The 2022 World Congress on
The 2022 Structures Congress (Structures22)
16-19, August, 2022, GECE, Seoul, Korea

Bridge component recognition using unmanned aerial vehicle

*Hyunjun Kim[1)], Yasutaka Narazaki[2)], and Billie F. Spencer Jr.[3)]

1) Department of Civil Engineering, Seoul National University of Science and Technology, Republic of Korea
2) Zhejiang University/University of Illinois at Urbana-Champaign, Zhejiang University, China
3) Department of Civil and Environmental Engineering, University of Illinois at Urbana-Champaign, USA
[1)] hkim@seoultech.ac.kr, [2)] narazaki@intl.zju.edu.cn, [3)] bfs@illinois.edu

ABSTRACT

Computer vision techniques have been widely used for automated bridge inspection purposes (Spencer et al. 2019; Perry et al. 2020). In particular, the application of a digital camera installed on the unmanned aerial vehicle (UAV) has shown great potential to enable improved bridge inspection using UAV imagery. Here, a set of images captured in proximity to the structural surface are typically required for damage evaluation with a high pixel density; subsequently, the obtained images need to be linked to the structural component to further assess the effect of local damage to the global health. However, the lack of contextual information in such close-range images makes automated identification of bridge components challenging. This study proposes a methodology for automated bridge component recognition using a set of close-range images taken by UAV survey.

REFERENCES

Spencer Jr, B.F., Hoskere, V. and Narazaki, Y. (2019), “Advances in computer vision-based civil infrastructure inspection and monitoring”, *Engineering*, **5**(2), 199-222.

Perry, B.J., Guo, Y., Atadero, R. and van de Lindt, J.W. (2020), “Streamlined bridge inspection system utilizing unmanned aerial vehicles (UAVs) and machine learning”, *Measurement*, **164**, 108048.

[1)] Assistant Professor
[2)] Assistant Professor
[3)] Professor