

Journal of civil engineering and transport

2023
Volume 5
Issue 2



transEngin

ISSN 2658-1698
e-ISSN 2658-2120



Kazimierz Pulaski University of Technology and Humanities in Radom

Journal of civil engineering and transport

 **transEngin**

ISSN 2658-1698

e-ISSN 2658-2120

Volume 5
Issue 2



2023

Editorial Committee Contact

Journal of civil engineering and transport transEngin



Kazimierz Pulaski University of Technology and Humanities in Radom
Faculty of Transport, Electrical Engineering and Computer Science
ul. Malczewskiego 29
26-600 Radom
Poland

phone: (+48) 48 361-77-59
email: transengin@uthrad.pl
www.transengin.uniwersytetradom.pl

All articles are reviewed by two external reviewers. The list of reviewers is published in the current issue of the journal and on the website of the magazine.

CC BY-NC-ND

ISSN 2658-1698
e-ISSN 2658-2120

Copyright© 2023 by Publishing House Kazimierz Pulaski University of Technology and Humanities in Radom

All rights reserved. No part of this publication may be modified, reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or by any information storage and retrieval system, without permission in writing from publisher.

**Journal of civil engineering and transport
transEngin**

Editorial Board / Komitet Redakcyjny

Editor-in-Chief / Redaktor Naczelny

*Aldona Kuśmińska-Fijałkowska, DSc., PhD, BEng., Assoc. Prof.
Kazimierz Pulaski University of Technology and Humanities, Poland*

Associate Editors / Koordynatorzy Redakcyjni

*Renata Krajewska, PhD
Kazimierz Pulaski University of Technology and Humanities, Poland
Sylvia Olszańska, PhD, BEng.
University of Information Technology and Management in Rzeszow, Poland*

Section Editors / Redaktorzy Działów

Transport Infrastructure / Infrastruktura w Transporcie

*Tomasz Kamiński, DSc., PhD, BEng., Assoc. Prof.
Road and Bridge Research Institute in Warsaw, Poland*

Transport Logistics / Logistyka w Transporcie

*Waldemar Nowakowski, DSc., PhD, BEng., Assoc. Prof.
Kazimierz Pulaski University of Technology and Humanities, Poland*

Transport Means / Środki Transportu

*Andrzej Krzyszkowski, DSc., PhD, BEng., Assoc. Prof.
Kazimierz Pulaski University of Technology and Humanities, Poland*

Traffic Control in Transport / Sterowanie Ruchem w Transporcie

*Mieczysław Kornaszewski, DSc., PhD, BEng., Assoc. Prof.
Kazimierz Pulaski University of Technology and Humanities, Poland*

Electromobility / Elektromobilność

*Jacek Kozyra, DSc., PhD, BEng., Assoc. Prof.
Kazimierz Pulaski University of Technology and Humanities, Poland*

Journal of civil engineering and transport transEngin

Scientific Board / Rada Naukowa

- prof. Zbigniew Łukasik - **chairman**, Kazimierz Pulaski University of Technology and Humanities, Poland*
- prof. Aldona Kuśmińska-Fijałkowska, Kazimierz Pulaski University of Technology and Humanities, Poland*
- prof. Andrzej Lewiński, Kazimierz Pulaski University of Technology and Humanities, Poland*
- prof. Janusz Dyduch, Kazimierz Pulaski University of Technology and Humanities, Poland*
- prof. Andrzej Chudzikiewicz, Kazimierz Pulaski University of Technology and Humanities, Poland*
- prof. Tomasz Perzyński, Kazimierz Pulaski University of Technology and Humanities, Poland*
- prof. Jerzy Wojciechowski, Kazimierz Pulaski University of Technology and Humanities, Poland*
- prof. Tomasz Ciszewski, Kazimierz Pulaski University of Technology and Humanities, Poland*
- prof. Marianna Jacyna, Warsaw University of Technology, Poland*
- prof. Anna Stelmach, Warsaw University of Technology, Poland*
- prof. Gabriel Nowacki, Military University of Technology, Poland*
- prof. Jerzy Merkisz, Poznan University of Technology, Poland*
- prof. Wojciech Ślęczka, Maritime University of Szczecin, Poland*
- prof. Adam Weintrit, Gdynia Maritime University, Poland*
- prof. Jerzy Herdzik, Gdynia Maritime University, Poland*
- prof. Tomasz Kamiński, Instytut Badawczy Dróg i Mostów, Polska*
- prof. Aleš Janota, University of Žilina, Slovakia*
- prof. Pavol Špánik, University of Žilina, Slovakia*
- prof. Anna Križanová, University of Žilina, Slovakia*
- prof. Zdeněk Dvořák, University of Žilina, Slovakia*
- prof. Juraj Grenčík, University of Žilina, Slovakia*
- prof. Algimantas Valinevicius, Kaunas University of Technology, Lithuania*
- prof. Robertas Keršys, Kaunas University of Technology, Lithuania*
- prof. Vaidas Lukoševičius, Kaunas University of Technology, Lithuania*
- prof. Rolandas Makaras, Kaunas University of Technology, Lithuania*
- prof. Algimantas Fedaravičius, Kaunas University of Technology, Lithuania*
- prof. Gintautas Bureika, Vilnius Gediminas Technical University (VGTU), Lithuania*
- prof. Olegas Prentkovskis, Vilnius Gediminas Technical University (VGTU), Lithuania*

