

ORAL COMMUNICATION (RECREATIONAL MATHEMATICS)

From Polygons to Tessellations and Beyond!COELHO, CELESTINO, CONCEIÇÃO, ANA, and MARQUES, MARIA DA GRAÇA

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Abstract

Polygons are applied to build objects that surround us in daily life, from the tiles in our home to a traffic sign. Using the properties of these geometric objects we can create tessellations. Tessellations are made from shapes, in many cases polygons, that cover a certain area, or plane, without overlapping or leaving gaps. This mathematical art of creating repeated patterns was first applied by the Sumerians, but today they are studied in many branches of science, such as zoology [2] or astronomy [3].

In this work we present interactive apps, created with Python, that allow users to explore and learn about polygons and tessellations. We also aim to show how tessellations can be applied when dealing with geospatial data.

References

- [1] J. Akiyama, and K. Matsunaga: *Treks into Intuitive Geometry. The World of Polygons and Polyhedra*, 2nd edition. Springer (2024)
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