ORIGINAL ARTICLE

INTERNATIONAL JOURNAL OF ARTIFICIAL INTELLIGENCE

ISSN: 2692-5206, Impact Factor: 12,23
American Academic publishers, volume 05, issue 08,2025

Journal: https://www.academicpublishers.org/journals/index.php/ijai

FORECASTING THE RISK OF VEHICLE TRAFFIC DURING ROAD CONNECTION USING ARTIFICIAL INTELLIGENCE

Akhmatokhunov Bakhtiyor
Andian state technical institute,
Department of Transport logistics

Abstract: This paper investigates the application of Artificial Intelligence (AI) in forecasting vehicle traffic risk during road connection and construction activities. It focuses on how AI models, including machine learning and predictive analytics, can analyze historical traffic data, environmental conditions, and real-time inputs to predict potential congestion, accidents, and disruptions. The study emphasizes AI's role in proactive traffic management, helping authorities plan safer and more efficient road connections. By identifying high-risk zones and periods, AI-driven forecasting supports strategic decision-making, minimizes delays, and enhances road user safety. The research underlines AI's capacity to revolutionize traffic risk prediction and infrastructure planning.
Key words: Artificial Intelligence, Traffic Risk Forecasting, Road Construction, Predictive Analytics, Traffic Management, Machine Learning.

Introduction. Its safety and prompt readiness for work are improved by post-work auto storage, effective use of storage techniques and equipment, and storage organization. The car is exposed to the outside environment while it is in use, which causes its components to be loaded and undergo changes in condition, wear, heat, and chemical and physical characteristics. The automobile thus loses its functionality. The operating conditions determine the aforementioned modifications [1]. Road, traffic, transportation, environment, and seasonal circumstances are some of them. The machine may soon malfunction or become inoperable as a result of this. Changes in the technical condition of the car occur on the basis of specific laws, which are changes in the technical condition of the work. In turn, the aforementioned laws are a variety of the indicators of the road's condition or the car's technical state during operation. The car's dependability is completely described by these regulations [2, 3]. The recovery process takes place within a specific period of "failure" and its removal, as described by the third law, which connects the car's reliability. Performance, durability, repairability, and maintenance are some of the car's many intricate reliability indications [4,5].

Maintaining its technical state for a predetermined amount of time or while walking is referred to as operation without breakage. Longevity is the maintenance of vehicles until a certain time and until the completion of maintenance and repair work[7].

Repairability - it signifies the ease, capability, and propensity of the vehicle to inspect, control, and rectify violations during maintenance and repair.

Conservatism - means that the car is able to maintain its technical condition during idle or during operation

Depreciation. During operation, the parameters of the technical condition of vehicles change under the influence of the external environment. For example, rubber products lose their strength and elasticity due to oxidation, hot or cold temperatures, humidity, solar radiation, and the chemical action of oils, fuels, or liquids. Fats and oils are contaminated with edible products, their viscosity deteriorates, their compounds lose their strength, and so on. As an example, there are violations during the operation of Damas cars (Table 1.1).

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Table 5
List of faults of Damas cars operating in Andijan at a distance of 0 to 300 thousand km

	Causes of disorders	*Degradation rates, %*
1	*deterioration*	*50,2*
2	Plastic deformation and erosion: Including: break, cut, cut stretch, bend, crush	*15,3* *7,1* *8,2*
3.	Fatigue breakdown. Including: crack Fracture	*7,5* *1,1* *2,9* *3,5*
4.	Decomposition in hot state. Including: burn, short circuit burn out	*5,7* *2,1* *3,5* *0,1*
5.	*others*	*21,3*
	total	*100,00*

Friction is the resistance that occurs between two moving parts (parts) relative to each other.The process of friction is said to eliminate the force of friction that occurs when objects move. The rate of wear of parts depends on the work of friction, its path and friction conditions. For rotating parts, the friction path (for example, a crankshaft bearing) is found by multiplying the number of revolutions of the shaft by its circumference. For properly moving parts (such as piston rings), the friction path is determined by multiplying the number of strokes by the number of strokes.

There are basically three types of friction: dry, liquid, and boundary friction.

Cylinders, pistons and rings operate under very high loads, rotations and temperatures. The work of these parts involves boundary friction, various abrasives and corrosives, and a wear rate of 2.6 μm / 1000 km.The curvature is greater at the top of the cylinder than at the bottom, and it takes on the shape of an ellipse. Corrosion of cylinder walls occurs as a result of mechanical, molecular-mechanical and corrosion-mechanical corrosion. The main reasons for the wear of the upper part of the cylinder are the activation of corrosion processes, high temperature, pressure and relatively slow movement of the piston. These factors lead to the burning of oil, the liquefaction of unburned fuel condensate, the weakening of the bonding of metal particles, and molecular and corrosive mechanical corrosion.