prof. Edgar Sokolovskij, Vilnius Gediminas Technical University (VGTU), Lithuania
prof. Mareks Mezitis, Transport Academy, Riga, Latvia
prof. Aleksandr Grakovski, Transport and Telecommunication Institute, Riga, Latvia
prof. Vanja Ambrožič, University of Ljubljana, Slovenia
prof. Artur Kahramanian, Ukrainian State University of Railway Transport, Ukraine
prof. Jiří Stodola, University of Defence, Czech Republic
prof. Zdeněk Vintr, University of Defence, Czech Republic
prof. Paulo M. S. T. de Castro, University of Porto, Portugal

Marketing / Marketing

Małgorzata Górską, PhD, BEng.

Kazimierz Pulaski University of Technology and Humanities, Poland

Layout design / Projekt graficzny

Mariusz Dański, DSc., PhD, Assoc. Prof.

Kazimierz Pulaski University of Technology and Humanities, Poland

DTP Operator / Operator DTP

Przemysław Rudzki, MSc, BEng.

Kazimierz Pulaski University of Technology and Humanities, Poland

Publishing House

Kazimierz Pulaski University of Technology and Humanities in Radom

ul. Malczewskiego 29

26-000 Radom

Poland

tel. (+48) 48 361-70-33

fax (+48) 48 361-70-34

e-mail: wydawnictwo@uthrad.pl

ISSN 2658-1698

e-ISSN 2658-2120

Issue I. Edition 50 copies.

Printing and binding: Printing department of the Kazimierz Pulaski University of Technology and Humanities in Radom

Contents / Spis treści

1. KRAWCZYK Mateusz, NOWACKI Gabriel	
Functioning of the Crises Management System at the country and commune including the aspects of transport	9
<i>Funkcjonowanie systemu zarządzania kryzysowego na szczeblu powiatowym i gminnym włącznie z aspektami transportu</i>	
2. FREJ Damian	
The use of the R2 coefficient of determination to determine the impact of selected parameters on the number of fatalities in road accidents in Poland compared to selected European countries in 2010-2020	25
<i>Wykorzystanie współczynnika determinacji R2 do określenia wpływu wybranych parametrów na liczbę ofiar śmiertelnych w wypadkach drogowych w Polsce na tle wybranych krajów europejskich w latach 2010-2020</i>	
3. KAMIŃSKI Tomasz, KAMIŃSKI Piotr	
Application of Use Cases and the UML language in the design of Intelligent Transportation Systems	39
<i>Zastosowanie przypadków użycia i języka UML w projektowaniu Inteligentnych Systemów Transportowych</i>	
4. SUMIŁA Marek	
Disturbance Of Trains Movement Under The ERTMS Control System	49
<i>Zakłócenia ruchu pociągów w systemie sterowania ERTMS</i>	

**Journal of civil engineering and transport
transEngin**

Reviewers / Recenzenci

dr hab. inż. Gabriel Nowacki, prof. WAT, Poland

dr hab. inż. Adam Rosiński, prof. PW, Poland

dr hab. inż. Krzysztof Olejnik, prof. PO, Poland

dr hab. inż. Jacek Paś, prof. WAT, Poland

Prof. Ing. Zdeněk Vintr CSc., Czech Republic

doc. Ing. Josef Bulíček, PhD., Assoc. prof., Czech Republic

doc. Ing. Juraj Grenčík, PhD., Assoc. prof., Slovakia

Notes / Notatki