

Wednesday, November 13th, 2024

Registration of participants

08.00-12.00

Tatra Hotel – Registration point

Conference opening

09.15

Plenary session – Invited lectures

09.30-11.00

Chair: William Steingartner

Caterina Urban

Formal Methods for Machine Learning

Hanspeter Mössenböck

Dynamic Compiler Optimizations in the Graal VM

Coffee break

11.00-11.20

Lunch

13.00-14.00

Regular sessions

11.20-13.00 and 14.00-18.00

Welcome Dinner

19.00

Wednesday, November 13th, 2024

Session A

E-Learning and Online Education

11.20-13.00

Chair: Pavel Kossecki

11.20-11.40 Matúš Miklovič, Eduard Kuric, Pavol Baťalík and Jan Lang

Transforming the Content of Community Q&A Systems into Learning Objects

11.40-12.00 Neven Pintarić and Željka Tomasović

Assessing the Quality of Digital Objects in the Context of Open Science

12.00-12.20 Petr Saloun, Tereza Simkova, Lukas Tomaszek, Milan Klement, Lucie Bryndova and William Steingartner

Morning Circle Web Application for Children with Autistic Spectrum Disorder

12.20-12.40 William Steingartner and Davorka Radaković

Why female pupils lose interest in STEM fields in high school?

12.40-13.00 Štefan Korečko, Branislav Sobota and Juraj Rudy

Assessing Comprehension of Petri Nets Across Diverse Backgrounds: An Experimental Insight

13.00-14.00 Lunch

Ethical Issues in Informatics

14.20-15.20

Chair: Sabina Szymboniak

14.20-14.40 Milan Klement, Lucie Bryndová and Květoslav Bártek

Investigating the manifestations and prevalence of nettolism in children and adolescents

14.40-15.00 Machteld Combé and Neeltje Pavicic
Matching tech solutions to the needs of marginalised citizens

15.00-15.20 William Steingartner, Darko Galinec and Vinko Zebić
Challenges of Application Programming Interfaces Security: A Conceptual Model in the Changing Cyber Defense Environment and Zero Trust Architecture

15.20-15.40 Coffee break

Theoretical Computer Science

15.40-18.20

Chair: Peter Csaba Ölveczky

15.40-16.00 Wolfgang Schreiner and William Steingartner
Semantics-Based Rapid Prototyping of a Machine Controller Language

16.00-16.20 Gabor Sagi
On the Expressive Power of First Order Logic Extended with the Betweenness Relation

16.20-16.40 Samuel Novotný, William Steingartner and Ján Perháč
Another Empirical Proof of Transparent Intensional Logic's Expressive Power in the Field of Temporal Logical Systems

16.40-17.00 Richard Jurko, Ján Perháč and Samuel Novotný
Type Checker for Simply Typed Lambda Calculus

17.00-17.20 Elena Akik, Marko Vještica, Vladimir Dimitrieski, Milan Čeliković and Sonja Ristić
Prototype of Domain-Specific Language for Uniform Access to Vector Databases

17.20-17.40 Štefan Korečko, Branislav Sobota, Juraj Rudy
Assessing Comprehension of Petri Nets Across Diverse Backgrounds: An Experimental Insight

17.40-18.00 Jaroslav Drozd, Pavol Bat'alik and Ján Lang
*Efficiency of Algorithms and Input Processing Methods in Slovak Text Data
Retrieval*

18.00-18.20 Vaclav Skala
A New Projective Point-in-Convex Polygon Test with $O(\log N)$ Complexity

Wednesday, November 13th, 2024

Session B

Emerging Technologies

11.20-13.00

Chair: Michal Kvet

11.20-11.40 Veronika Sedláková, Radovan Hudák, Norbert Ferenčík and Peter Kneppo

Development and Prototyping of an Arduino UNO System for Studying Light Effects on Mesenchymal Stem Cell

11.40-12.00 Ondrej Kainz, Miroslav Michalko, Miroslav Murin, Ivana Nováková, Tomáš Frankovič, Tomáš Tóth and Ervín Šimko

Autonomous Control of an UAV in a Virtual Environment Using Machine Learning and Pathfinding

12.00-12.20 Michal Kubaščík, Ján Šumský, Andrej Tupý and Tomáš Bača

OTA firmware updates on ESP32 based microcontrollers

12.20-12.40 Tomáš Balint, Jozef Živčák, Miroslav Kohan, Norbert Ferenčík and Petra Kolembusová

Analysis of samples printed using additive FFF technology from recycled and non-recycled polymer-based filament

12.40-13.00 Max Sauer, Jonas Thessen and Simone Braun

Digital Sovereignty: Requirements of Digital Identity Wallets in E-Commerce

13.00-14.00 Lunch

Smart Cities and Urban Technologies

14.20-15.20

Chair: Petr Šaloun

14.20-14.40 Michal Janovec, Jozef Papán and Michal Hraška

Review of security threats and existing solutions for securing WSNs

14.40-15.00 Martin Antl, Emilia Pietrikova and Peter Poor

Intelligent Urban Traffic Management Systems - Takeaways from Martin City

15.00-15.20 Viktor Benes, Miroslav Svitek, Alžbeta Michalíková and Miroslav Melicherčík

