

عنوان مقاله:

A Fuzzy Alignment Approach for Identification of Arbitrary Crack Shape Profiles in Metallic structures Using ACFM Technique

محل انتشار:

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خلاصه مقاله:

A new inverse problem methodology based on fuzzy alignment approach is presented for sizing crack depth profiles using output probe signals obtained by Alternative Current Field Measurement (ACFM) technique. In training stage a generalized version of fuzzy alignment algorithm (GFAA) is used to find the mapping between inputs (ACFM probe signals) and outputs (crack depth profiles) and then this mapping is used to find crack depth profile of an arbitrary unknown signal. Merit of the approach is less necessity to a large data base and it is robust even in the situation that there is not a sufficient database. Therefore it makes the method appropriate for NDE applications in which the lack of sufficient empirical database is crucial. To demonstrate the accuracy and robustness of the algorithm, experimental results for proposed algorithm, MLP and RBF neural network for both common and complex geometries are reported.

کلمات کلیدی:

alternative current field measurement; inverse problem; fuzzy alignment; neural network

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