folding structures

Folding is an intuitive experimental way to develop spatial configurations out of a paper pattern. When we work with paper or fabric, the relations between inner and outer parts of the material are kept the same, but when the material is folded, the relations are inverted. This behavior can be used to transform the shape of an object without the necessity to move its boundaries. This process can be found in the foundation course of the School of Design in Ulm, where students develop their crease patterns for the design task in a frontal way, which have to be finally re-relevant and transformable. The focus is on simple principles, sometimes leading to unexpected and unexpected results. Josef Albers described this in his book "Das quadratische Formen" (1929). In this context, he used folding to develop spatial relations. In the same way, looking at the results of the research carried out by Erik Demaine or Erik Gjerde, among others. But this is just the beginning; they have only begun to explore the structural potential of 3D tessellated structures. He introduced the concept of parametric modeling processes to the design of spatial structures.

folding & parametric design

Parametric design deals with the use of algorithms to define mathematical equations that model the characteristics of a design. It allows the exploration of design methods and tools, using origami as a vehicle for the design task. Origami tessellations developed by Robert Lang or Alex Bateman and other professionals can be seen as examples of parametric modeling processes. In this process, smell, movement is taught, as the process of putting together paper folding techniques to the development of the geometry of architectural structures.

Parametric design provides a new way to design structures, materials, and processes in a more efficient and effective way. It allows designers to explore the relationships between different parameters and to find new solutions for their projects. This approach can be applied to various fields, such as architecture, engineering, and product design. Parametric design is not only about creating new forms and structures but also about designing processes to generate them. This process involves the use of algorithms to define mathematical equations that model the characteristics of a design. It allows designers to explore the relationships between different parameters and to find new solutions for their projects. This approach can be applied to various fields, such as architecture, engineering, and product design. Parametric design is not only about creating new forms and structures but also about designing processes to generate them.

By working with regular structures in the first step we are able to explore the relationships between the crease patterns in the moment spatial folded configuration. The crease patterns are important components of the origami structure. An experiment was designed to characterize the origami pattern selected by its simplicity and beauty. The goal of the project was to explore design methods and tools that are relevant and transformative. The aim was to explore the relationships between the crease patterns in the moment spatial folded configuration. The crease patterns are important components of the origami structure. An experiment was designed to characterize the origami pattern selected by its simplicity and beauty.

References

Albers as an important experiment studying relationships between the basic folding types and the resulted hyperbolic paraboloids. His experiments show wide variations of the plane patterns and geometric transformations of the dihedral and the spatial folded result. Josef Albers included folding exercises in his foundation course at Ulm School of Design in the 1950s and 1960s, and he explored the relationships between the basic folding types and the resulted hyperbolic paraboloids.

Besides, not only those parameters are flexible but it is possible to control the model in real time, adapting a basic crease pattern. The aim is to explore design methods and tools that are relevant and transformative. The aim is to explore design methods and tools that are relevant and transformative.
By folding and unfolding the first diagonal folding line by half a fold, we get a crease of a folded crease structure, which can produce the folding principle for the development of the crease patterns.

parametric design

Folding is an intuitive experimental way to develop spatial configurations out of a paper pattern. When we work with paper folding techniques, we can introduce, explore and manipulate the relationships between initial designs and the creases resulting from folding experiments. We can use this process in a parametric design process to find alternative solutions and to generate new forms. The advantage is that we can combine our understandings of the geometric transformation translation. Developing the crease pattern techniques is a process of exploring the basic creases and then developing them into a complex folded crease structure. A folded crease diagram is a flexible structure and it can be developed into a new parametric design form.

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folding structures

folding structures & parametric design

Parametric design deals with the use of algorithms to derive or modify structures and surfaces. Through the use of Grasshopper, a plug-in that combines the power of parametric modeling processes to the design of spatial structures. The students can generate series of models, manipulate their corresponding folded forms. Simultaneously, different mathematical and geometric relations that allow generating not only those models but also other possibilities. On the other hand, computational origami is an emerging field that explores the relationships between the two-dimensional origami folds and the three-dimensional folded structures. The research carried out by Erik Demaine or Erik Gjerde, among others. But this is just the beginning; they have only begun to tap into the potential of computational paper folding.

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