Corrosion of the cylinder-piston group leads to a decrease in engine power, an increase in fuel and oil consumption, and an increase in the toxicity of exhaust gases as a result of the deterioration of the combustion process..

Here are some steps you can take to begin the process of preparation for mediation:

a) Operational measures: maintenance of air purifiers, oil and fuel filters and keeping the

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temperature as uniform as possible.

b) Repair measures: replacement of rings (when the connection gap reaches 0.5 mm), washing and polishing of the cylinder (if the diameter of 80 mm corresponds to 0.5 mm wear) and simultaneous replacement of pistons.

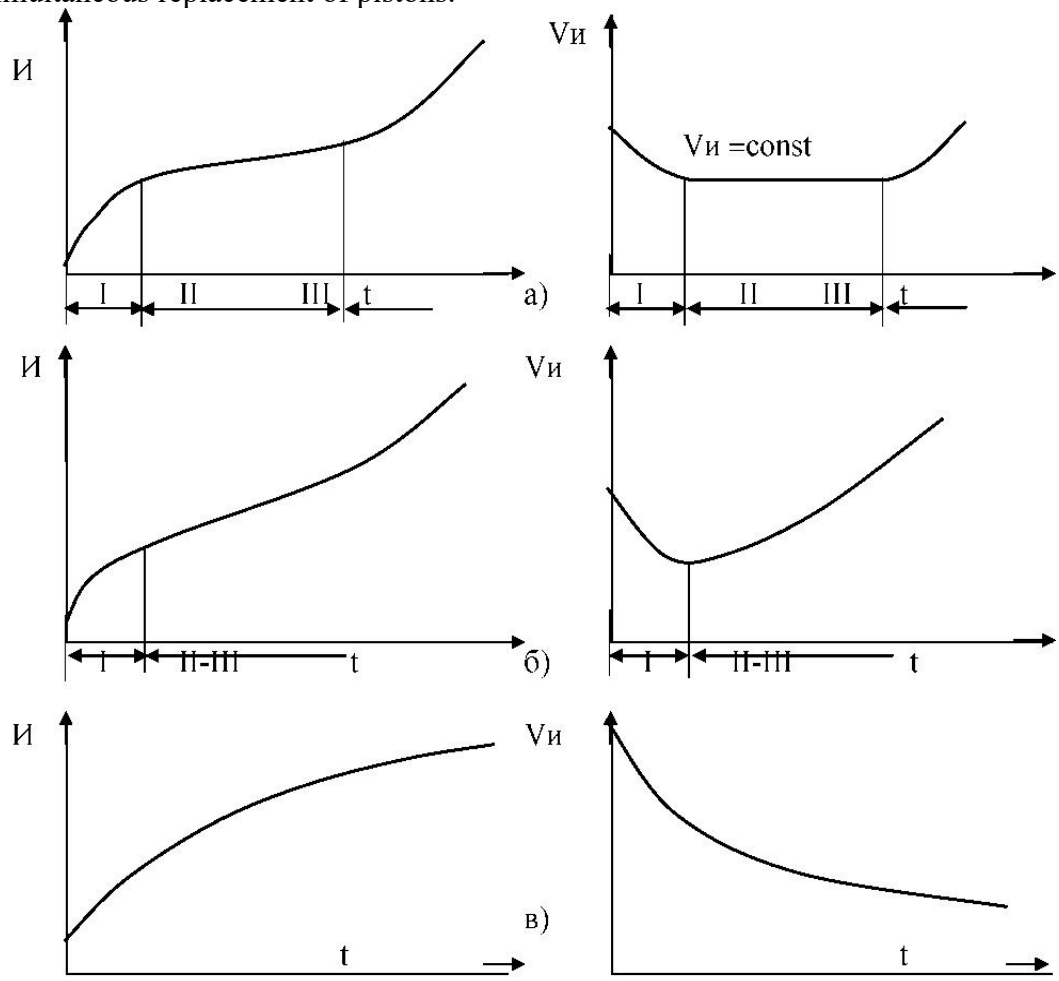

Figure 1. Distribution of deterioration by time

a) erosion consists of three periods; b) erosion consists of two periods;

c) the rate of eating decreases gradually and the amount of eating stabilizes.I-wear amount, μm; Vi - wear rate, μm / thousand km;I-adaptation period; II-normal eating period; Sh - the period of "lossy" eating.

c) Production measures: chrome plating of compression rings; burn small sleeves that can withstand wear to the top of the cylinder.

Erosion of the drive disc surface reduces the free path of the clutch, and incomplete contact increases the grip and increases the amount of wear, ie the traction of the vehicle decreases. The wear between the brake pads and the brake drums, which increases the gap between them and lengthens the braking distance.

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