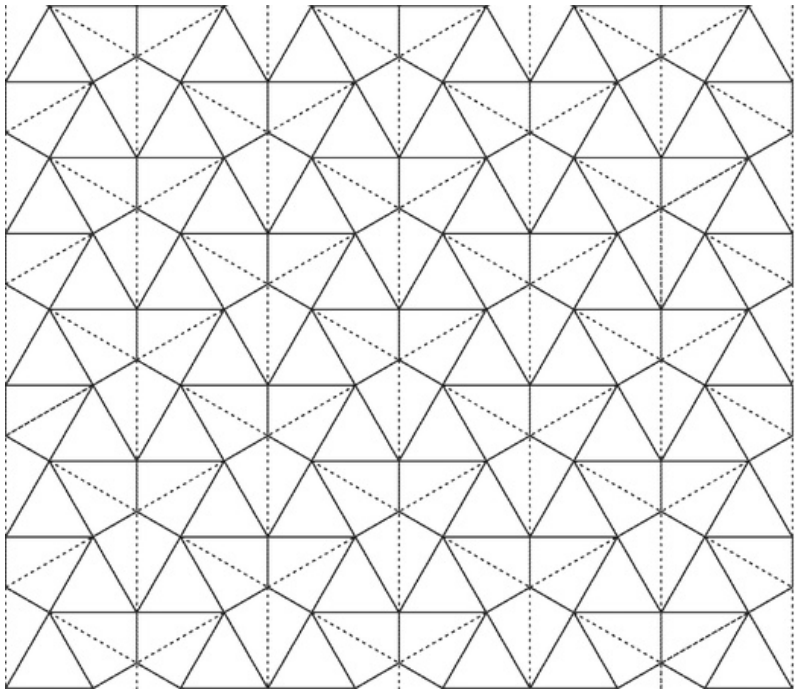
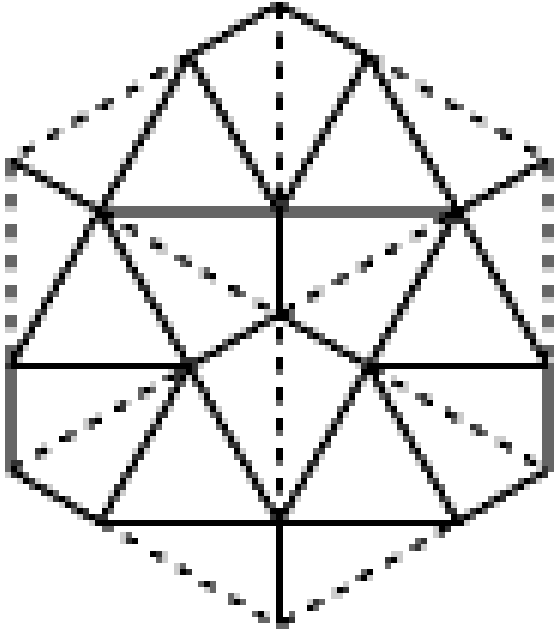


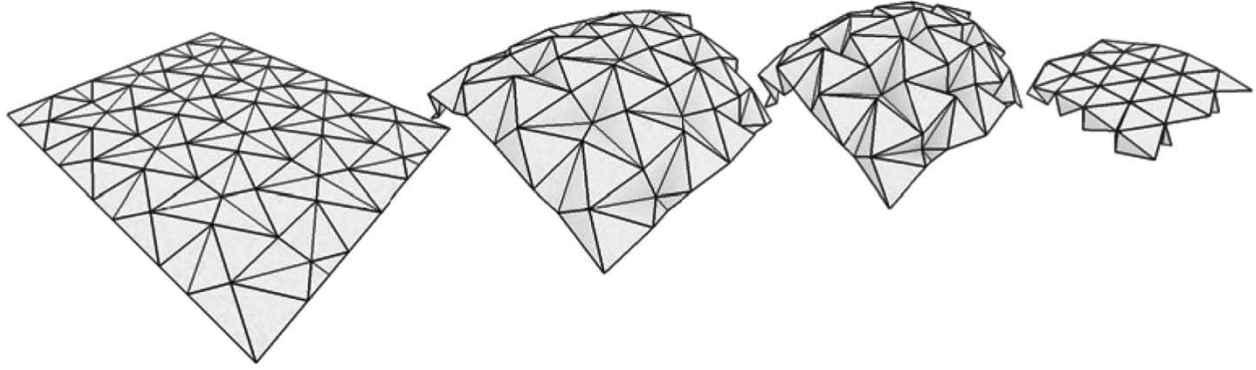
Keeping the mathematical construction methods and tiling pattern in mind, I formed the Truncated Hex Tiling in paper using origami as a tool of creation, by tucking a fold on the inside following the folding methods used by Ron Resch.

