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Source:

Taeseung Baek, Yong-Gu Lee, Traffic control hand signal recognition using convolution and recurrent neural networks, Journal of Computational Design and Engineering, Volume 9, Issue 2, April 2022, Pages 296–309, <https://doi.org/10.1093/jcde/qwab080>

Summary:

This paper introduces an innovative approach to the recognition of traffic hand signals using computer vision techniques, with a particular focus on real-time processing applicable to autonomous driving systems. Departing from conventional methodologies reliant on extracting skeletons from video streams, which often entail a lot of computational overhead , the proposed method opts for a streamlined approach. It employs straightforward object detectors trained to discern hand directions without the necessity of skeletal information.

Remarkably, the method attains high accuracy in hand signal recognition from RGB images, achieving a processing speed of 30 frames per second (FPS) in high-definition video streams.

The study leverages a dataset comprising of almost 4000 videos performed by 9 actors, which is openly accessible to the research community. Each frame image was labeled with bounding boxes. The paper concludes by underlining the significance of speed and validity assessment in hand signal recognition.