VISION-BASED SYSTEM IDENTIFICATION FOR MDOF STRUCTURES

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Abstract

Vision-based system identification method is presented. For system identification, displacement is a good source for estimating dynamic characteristics. However, it is not easy to measure displacement of MDOF structures. In this method, from the dynamic displacement responses measured by vision-based technique, the dynamic characteristics (natural frequency, modeshape, and damping ratio of MDOF structures) are extracted after the processes of converting the displacement from recorded images. A shaking table tests on a three-story shear frame were conducted to validate the proposed technique. The System Identification results from the laser LVDT-based method were compared with those from the proposed technique and showed good agreement, which confirms the validity and applicability of the proposed vision-based SI technique for MDOF structures.

Keywords: **Vision-based analysis, System identification, Dynamic characteristic, Shaking table test**