5Tomohiro Tachi elaborated the nuances of the patterns created by Resch; 'The resulting tessellated surfaces generalize the patterns proposed by Resch and allow the construction of an origami tessellation that approximates a given surface. We will achieve these patterns by first constructing an initial configuration of the tessellated surfaces by separating each facets and inserting folded parts between them based on the local configuration. The initial configuration is then modified by solving the vertex coordinates to satisfy geometric constraints of developability, folding angle limitation, and local non-intersection. We propose a novel robust method for avoiding intersections between facets sharing vertices. Such generated polyhedral surfaces are not only applied to folding paper but also sheets of metal that does not allow 180° folding.'

Here the surface is made of polygons and hidden tucks, tucks are easier to fold and can also sustain the fold in a half-folded state. The pattern rests on the design as the collision between facets is fundamental because facets sharing vertices frequently touch each other.

6The basic Resch-type origami tessellation is generated by the insertion of a star-like folded tuck. For each vertex with $2n \geq 6$ edges, we insert a star tuck comprising a corrugated triangular fan with $2n$ triangles surrounding the pivot vertex created on the backside offset position of the original vertex. The star tuck structures are inserted by splitting facets, where the split occurs only at one of the sharing vertices of the adjacent facets'.





To construct these patterns in paper with the help of origami and then transforming it in clay, the thickness of paper plays a vital role. The paper is sturdy enough to hold its shape when porcelain slip is applied on it. Firstly, the paper is folded into the respective grid pattern that supports the tessellation. The pattern of the particular tessellation cannot be conferred without folding the basic grid pattern (refer Fig.1). After the grids are formed the crease pattern is drawn on the paper. The crease patterns acts like a guideline in the tedious folding process (refer Fig.2).It indicates the mountain and valley folds providing a definite direction in the tessellation. The process is then continued by folding mountain and valley folds simultaneously by tucking valley folds in (refer Fig.3 & Fig.4). This results in the completion of all tiling fragments and rendering of a 3D pattern. With the completion of the paper folding process the objective of paper in creation of the work is fulfilled. It is important for the works to achieve paper like quality; therefore the research is solely based on creating a porcelain recipe, which turns translucent after firing. The porcelain clay recipe is used to achieve the translucency and it helps to provide weightlessness to the works as well as helps to successfully attain the illusionistic quality. The medium of appearance barely contributes to the rigorous process of creation

Porcelain clay is applied to the paper (refer Fig.5) in a repeated manner with a few time intervals. Thickness of clay determines the strength of the work; hence it requires about 8 to 10 coats of clay application for it to hold up the shape and be durable enough (refer Fig.6) By going through this process I mean to give an impression of folded paper to clay. The clay is now left to dry. The drying process can yield some fascinating movement. Due to the natural behavior of clay the object moves out of its shape.

Firing is an important event that takes place in the process of working in ceramics medium. Here clay loses its ability to be flexible, and the heat transforms clay by taking it from impermanence to permanence. Paper, being the vulnerable material, burns off and what remains is the residue and its impression taken in clay (refer Fig.7). As the maker, this is the most joyous moment to see-the transformation of paper to clay. The residual paper is brushed off and the actual surface of the clay is revealed (refer Fig.8). The art form (origami), which is restricted to paper, has now successfully evolved into clay and becomes Ceragami. This detailed process of transformation of a form in paper to clay is accomplished in a balanced conduct.

