



INFORMATION TECHNOLOGIES: THEORETICAL AND APPLIED PROBLEMS (ITTAP-2024)

The 4th International Workshop

October 23-25, 2024

Ternopil, UKRAINE

Opole, POLAND

<https://ittap.tntu.edu.ua/>

CONFERENCE PROGRAMME



**Ternopil Ivan Puluj
National Technical
University**
Member Of European
University Association



**Co-funded by
the European Union**



**Українське
науково-освітнє ІТ товариство**
Ukrainian
Scientific and Educational IT Society

FAAI: The Future is in Applied Artificial Intelligence Erasmus+ project 2022-1-PL01-KA220-HED-000088359

23-25, October, 2024, Ternopil, UKRAINE, Opole, POLAND

ITTAP 2024 General Timetable

October 23		
	9:50-10:00 (10)	Conference opening
1	10:00-10:10	Borys Lypa, Natalia Zagorodna, Ivan Horyn and Dmytro Tymoshchuk Comparison of feature extraction tools for network traffic data
2	10:10-10:20	Vasyl Yatsyshyn, Oleh Pastukh, Victoria Kukharska, Andriy Palamar and Serhii Kulikov Method and tool of detecting software architecture patterns in the process of computer systems development
3	10:20-10:30	Serhii Dolhopolov, Tetyana Honcharenko, Pavlo Kruk, Iryna Porokhovnichenko and Vladyslav Hots YOLOv8, YOLOv9, and YOLOv10: A Study in Automated Vehicle Damage Detection
4	10:30-10:40	Andrii Harasivka, Anatolii Lupenko, Mykhailo Fryz and Yuri Palaniza Improve data backup strategies with machine learning predictive analytics*
5	10:40-10:50	Serhii Dolhopolov, Tetyana Honcharenko, Denys Chernyshev and Olga Solovei YOLOv5-based Object Detection for Construction Site Efficiency: Equipment, Tool, and Vehicle Recognition
6	10:50-11:00	Iaroslav Lytvynenko, Volodymyr Dzyura and Pavlo Maruschak Automated algorithm for determining surface's oil capacity based on the analysis of the Abbot-Firestone diagram's parameters
7	11:00-11:10	Illia Fedorovych, Halyna Osukhivska and Nadiia Lutsyk Performance Benchmarking of Continuous Processing and Micro-Batch Modes in Spark Structured Streaming
8	11:10-11:20	Michał Wierzbicki and Jakub Osuchowski A Comparison of Frame-by-Frame and Aggregation Approaches for Gesture Classification Using Machine Learning
9	11:20-11:30	Mykhailo Fryz, Svitlana Kovtun, Yurii Kuts, Bogdana Mlynko and Oleksandra Kuchvara Stationarity, Ergodicity and Mixing Properties of Conditional Linear Time Series Models
10	11:30-11:40	Nina Bąkowska and Krzysztof Zatwarnicki Algorithm for conceptual problem-solving using General Environment Description Language
	11:40-12:00 (20)	Coffee brakes
11	12:00-12:10	Nataliia Dziubanovska Assessing Fake News Impact on Polish Political Attitudes Toward the Ukraine War
12	12:10-12:20	Oleg Lyashuk, Mykola Stashkiv, Yurii Palianytsia, Roman Khoroshun and Dmytro Mironov Fourier Model Fitting for Vibration Analysis of Car Wheel Suspension Enhanced Damping System
13	12:20-12:30	Oleh Yasniy, Dmytro Tymoshchuk, Iryna Didych, Nataliya Zagorodna and Olha Malyshevska Modelling of automotive steel fatigue lifetime by machine learning method
14	12:30-12:40	Oleksii Yehorov, Bohdan Volokh, Ihor Bosenko, Bohdan Yeremenko and Svitlana Terenchuk

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		Modeling of highly loaded distributed system supporting the process of assessing the technical condition of objects
15	12:40-12:50	Roman Yuzefovych, Ihor Javorskyj, Oleh Lychak, Roman Khmil and George Trokhym Analysis of the vibration signals based on PCR representation
16	12:50-13:00	Tetyana Honcharenko, Olga Solovei and Bohdan Solovei An approach to evaluate a classification model to predict a construction object's state
17	13:00-13:10	Vasyl Ustimenko and Oleksandr Pustovit Jordan-Gauss graphs and quadratic public keys of Multivariate Cryptography
18	13:10-13:20	Victoria Vysotska, Vasyl Lytvyn, Serhii Vladov, Viktor Vasylenko and Oleksii Kryshan The optimal controller parametric synthesis using variational calculus for a dynamic system general mathematical model
19	13:20-13:30	Viktoriia Mytsa and Mykola Riabchykov Improvement of intelligent systems for creating personalized products
20	13:30-13:40	Vitalii Mocharskyi, Bogdan Kovalyuk and Oksana Sitkar A mathematical modeling of surface periodic relief after nanosecond laser processing
21	13:40-13:50	Volodymyr Lytvynenko, Serge Olszewski, Volodymyr Osypenko, Violeta Demchenko and Dariia Dontsova Comparison of the efficiency of autoencoders for solving clustering problems
22	13:50-14:00	Volodymyr Semchyshyn and Dmytro Mykhalyk Analysis and strategy development for improving the performance of the Paillier cryptosystem algorithm in medical data processing
23	14:00-14:10	Dawid Pawuś, Szczepan Paszkiel and Tomasz Porążko Comparison of artificial intelligence algorithms and expert approach in risk classification in nephrology
24	14:10-14:20	Oleh Pihnastyi, Georgii Kozhevnikov and Bohdan Fedorchak The selection of a structure of a neural network model for predicting the flow parameters of transport systems
25	14:20-14:30	Andrii Sverstiuk, Taras Dubynyak, Mykola Stashkiv, Volodymyr Nevozhai and Mykola Poshyvak Analysis of the accuracy, stiffness and stability of shell structures of mirror antennas using computer modeling
26	14:30-14:40	Oleksandr Sorokivskyi, Volodymyr Hotovych, Oleg Nazarevych and Grygorii Shymchuk Comparative Analysis of Camera Calibration Algorithms for Soccer Applications

