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Development and Implementation of Curvature Dependent Force Correction Algorithm for the Planning of Forced Controlled Robotic Grinding

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Abstract : A curvature dependent force correction algorithm for planning force controlled grinding process with off-line programming flexibility is designed for ABB industrial robot, in order to avoid the manual interface during the process. The machining path utilizes a spline curve fit that is constructed from the CAD data of the workpiece. The fitted spline has a continuity of the second order to assure path smoothness. The implemented algorithm computes uniform forces normal to the grinding surface of the workpiece, by constructing a curvature path in the spatial coordinates using the spline method.

Keywords : ABB industrial robot, grinding process, offline programming, CAD data extraction, force correction algorithm
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