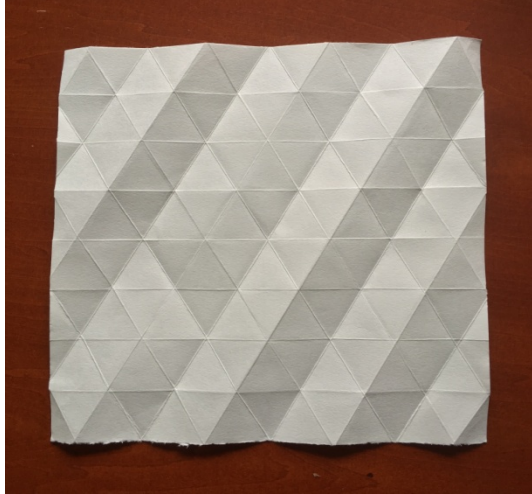


Fig. 1

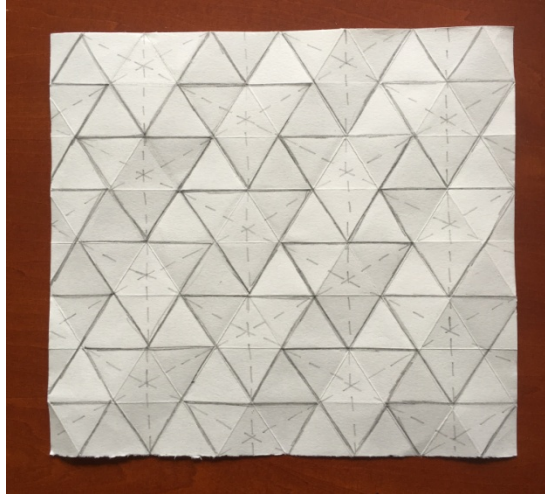


Fig. 2



Fig. 3

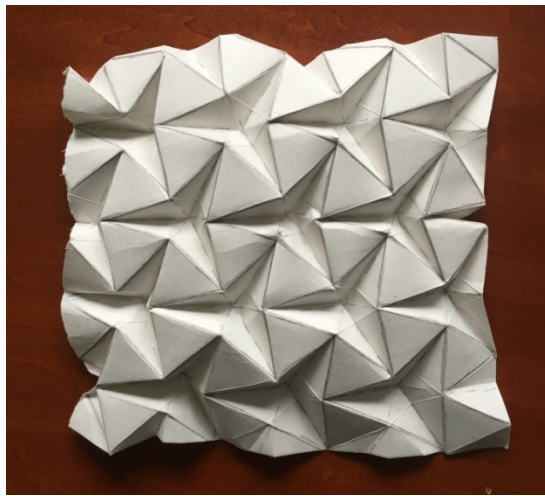


