

Intelligent air-cushion tracked vehicle performance investigation: neural-networks

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INTERNATIONAL JOURNAL OF HEAVY VEHICLE SYSTEMS

Volume: 19 Issue: 4 Pages: 407-426

DOI: 10.1504/IJHVS.2012.049850

Published: 2012

Document Type: Article

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Abstract

Intelligent Air-Cushion Tracked Vehicle (IACTV) is intended as an alternative to conventional off-road vehicles, which are driven by track system and air-cushion system. To make IACTV as efficient as possible, proper investigation of vehicle performance is essential. However, most relevant factors that affect the competitive efficiency of the air-cushion tracked vehicle are the tractive effort, motion resistance and power consumption. Therefore, an Artificial Neural-Network (ANN) model is proposed to investigate the vehicle performance. Cushion Clearance Height (CH), and Air-Cushion Pressure (CP) are used at the input layers while Power Consumption (PC), Tractive Effort (TE) and Motion Resistance (MR) are used at the output layers. Experiments are carried out in the field to investigate the vehicle performance and compared with the results obtained from ANN.

Keywords

Author Keywords: ANN; artificial neural network; CH; cushion clearance height; PC; power consumption; TE; tractive effort; MR; motion resistance

KeyWords Plus: FUZZY-LOGIC APPROACH; TERRAIN; SYSTEM; DESIGN

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Publisher

INDERSCIENCE ENTERPRISES LTD, WORLD TRADE CENTER BLDG, 29 ROUTE DE PRE-BOIS, CASE POSTALE 856, CH-1215 GENEVA, SWITZERLAND

Journal Information

Impact Factor: [Journal Citation Reports](#)

Categories / Classification

Research Areas: Engineering; Transportation

Web of Science Categories: Engineering, Mechanical; Transportation Science & Technology

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