October 24		
1	10:00-10:10	Viktor Sineglazov and Kyrylo Lesohorskyi Semi-supervised learning for hyperspectral landmine detection
2	10:10-10:20	Vladyslav Khaidurov, Anastasia Bekesheva and Roman Yarovoy Using the variational principle of leveling illumination in images
3	10:20-10:30	Andrii Sverstiuk, Taras Dubynyak, Nadia Shostakivska, Myroslava Yavorska and Mykola Poshyvak Mathematical and computer modelling to assess accuracy and adequacy in torque measurement
4	10:30-10:40	Kirill Smetanin, Vasyl Trysnyuk, Ihor Humeniuk, Volodymyr Okhrimchuk and Oleksandr Lahodnyi Advanced data encryption method based on the monochrome pixel alphabet
5	10:40-10:50	Oleh Pihnastyi, Olha Kozhyna and Iuliia Karpushenko Comparative analysis of models for assessing asthma severity based on paraclinical studies
6	10:50-11:00	Petro Stukhliak, Oleg Totosko, Danulo Stukhlyak, Olena Vynokurova and Iaroslav Lytvynenko Use of neural networks for modelling the mechanical characteristics of epoxy composites treated with electric spark water hammer
7	11:00-11.10	Volodymyr Kuharsky and Dmytro Mykhalyk Integration of SQL Server Reporting Services into modern application infrastructure
8	11:10-11:20	Trong The Quan A Speech Enhancement Based on Minimum Variance Distortion Response Beamformer in Adverse Recording Scenario
9	11:20-11:30	Oleh Pastukh and Viktor Khomyshyn Using ensemble methods of machine learning to predict real estate prices
10	11:30-11:40	Volodymyr Halchenko, Ruslana Trembovetska and Volodymyr Tychkov Computer robust parameter design of surface eddy current probes. Developing software design of numerical experiments creating
	11:40-12:00 (20)	Coffee brakes
11	12:00-12:10	Yurii Hlado, Nadia Kryva and Nadia Gashchyn Information system for positioning and orienting antenna system
12	12:10-12:20	Barbara Jantos and Michal Tomaszewski Towards Digital Twins in Rehabilitation Processes - Examples of Publicly Available Datasets
13	12:20-12:30	Mykhaylo Petryk, Vitalii Chyzh, Halyna Tsupryk and Oksana Petryk Information System for Design of Thin Multilayer Film Processes Parameters Management based on Diffusion
14	12:30-12:40	Nataliia Dziubanovska Modeling of War-Induced Ukrainian Migration's Impact on Poland's Trade Using Machine Learning
15	12:40-12:50	Serhii Lupenko, Oleksandra Orobchuk, Igor Kateryniuk, Ruslan Kozak and Halyna Lypak

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		Secure information system for Chinese Image medicine knowledge consolidation
16	12:50-13:00	Viktor Sineglazov, Dmytro Nikulin and Kyrylo Lesohorskyi Generation of camouflage based on the use of generative-competitive neural networks
17	13:00-13:10	Volodymyr Shanaida, Valeriy Lazaryuk and Ruslan Skliarov Software module for project analysis in mechanical processing and welding of frame structures
18	13:10-13:20	Tetiana Hovorushchenko, Vyacheslav Bachuk, Vladyslav Sevostyanov, Andrii Martsenyuk, Vladyslav Baranovskyi and Houda El Bouhissi Microcontroller system for air quality monitoring
19	13:20-13:30	Ihor Konovalenko and Pavlo Maruschak Computer assisted analysis of transgranular and intergranular micromechanisms of brittle fracture
20	13:30-13:40	Oleksii Matsiievskyi, Igor Achkasov, Yevhenii Borodavka and Roman Mazurenko Behavioral model of autonomous robotic systems using reinforcement learning methods
21	13:40-13:50	Iryna Didych, Andrii Mykytyshyn, Andrii Stanko and Mykola Mytnyk Application of machine learning methods to the prediction of NO2 concentration in the air environment
22	13:50-14:00	Dmytro Lukavenko and Tetyana Honcharenko Efficiency of Regression Testing Strategies in CI/CD Environments
23	14:00-14:10	Zineb Bougriche and Rafał Gasz Decoding Emotional Complexity: Challenges in Emotions Classification Using the CMU Dataset
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25	14:20-14:30	Nadiia Marchenko, Hanna Martyniuk, Olena Monchenko, Larysa Chubko and Tetiana Scherbak Principles of construction of an adaptive multilevel system of monitoring and diagnostics of complex technical objects
26	14:30-14:40	Trong The Quan An Adaptive Post - Filtering - Based Generalized Sidelobe Canceller Beamformer's Speech Enhancement

October 25		
	10:00-10:30	Final session Conference summary. Discussion of the presented papers.

TIME FOR PRESENTATIONS

Paper presentation at the regular session – 5 min.

Discussion, questions – 5 min.

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October 23

Link Conference: <https://tube5.tntu.edu.ua/rooms/ec3-hzl-9qt-aqt>

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Conference opening

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October 25		
Time		Final session
1	10:00-10:30	1. Conference summary. Discussion of the presented papers. 2. Meeting of the participants, Program and Organizing Committees. Feedbacks on the conference. Discussion on the possible ways of improvement for future.



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