Fig. 4

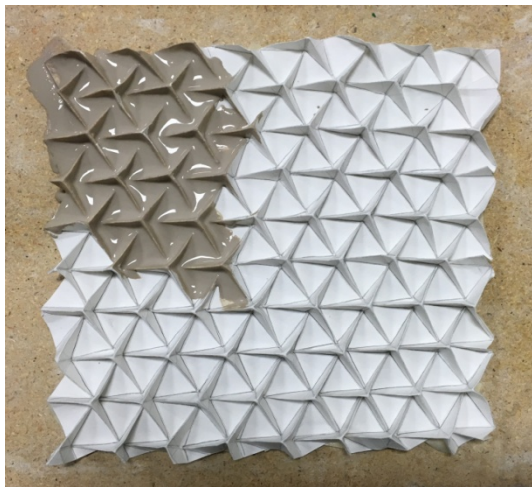


Fig. 5



Fig. 6

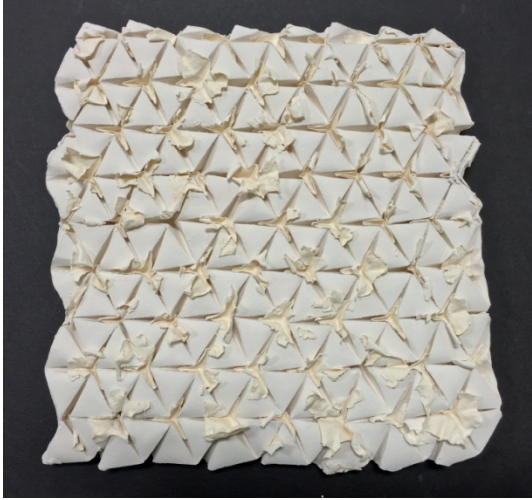
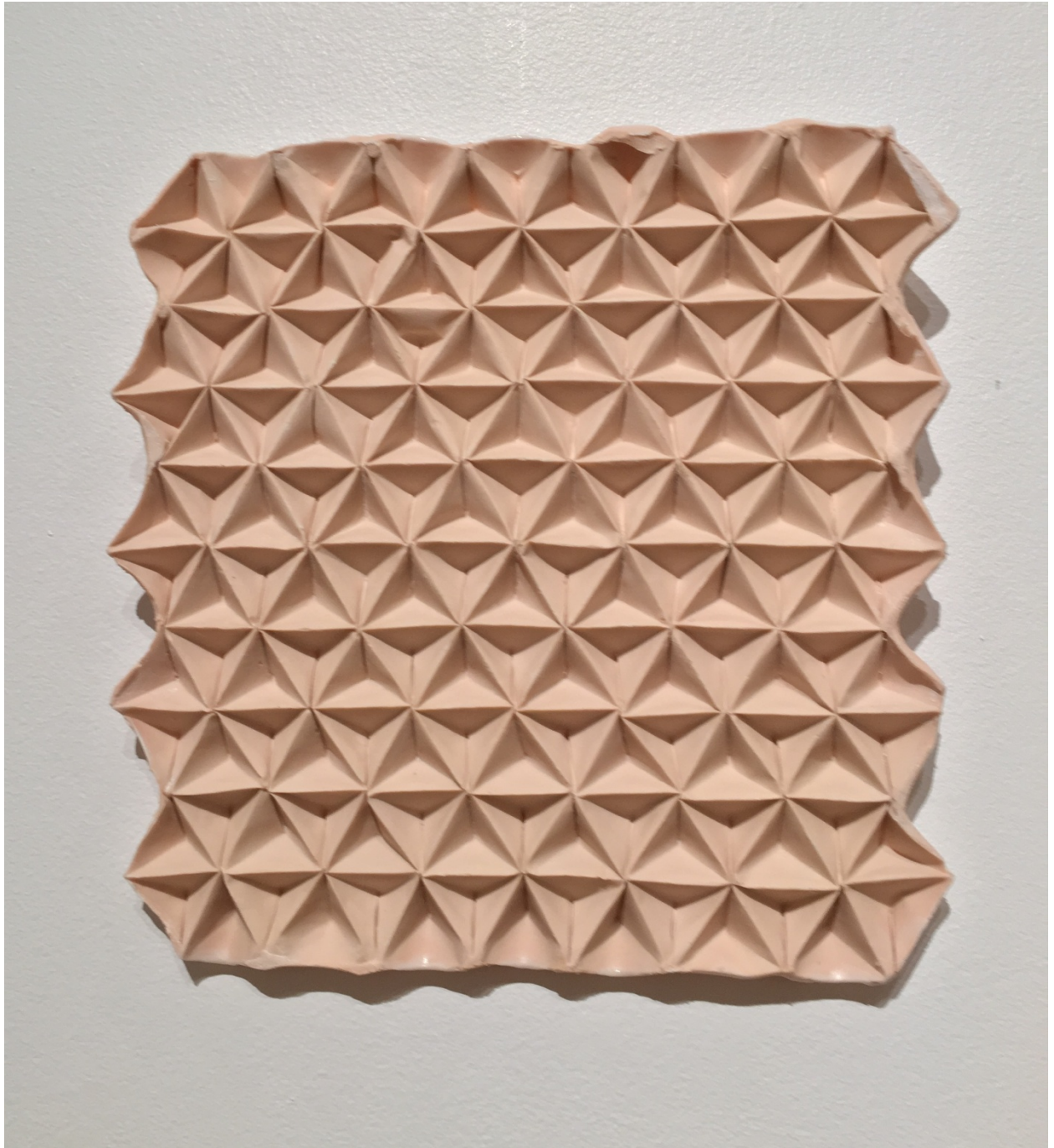


