Integration of non destructive testing

Results in Brief

Software for automatic defect detection

An innovative computer assisted defect modelling tool can significantly improve the diagnostic processes of industrial inspection through minimisation of human error.

INDUSTRIAL TECHNOLOGIES

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Non-destructive testing (NDT) is of critical importance when assessing the structural integrity of parts such as those used in aircrafts. Improvement of the cost-effectiveness and reliability of NDT procedures significantly affects travel safety, reduction of flight delay time due to maintenance and extension of the aircraft part's lifetime.

Motivated by these, the INDET project focused on realising an innovative structure for NDT processes in order to reduce costs while increasing the efficiency and reliability of the investigations. More specifically, computer and Internet technology was exploited to develop a set of advanced tools to assist NDT investigations.

As such a novel computer assisted software tool allows defect extraction and modelling of non-destructive testing images. The tool offers inspectors increased ability to correspond the image with its 3D computer-aided design (CAD) counterpart. With the aid of this tool, the defects detected by inspectors are first extracted in the 3D domain and then modelled using suitable automatic geometric fitting methods.

Compared against the original, a modified CAD model is derived that includes the identified defects in order to facilitate reporting. In addition to this, the tool offers a more precise defect characterisation through a number of measurement functionalities. These involve defect centre position, boundary length, surface area, defect orientation, and distance between two defects.

This NDT data processing tool supports decision making by speeding up image data interpretation and facilitating reporting. Potential users include mainly NDT inspection companies and airframe manufacturers.

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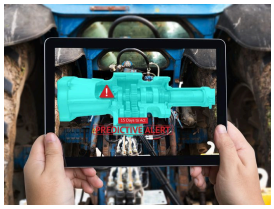

An AI-powered platform for predictive maintenance solutions

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INDET

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