

**WARSAW UNIVERSITY OF TECHNOLOGY
FACULTY OF TRANSPORT**

ARCHIVES
OF **QUARTERLY**
TRANSPORT

ISSN 0866-9546

E-ISSN 2300-8830

volume 67
issue 3

Warsaw 2023

Detailed instructions for authors and contacts to editors can be found on journal's webpage:
www.archivesoftransport.com

The Archives of Transport is indexed by the Polish Ministry of Education and Science.

Archives of Transport received funding under the "Development of scientific journals" program implemented by the Ministry of Education and Science of the Republic of Poland.

The project aims to improve the quality of the journal, including the quality of the publishing process, increase the range of its impact and maintain the journal in international circulation.



CO-FINANCED FROM THE STATE BUDGET

DEVELOPMENT OF SCIENTIFIC JOURNALS

Support for the development of the Archives of Transport journal (ISSN: 0866-9546)

FUNDING
80 000 PLN

TOTAL VALUE
80 000 PLN

All articles are peer-reviewed by two reviewers. Reviewers list is published once each year in the last issue of the journal and also on the journal's webpage.

Copyright © 2023 by Warsaw University of Technology.

Archives of Transport provides all articles in free open access. Articles are freely available to wider public with permitted reuse under Creative Commons 4.0 BY license (<https://creativecommons.org/>).

Print run of 40 copies.

Free and unlimited online access.

ARCHIVES OF TRANSPORT

Editor-in-Chief

Marianna Jacyna

Warsaw University of Technology, Poland

Deputy Editor-in-Chief

Konrad Lewczuk

Warsaw University of Technology, Poland

Emilian Szczepański

Warsaw University of Technology, Poland

Editorial Board – Scientific Council

Salvatore Cafiso

University of Catania, Catania, Italy

Marcin Chrzan

University of Technology and Humanities, Radom, Poland

Antonio Comi

Università degli Studi di Roma "Tor Vergata", Rome, Italy

Piotr Czech

Silesian University of Technology, Gliwice, Poland

Carmelo D'agostino

Lund University, Lund, Sweden

Ján Dižo

University of Žilina, Žilina, Slovakia

Goran Dukic

University of Zagreb, Zagreb, Croatia

Andrii Galkin

O.M. Beketov National University of Urban Economy in Kharkiv, Kharkiv, Ukraine

Juraj Gerlici

University of Žilina, Žilina, Slovakia

Jesus Gonzalez-Feliu

Excelia Business School, La Rochelle, France

Csaba Koren

Széchenyi István University of Applied Sciences, Győr, Hungary

Radim Lenort

ŠKODA AUTO University, Mladá Boleslav, Czech Republic

Raffaele Mauro

University of Trento, Trento, Italy

Dariusz Mazurkiewicz

Lublin University of Technology, Lublin, Poland

Jerzy Merksiz

Poznan University of Technology, Poznan, Poland

Edward Michlowicz

AGH University of Science and Technology, Cracow, Poland

Tomasz Nowakowski

Wroclaw University of Technology, Wroclaw, Poland

Agung Pambudi

Universitas Negeri Sebelas Maret, Surakarta, Indonesia

Marko Perkovic

University of Ljubljana, Ljubljana, Slovenia

Dalibor Pešić

University of Belgrade, Belgrade, Serbia

Zbigniew Pietrzykowski

Maritime University of Szczecin, Szczecin, Poland

Andrea Pompigna

University of Trento, Trento, Italy

Basil Psarianos

National Technical University of Athens, Athens, Greece

Laurence R. Rilett

Auburn University, Auburn, USA

Mirosław Siergiejczyk

Warsaw University of Technology, Warsaw, Poland

Kumares Sinha

Purdue University, West Lafayette, USA

Edgar Sokolovskij

Vilnius Gedimino Technikos Universitetas, Vilnius, Lithuania

Andrzej Szarata

Cracow University of Technology, Cracow, Poland

Zbigniew Tarapata

Military University of Technology, Warsaw, Poland

Raca Todosijevic

Polytechnic University of Hauts-de-France, Valenciennes, France

Adam Weintrit

Gdynia Maritime University, Gdynia, Poland

Editorial Office

Editorial Secretary:

Roland Jachimowski
Warsaw University of Technology, Poland

Karol Nehring
Warsaw University of Technology, Poland

Linguistic Editor

Joseph Woodburn
University of Bristol, United Kingdom

Editorial Office Contact

Editorial Office

Archives of Transport

Faculty of Transport, Warsaw University of Technology

Koszykowa 75, 00-662 Warsaw, Poland

Phone/fax: +48 22 234-14-10

E-mail: aot.wt@pw.edu.pl

Contents

<u>Piotr Zwolan, Sławomir Świerczyński, Krzysztof Czaplewski, Adam Weintrit, Emilia Figlarz</u> System of automatic generation of ship maneuver documentation	7
<u>Aleksandra Rodak, Małgorzata Pełka</u> Driver training challenges, barriers and needs arising from ADAS development	21
<u>Yuning Bai, Kaixuan Wang, Lei Yi, Bo Peng</u> The Cellular Traffic Capacity Model of Toll Station Square.....	35
<u>Ihor Taran, Raushan Olzhabayeva, Myroslav Oliskevych, Vitor Danchuk</u> Structural Optimization of Multimodal Routes for Cargo Delivery.....	49
<u>Rihab Ben Haj Ahmed, Aida Bouzir, Mohamed Hédi Benhadj Mbarek, Saloua Benammou</u> The impact of logistics performance index on port infrastructure quality: comparative study Tunisia Morocco	71
<u>Wei Han, Huo Chai, Jianpeng Zhang, Yuanping Li</u> Research on path optimization for multimodal transportation of hazardous materials under uncertain demand	91
<u>Kamil Krasuski, Marta Lalak, Paweł Gołda, Adam Cieccko, Grzegorz Grunwald, Magda Mroziak, Jarosław Kozuba</u> Analysis of the precision of determination of aircraft coordinates using EGNOS+SDCM solution.....	105
<u>Julia Milewicz, Krzysztof Kołodziejczak, Tomasz Nowakowski, Grzegorz M. Szymański</u> Determination of dynamic parameters of a tram wheel parts in a numerical and experimental modal analysis.....	119
<u>Mariusz Izdebski</u> Risk management in the allocation of vehicles to tasks in transport companies using a heuristic algorithm.....	139