Fig.7

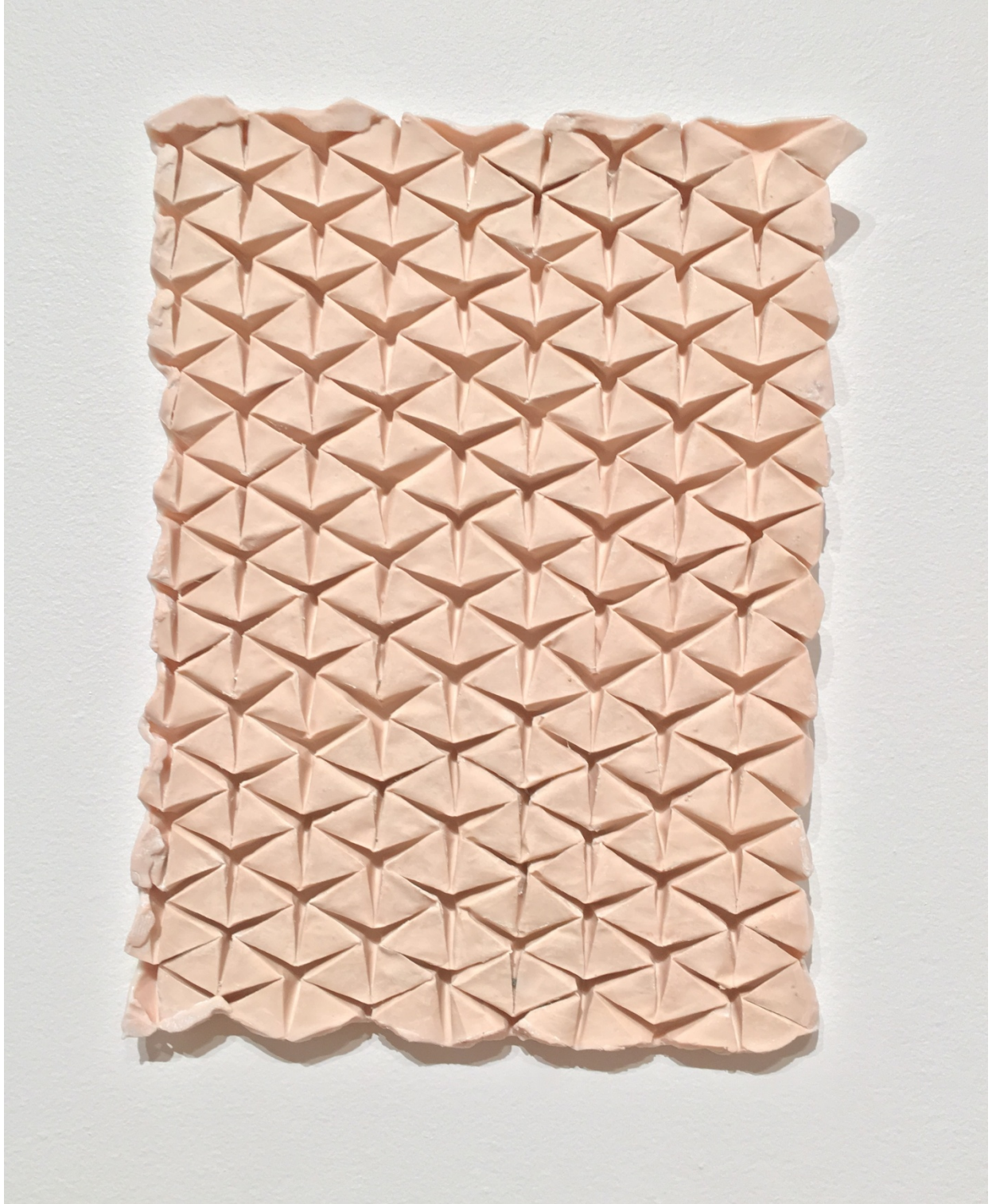


Fig.8



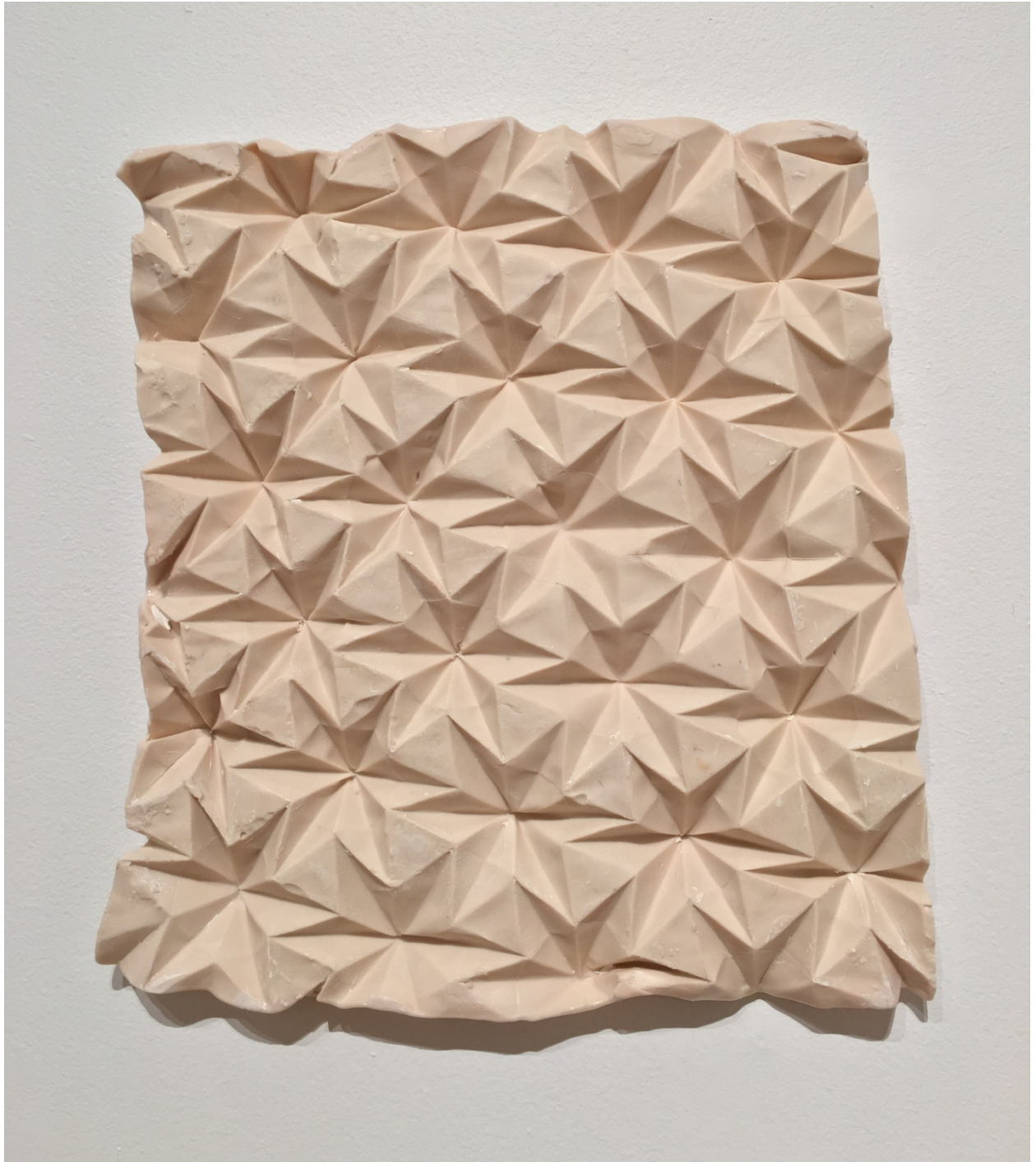
Ceragami I, 2016

Porcelain



Ceragami II, 2016

Porcelain



Ceragami III, 2016

Porcelain





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