

An evaluation of different input transformation for the classification of skateboarding tricks by means of transfer learning

Muhamad Amirul Abdullah^a, Muhammad Ar Rahim Ibrahim^a, Muhammad Nur Aiman Shapiee^a, Mohd Azraai Mohd Razman^a, Rabiū Muazu Musa^b, Noor Azuan Abu Osman^c, Muhammad Azzat Zakaria^a & Anwar P. P. Abdul Majeed^{a,d}

^a Innovative Manufacturing, Mechatronics and Sports Laboratory, Faculty of Manufacturing and Mechatronic Engineering Technology, Universiti Malaysia Pahang, Pahang, Malaysia

^b Centre for Fundamental and Continuing Education, Department of Credited Co-Curriculum, Universiti Malaysia Terengganu, Terengganu, Malaysia

^c Faculty of Engineering, Universiti Malaya, Kuala Lumpur, Malaysia

^d School of Robotics, XJTLU Entrepreneur College, Xi'an Jiaotong Liverpool University, Taicang, China

ABSTRACT

This study aims to investigate the effect of different input images, namely raw data (RAW) and Continuous Wavelet Transform (CWT) towards the discriminating of street skateboarding tricks, i.e., Ollie, Kickflip, Shove-it, Nollie and Frontside 180 through a variety of transfer learning with optimised k-Nearest Neighbors (kNN) pipelines. Six amateur skateboarders participated in the study, executed the aforesaid tricks five times per trick on an instrumented skateboard where six time-domain signals were extracted prior it was transformed to RAW and CWT. It was shown from the study that the CWT-InceptionV3-optimised kNN pipeline could attain an average test and validation accuracy of 90%.

KEYWORDS

Classification; k-Nearest Neighbor; Machine learning; Skateboarding; Transfer learning

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