

Driver Drowsiness Monitoring using Convolutional Neural Network

Amol A. Kadam¹, Akshit Jaiswal², Ritik Meshram³, Parshuram Kumar⁴, Shubham Wayal⁵

Associate Professor, Department of Computer Engineering¹

Students, Department of Computer Engineering^{2,3,4,5}

Sinhgad Institute of Technology, Lonavala, Maharashtra, India

Abstract: *Driver Drowsiness aim is to create an intelligent processing scheme to avoid road accidents. This can be done by period of time monitoring the drowsiness and warning driver of inattention to prevent accidents. Driver drowsiness detection is a crucial application of computer vision and machine learning techniques that aims to enhance road safety by monitoring the alertness levels of drivers in real-time. One effective approach for this task is using Convolutional Neural Networks (CNNs), which have shown remarkable success in various image-related tasks. CNNs are deep learning models specifically designed for image analysis. They consist of multiple layers of interconnected neurons, including convolutional layers, pooling layers, and fully connected layers. These layers collectively learn and extract meaningful features from input images, enabling the network to make predictions or classifications.*

Keywords: Convolutional Neural Network; Data Augmentation; Deep Learning; Drowsiness

REFERENCES

- [1] Dr.Priya Gupta, NidhiSaxena, Meetika Sharma, JagritiTripathi, "Deep Neural Network for Human Face Recognition". International Journal of Engineering and Manufacturing, vol.8, no.1, pp. 63-71. January 2018.
- [2] Jeyasekar A. Vivek Ravi Iyengar, "Driver's Drowsiness Detection Based on Behavioural Changes using ResNet", International Journal of Recent Technology and Engineering (URTE), vol. 8, no. 3, pp. 25-30, 2019.
- [3] Kartik Dwivedi, Kumar,Biswaranjan and Amit Sethi "Drowsy Driver Detection using Representation Learning", IEEE Advance Computing Conference (IACC), Gurgaon, pp. 995-999, 2014.
- [4] Ki Wan Kim, Hyung Gil Hong, GiPyo Nam and Kang Ryoung Park. "A Study of Deep CNN-Based Classification of Open and Closed Eyes Using a Visible Light Camera Sensor", Sensors, 2017.
- [5] Luigi Celona, Lorenzo Mammanna, Simone Bianco, Raimondo Schettini, "A Multi-Task CNN Framework for Driver Face Monitoring", IEEE International Conference on Consumer Electronics,Berlin, 2018.