3D CMM strain-gauge triggering probe error characteristics modeling using fuzzy logic -
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The error values of CMMs depends on the probing direction; hence its spatial variation is a key part of the probe
inaccuracy. This paper presents genetically-generated fuzzy knowledge bases (FKBs) to model the spatial error
characteristics of a CMM module-changing probe. Two automatically generated FKBs based on two optimization
paradigms are used for the reconstruction of the direction-dependent probe error ω. The angles beta and gamma are
used as input variables of the FKBs; they describe the spatial direction of probe triggering. The learning algorithm used to
generate the FKBs is a real/binary like coded genetic algorithm developed by the authors. The influence of the
optimization criteria on the precision of the genetically-generated FKBs is presented.

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Contributors: Achiche, S., Wozniak, A., Fan, Z., Balazinski, M., Baron, L., Sørensen, T.
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