A Simulated Kalman Filter (SKF) Approach in Identifying Optimum Speed During Cornering

Kamil Zakwan Mohd Azmi [a] , Nurul Afiqah Zainal [a] , Muhammad Aizzat Zakaria [a] , Anwar P. P. Abdul Majeed [a b]

[a] Innovative Manufacturing, Mechatronics and Sports (iMAMS) Laboratory, Faculty of Manufacturing and Mechatronics Engineering Technology,
Universiti Malaysia Pahang Pekan, Pahang Malaysia

[b] Centre for Software Development and Integrated Computing
Universiti Malaysia Pahang Pekan, Pahang Malaysia

ABSTRACT

Safety and human comfort are of paramount importance towards vehicle performance. This study aims to recognize the optimum cornering speed of a two-in wheel vehicle by means of a metaheuristic optimization technique known as Simulated Kalman Filter (SKF). The algorithm is used to minimize the normal forces experienced by the driver based on the identified speed. The system combines a biodynamic model with a two-in-wheel car model. It was demonstrated from the study that the conservative optimum speed of 20 km/h was determined by the SKF algorithm. The outcome of the investigation is non-trivial towards ensuring human comfort as well as safety to the driver.

KEYWORDS

SKF; Biodynamic; Two-in-wheel vehicle; Safety; Optimization

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