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(57) Abstract :
Research on articulating the design space in computational generative systems is ongoing, to overcome the issue of possible overwhelming multiplicity and redundancy of emerging design options. This invention contributes to this line of research of design space articulation, in order to facilitate designers' successful exploration in computational design. We have recently developed a method for shape clustering using K-Medoids, a machine learning-based strategy. The method performs clustering of similar design shapes and retrieves a representative shape for each cluster in 2D grid-based representation. In this work, we present a progress in our invention where the method has been applied to a new test case, and empirically verified using clustering evaluation methods. Our clustering evaluation results show comparable accuracy when assessed against an external study and provide insight into the evaluation criteria for machine learning methods, as presented in this invention.Pursuing evaluation metrics to compare the method to another study provided quantitative analytics and external validation. Those clustering evaluation metrics showed slightly higher values, yet it is expected that further improvement to the shape comparison method can lead to improved results. Overall, pursuing the evaluation of ML-based strategies becomes significant in advancing those ML methods, and necessitates further investigation.

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