Investigating the impact of meteorological and traffic flow conditions on emissions

15.20-15.40 Coffee break

Artificial Intelligence and Machine Learning

15.40-18.00

Chair: Davorka Radaković

15.40-16.00 Peter Krammer, Ondrej Habala and Ladislav Hluchy

Anomaly Detection Method Using Statistical Distribution Identification

16.00-16.20 Martin Pozdíllek and Alena Pozdílková

Phonetic Analysis of Queen Elizabeth's Christmas Messages

16.20-16.40 Dejana Gladić, Jelena Petrovački, Srđan Sladojević, Marko Arsenović and Sonja Ristić

IDS-based Machine Learning Model Specific for Secure Data Transmission within the Frame of IoT Network Infrastructure

16.40-17.00 Andrea Galadíková and Branislav Časnocha

Using simulated annealing for personnel assignment in railway nodes

17.00-17.20 Nora Pireci Sejdiu, Nikola Rendeovski and Blagoj Risteovski

AI Revolutionising 5G and Next-Generation Networks

17.20-17.40 Dmytro Kovalenko and Dusan Marcek

Integrating Advanced Neural Network Technologies: A New Opportunity for Economic Time Series Forecasting

17.40-18.00 Md. Rajaul Karim, Mm Mahbubul Syeed, Kaniz Fatema, Shakhawat Hossain, Razib Hayat Khan and Mohammad Faisal Uddin

AnxPred: A Hybrid CNN-SVM Model with XAI to Predict Anxiety among University Students

Wednesday, November 13th, 2024

Session C

Software Engineering

11.20-13.00

Chair: Wolfgang Schreiner

11.20-11.40 Patrícia Járosiová and Sergej Chodarev

The Impact of Unit Test Quality on Software Development: Controlled Experiment

11.40-12.00 Konrad Nadobny

Applying enterprise architecture modeling to identify technical dependencies in context of transforming legacy system landscapes

12.00-12.20 Kristóf Umann, Zoltan Porkolab and Gábor Tóthvári

Finding bugs on tagged unions mismatches

12.20-12.40 Martin Mazuch, Alexander Brezani and Jozef Kostolny

Spherical Graph Layout for Force-Directed Algorithms

12.40-13.00 Michal Mrena, Patrik Rusnak and Miroslav Kvassay

Algorithms for Computation of Topological Measures Based on Binary Decision Diagrams

13.00-14.00 Lunch

Software Engineering

14.20-15.20

Chair: Hanspeter Mössenböck

14.20-14.40 Michal Mrena, Michal Varga and Miroslav Kvassay

Comparison of the Approaches to the Traversal of a Binary Tree Structure Using Iterators

14.40-15.00 Michal Rozsival, Ales Smrcka and Tomas Vojnar
Automated Testing of Reliability of Networked Systems

15.00-15.20 Petr John, Kristýna Zaklová, Juraj Lazúr, Jiří Hynek and Tomáš Hruška
A Self-Hosted Approach to Automatic CI/CD Using Open-Source Tools on Low-Power Devices

15.20-15.40 Coffee break

Digital Health and Telemedicine

15.40-16.40

Chair: Gabriela Nečasová

15.40-16.00 Michal Kubaščík, Ján Šumský, Andrej Tupý and Tomáš Bača
6-channel band for advanced myoelectric signal analysis

16.00-16.20 Marek Klimo, Miroslav Kvassay and Nika Kvassayova
Development of Skeletal 3D Model for Applications in Medicine

16.20-16.40 Qiaolin Zhang, Hairong Chen and István Bíró
Effects of different schemes of hallux valgus osteotomy on the stress based on computer digital simulation

Cybersecurity

16.40-18.00

Chair: Petr Veigend

16.40-17.00 Kacper Foks and Sabina Szymoniak
Role of Open Source Intelligence Methods in Cybersecurity

17.00-17.20 Marek Šimon, Ladislav Huraj and Dominik Hrinkino
Home Assistant platform under DDoS attacks for IPv4 and IPv6 networks

17.20-17.40 Olga Siedlecka-Lamch
Blockchain-Based Voting System for Medical Data Management

17.40-18.00 Dawid Witczak and Sabina Szymoniak
A Survey on IoT-Based Monitoring and Control Technologies

Thursday, November 14th, 2024

Plenary session – Invited lectures

08.00-9.45

Chair: William Steingartner

Valentino Vranić

Drama and Software Patterns

Peter Csaba Ölveczky

Design and Validation of Cloud Transaction Systems using Formal Methods

Workshop – Parallel activity

09.00-9.45

Aleksandra Vranić and Valentino Vranić

Understanding Design Patterns Through Drama Metaphors

Coffee break

9.45-10.00

Regular sessions

10.00-12.20

Lunch

12.30

Trips

13.15 Trip A – *Museum of Liptov Village in Pribylina*

Trip B – *Museum in Poprad*

Banquet

19.00

Thursday, November 14th, 2024

Session A

Computer Vision and Image Processing

10.00-10.40

Chair: Adam Dudáš

10.00-10.20 Jakub Oravec, Ľuboš Ovseník, Zuzana Liščinská and Samuel Andrejčík

Evaluating Statistical Properties of Keys in Image Encryption Algorithms

10.20-10.40 Radek Matoušek

Accurate contactless measurement of triangular objects composed of 3D point clouds of low quality and unclear rotation

