

Towards Automated Remanufacturing of Marine and Offshore Engineering Components

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Abstract : Automated remanufacturing process is of great interest in today's marine and offshore industry. Most of the current remanufacturing processes are carried out manually and hence they are error prone, labour-intensive and costly. In this paper, a conceptual framework for automated remanufacturing is presented. This framework involves the integration of 3D non-contact digitization, adaptive surface reconstruction, additive manufacturing and machining operation. Each operation is operated and interconnected automatically as one system. The feasibility of adaptive surface reconstruction on marine and offshore engineering components is also discussed. Several engineering components were evaluated and the results showed that this proposed system is feasible. Conclusions are drawn and further research work is discussed.

Keywords : adaptive surface reconstruction, automated remanufacturing, automatic repair, reverse engineering

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