Measurement of local relative displacements in large structures - DTU Orbit (06/11/2019)

**Measurement of local relative displacements in large structures**
This paper presents a novel measurement technique to measure local relative displacements between parts of large-scale structures. The measured deformations can be of significant importance for fracture analyses in many different types of structures in general, and for adhesive connections in particular. The measurement of small local relative displacements in structures subjected to large global deformations is complex and hardly feasible with conventional measurement methods. Therefore, a Small Displacement Measurement System (SDMS) has been devised. The SDMS is based on stereo photogrammetry and capable of measuring 3D local displacements with a high degree of accuracy. In this article, the technique is used to measure local deformations in the vicinity of the adhesive trailing edge joint of a wind turbine rotor blade. The SDMS results correspond well with another independent measurement method.

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