

Robotic Reconstruction of Islamic Calligraphy with Rotating Bezier Splines

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Abstract

Mechanising Islamic calligraphy is a challenging job that demands research both in the process of digitization of existing art and the creation of new scripts. This research first yields a novel innovation in the conventional bezier spline curves to use them to effectively answer the artistic requirements of copying or creating broad-edge calligraphy scripts and then mathematically compares the output with the original specimens. Since these twisting spline curves also claim to bridge the gap between digital script data and a robotic manipulator that needs machine data to start moving, a robotic simulator is also discussed. The robustness of the simulator and its efficiency with the twisting bezier splines is demonstrated. The research also proposes a novel method to represent, design and solve robotic manipulators. It is believed that this research can be considered a major milestone in mechanising Islamic calligraphy given more attention and resources.