

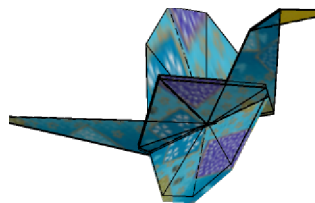
An e-origami construction of a big wing crane

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In our previous paper[1], we introduced a new technique of cut-and-glue of a shared face edge to e-origami. We observed that an origami artwork is a complex arrangement of bounded two-sided flat planes, or faces, intricately connected and superposed by repeated folds of a single sheet of (possibly virtual) paper. This collection of faces culminates in a geometric object representing a remarkable shape. Our research demonstrates that cutting an edge shared by two faces unveils a class of classical folds. By gluing the faces divided by the cut, we restore the connection of the separated faces. This cut-and-glue technique opens up vast possibilities, enabling the discovery of new folds previously deemed impossible by Huzita-Justin folds [2, 3], which, when applied to practical constructions, have certain limitations that our approach overcomes. The inside reverse fold, one of the most familiar classical folds, is not included in the Huzita-Justin folds. When we apply the cut-and-glue technique, we can realize the inside reverse fold by combining Huzita-Justin folds. We demonstrate the practical application of our method by constructing a big wing crane, a well-versed sophisticated origami artwork [4] that demands a deep research investigation for its analysis.

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References

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