Applying Ridge Regression Model for Improving a Machining Process

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Abstract: The success of a manufacturing process depends on the selection of appropriate process parameters, this representing a complex work in terms of modeling. Under this premise, a support plate motor used for inspection in the manufacturing area is studied. The principal interest is to prevent and correct the anomalies in the manufacture of "trial and error" in CNC machining. The critical feature of the plate is the measure of the machined diameters. In the adjusted model by least squares, present a "type 1" error in the hypothesis testing because of the linear dependence between the variables; Ridge Regression fits adequately and provide statistical certainty in the selection of significant variables of the machining process. Furthermore, the Ridge Regression reduces collinearity problems in the parameters of model submitted for work-piece fabrication through "trial and error"; also this regression eliminates "trial and error" fabrication and provides the appropriate process parameters.

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