

**TRACK 04: MULTIMEDIA COMPUTING & COMPUTER VISION**

PAPER ID: 17-04-0100	<p style="text-align: center;"><b>Camera-based Vehicle Recognition Methods and Techniques: Systematic Literature Review</b></p> <p style="text-align: center;">Nor'aqilah Misman<sup>1,2</sup>, Suryanti Awang<sup>1,2</sup></p> <p style="text-align: center;"><sup>1</sup>Faculty of Computer Systems &amp; Software Engineering (FSKKP), Universiti Malaysia Pahang, 26300 Kuantan Pahang, Malaysia</p> <p style="text-align: center;"><sup>2</sup>Soft Computing &amp; Intelligent System Research Group (SPINT), FSKKP, Universiti Malaysia Pahang, 26300 Kuantan Pahang, Malaysia</p> <p>Intelligent Transportation System (ITS) has been explored and widely used in modern cities. Most ITS studies aim to investigate novel vehicle system approaches which are vehicle detection, tracking or recognition. The vehicle recognition system is one of the technology applications widely used in ITS. It is implemented to recognize vehicles using camera-based. However, there are several issues regarding these approaches such as unable to provide reliable results and performance, especially in the complex environment such as lighting, shadow, and occlusion. This paper aims to present a systematic literature review of vehicle recognition by presenting state of the art, methods and the processes. The vehicle recognition categorized into two types of approaches which are appearance and motion based. The appearance-based obtained the data from the static image while motion-based used the data from video. To extract the data, the standard processes used are pre-processing, feature extraction, feature selection, and classification. Based on existing works, the majority focused on a vehicle type recognition system, to offer an alternative to current practice in many related systems such as automatic toll system, traffic monitoring, vehicle counting, traffic census and others that used human observation or sensor-based on classifying the vehicle type. To conclude, this paper discussed the related findings and used for further research in overcoming challenges and issues in the vehicle recognition especially in the vehicle type recognition.</p> <p><b>Keywords:</b> Vehicle Recognition, Vehicle Type Recognition, Feature Classification, Computational Intelligence</p>
PAPER ID: 17-04-0101	<p style="text-align: center;"><b>Review on Deep Learning-Based Face Analysis</b></p> <p style="text-align: center;">Mohammed Ahmed Talab, Hai Tao, Ahmed Ali Mohammed Al-Saffar</p> <p style="text-align: center;">Faculty of Computer Systems &amp; Software Engineering, Universiti Malaysia Pahang</p> <p>This paper reviews the development of face recognition based on deep learning in the field of biometrics. Firstly, the basic application of face recognition and the definition of the deep learning model is explained. In addition, the research overview and application are summarized, such as face recognition method based on convolution neural network (CNN), deep nonlinear face shape extraction method, face-based robustness modeling based on deep learning, fully automatic face recognition in constrained environments, face recognition based on deep learning video monitoring, low resolution face recognition based on deep learning, and other deep learning of the face information recognition; analysis of the current face recognition technology in the deep learning applications in the problems and development trends. Finally, it is concluded that the deep learning can learn to get more useful data and can build a more accurate model. However, there are some shortcomings in deep learning, such as the length of the training model, the need for continuous iteration to model optimization, being difficult to guarantee the optimal global solution, which also needs to continue to explore in the future.</p> <p><b>Keywords:</b> deep learning; convolution neural network; Face recognition.</p>