EXAMINE THE INFLUENCE OF CAM PARAMETER OF COMPOSITE ROD TOOL PATH STATEGY FEED RATE AND SPINDLE SPEED ON THE ROUGHNESS OF MACHINED PARTS

ABSTRACT:

Industrial vision highlights a growing trend in industrial systems. As camera sensors become smarter, the quality of data produced increases and it improves the accuracy results. One of the most decisive steps for getting accurate measurements is the calibration process. This paper aims to analyze the effect of four calibration parameters: camera focus, exposure time, calibration plate tilt and number of images, on the calibration accuracy. Endocentric and telecentric lenses are used in the image acquisition and a comparative quality analysis of the calibration result is obtained using statistical methods. A sample of 2176 images is used to generate the population and the calibration error is obtained for the different values of the parameters of interest. To study the influence of each parameter in the calibration error, a multivariable statistical analysis is performed. Statistically significant results were obtained for all parameters, except in the exposure time parameter, leading to the conclusion that the calibration results (and hence the measurement accuracy) can be improved by choosing the appropriate calibration parameters.