

Damage localization in 3D model using NerF

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ABSTRACT

There are a total of 470,000 small to medium-sized public buildings over 30 years old that are excluded from mandatory management under current laws, leading to significant social issues recently. Systematic and accurate safety inspections of these aging buildings are essential to prevent safety accidents and loss of life. However, existing safety inspections rely on visual inspections by personnel, which require substantial manpower, budget, and time, making efficient and systematic safety checks challenging. To address these issues, various research works are conducted regarding damage detection and localization using deep learning and computer vision technologies in an image captured by drones. But, in conventional methods, an image of single working distance is utilized for damage detection and 3D reconstruction while different working distance should be considered in terms of pixel resolution for damage detection precision and suitability for 3D reconstruction. This study proposes damage localization method using NeRF between images of different working distance.

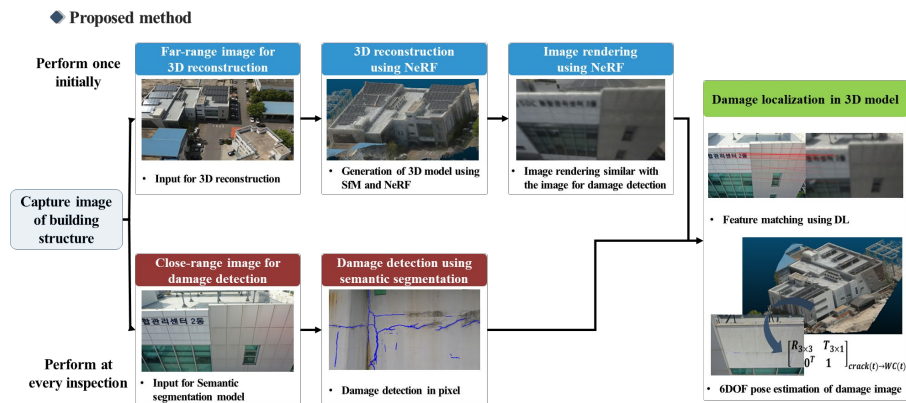


Fig. 1 Damage detection system for elements of temporary structures

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