Smart Road Damage Detection and Warning using Machine Learning

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Abstract: We present a neural network topology, as well as training and prediction algorithms, in this research. To create a safe road environment, we present a deep neural network technique to detect road surface deterioration conditions. For training and testing, we provide an image dataset as input. Various sorts of road anxiety are depicted in the photographs. The suggested approach is compared to a variety of deep learning models from different disciplines. The findings of this study are expected to play a significant role in guaranteeing safe driving in the future by effectively detecting poor road conditions.

Keywords: Road Damage Detection.

REFERENCES
[1]. M. Colin, F. Palhol, and A. Leuxe, "Climate Change Adaptation of Transportation Infrastructures and Networks," Transportation Research Procedia, vol. 14, pp. 86–95, 2016. Data, vol. 3, no. 3, p. 28, 2018.
[2]. K. Gopalakrishnan, "Deep learning in data-driven pavement image analysis and automated distress detection: A review," Data, vol. 3, no. 3, p. 28, 2018.
[3]. "Study on binocular vision based obstacle detection technology for intelligent vehicle," Journal of Image and Graphics, vol. 12, 2007. R.-b. WANG, L.-h. LI, L.-s. JIN, L. GUO, and Y.-b. ZHAO, "Study on binocular vision based obstacle detection technology for intelligent vehicle," Journal of Image and Graphics, vol. 12, 2007.
[4]. S. D. Gleave, "Eu road surfaces: Economic and safety implications of poor road care," Policy Department Structural and Cohesion Policies, 2014.
[5]. H. Maeda, Y. Sekimoto, T. Seto, T. Kashiyama, and H. Omata, "Road damage detection and classification using deep neural networks with smartphone images," Computer-Aided Civil and Infrastructure Engineering, vol. 33, no. 12, pp. 1127–1141, 2018. [6] H. Maeda, Y. Sekimoto, T. Seto, T. Kashiyama, and T. Kashiyama,
[6]. C. Chellaswamy, H. Famitha, T. Anusuya, and S. Amirthavarshini, "Iot-based humps and pothole identification on highways and information sharing," in IEEE's 2018 International Conference on Computation of Power, Energy, Information, and Communication (ICCPEIC), pp. 084–090.
[7]. K. Doycheva, C. Koch, and M. Konig, "Computer vision and deep learning for real-time pavement distress detection," Springer, pp. 601–607, 2019. "Automated pavement crack damage detection using deep multiscale convolutional features," Journal of Advanced Transportation, vol. 2020, 2020.
[8]. W. Song, G. Jia, H. Zhu, D. Jia, and L. Gao, "Automated pavement crack damage detection using deep multiscale convolutional features," Journal of Advanced Transportation, vol. 2020, 2020.