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Self-trained CAD assistance for constraining assemblies based on decision trees and support vector classification

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Abstract

In this publication a concept for a self-trained assistance is presented, which places a part, selected by the designer, into an assembly and fixates it with constrains. Therefor all selectable parts are classified by the assistance beforehand. In the process of developing the classification several algorithm were tested and compared regarding speed and precision. To place and constrain the parts, decision trees for supervised learning were arranged in a multi-step structure. Furthermore, the implementation in the CAD environment Fusion 360 as well as the limitations and potentials of the concept are discussed.

Keywords: CAD; Machine Learning; SVC; Decision Trees; Assembly