# Autonomous Macro and Micro Bridge Inspection Using Aerial Vehicle Capable of Wall-Climbing

Sungwook Jung, Wancheol Myeong, Byeongho Yu, Chris Tirtawardhana, Seungwon Song, Jinkwang Kim, Junho Choi, and *Hyun Myung

*Urban Robotics Lab., KAIST, Daejeon 34141, Korea*
{*sungwook87, wcmyeong, bhyu, christiant, sswan55, jinkwang, cjh6685kr, hmyung} @kaist.ac.kr*

## ABSTRACT

The field of research for bridge inspection using a UAV has gradually been developed to meet human needs. The UAV-based inspection system can be classified into contact-type and non-contact-type inspection depending on the purpose of the diagnosis. In this paper, we propose two different bridge inspection approaches using an unmanned aerial vehicle for both macro and micro inspection. A macro inspection for an approximate diagnosis is done by a non-contact-type UAV and a micro inspection for the detailed diagnosis is done by contact-type wall-climbing UAV. Both approaches have been verified through the actual bridge experiments.
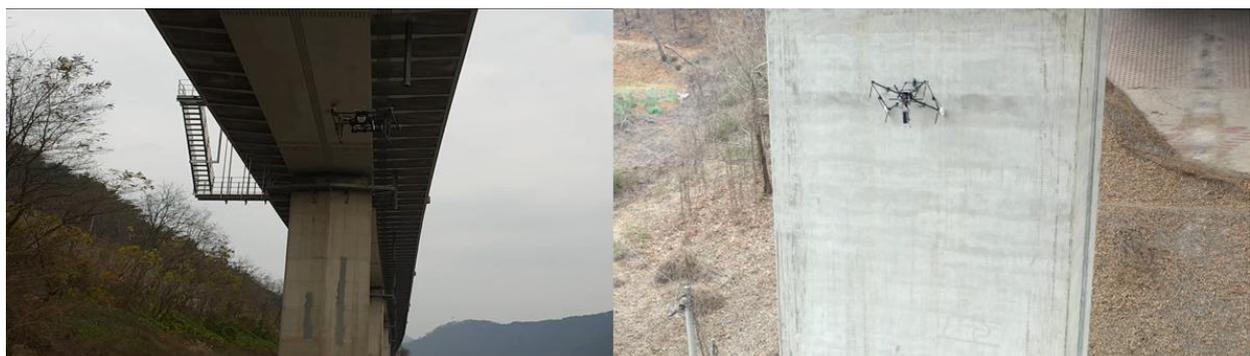
Fig. 1 Macro inspection using non-contact type UAV and micro inspection using contact type UAV