Applied Informatics

10.40-12.20

Chair: Olga Siedlecka-Lamch

10.40-11.00 Paweł Kossecki and Mariusz Przybylik

Key criteria for making decisions by prosumers to use the technology for power balancing in households

11.00-11.20 Paweł Kossecki and Magdalena Teclaw

Application of Business Intelligence Tools for the Purposes of Comparability Analysis in Transfer Pricing

11.20-11.40 Marek Kvet

Uniformly Deployed Sets in Discrete Optimization: Theory and Applications

11.40-12.00 Petr Veigend, Gabriela Nečasová and Václav Šátek

Taylor series based numerical integration method for solution of nonlinear problems with division

12.00-12.20 Patrik Voštinár and Michal Šrobár

Development of games using eye tracking devices

Thursday, November 14th, 2024

Session B

Artificial Intelligence and Machine Learning

10.00-12.00

Chair: Valentino Vranić

10.00-10.20 Adrian Vulpe-Grigorasi, Zvetelina Kren, Djordje Slijepčević, Roman Schmied and Vanessa Leung

Attention performance classification based on eye tracking and machine learning

10.20-10.40 Matej Ondov, Tomáš Kormaník and Jaroslav Porubán

A personalized education chatbot for the novice programmers in action

10.40-11.00 Patrik Müller and Bogdan Walek

Comparison of basic recommendation methods for Czech news articles

11.00-11.20 Bianka Modrovičová and Adam Dudáš

Cubic Graph Property Dataset for Machine Learning Models

11.20-11.40 Miroslav Melicherčík, Vladimír Siládi and Alžbeta Michalíková

Level of Service classifications within the Smart City concept using Artificial Intelligence tools

11.40-12.00 Linda Blahova, Monika Svecova, Katarina Dubayova and Jozef Kostolny

Analysis of Experimental Dataset for Potential Application in Non-Invasive Cancer Diagnosis

Thursday, November 14th, 2024

Satellite event – Workshop on Environmental Data Analysis

08.15-12.20

General Chair: Michal Kvet

08.20-08.40 Robert Leskovar, Alenka Brezavšček and Alenka Baggia
Transforming and Analysing Oceanographic Data with Oracle Analytics Cloud: Insights from the World Ocean Database

08.40-09.00 Filip Majerík and Monika Borkovcová
Verify the effectiveness of the Intelligent Data Layer (IDL) on different hardware configurations

09.00-09.20 Marek Kvet, Michal Kvet, Zuzana Žillová and Erik Malina
Information System for Crime Monitoring in Europe

09.20-09.40 Michal Kvet
Comparative Study of Various Function Definitions Used in Oracle SQL Dialect

09.40-10.00 Ivan Pastierik
Deploying Oracle Machine Learning AutoML Models for Oracle APEX Analytics

10.00-10.20 Miroslav Potočár and Michal Kvet
Data-driven decision-making options for less tech-savvy users

10.20-10.40 Tomas Brandejsky and Jan Merta
Versatile Function GPA

10.40-11.00 Jan Merta, Václav Hrubý and Tomáš Brandejský
Two-layer genetic programming for multidimensional symbolic regression

11.00-11.20 Alenka Baggia, Alenka Brezavšček and Robert Leskovar
Enhancing Environmental Data Insights with Oracle Analytics Cloud

11.20-11.40 Diana Mudrinić and Ivan Šoda
The Rise of Generative Artificial Intelligence in Business

11.40-12.00 Filip Majerik and Monika Borkovcova
Performance Testing of Intelligent Data Layer (IDL)

12.00-12.20 Ondřej Rozinek
A Similarity Space Approach to the 1/3-2/3 Conjecture in Partially Ordered Sets

Friday, November 15th, 2024

Regular sessions

09.00-10.40

Conference closing

10.45

Lunch

11.00

Friday, November 15th, 2024

Session A: Software Engineering

09.00-10.20

Chair: Miroslaw Kurkowski

09.00-09.20 Piotr Plebański, Anna Kelm and Robert Kłopotek
Mitigating Execution Divergence in GPGPU Computing through Dynamic Data Remapping

09.20-09.40 Jarmila Skrinarova and Adrian Hamada
Modeling Effective IoT Task Scheduling in a Simulated Edge and Fog Cloud Environment

09.40-10.00 Peter Sedlacek and Patrik Rusnak
Architecture Design of Software Solution for Reliability Analysis

10.00-10.20 Marek Horváth, Vladyslav Sakhnenko and Filip Gurbál
Comparison of scalability and performance in Microservices and Monolithic Architectures

10.20-10.40 Blaženka Divjak, Barbi Svetec, Petra Vondra and Darko Grabar
Automating the Comparison of Learning Design and Delivery Using Course Scaffolding in Moodle

Friday, November 15th, 2024

Session B: Applied Informatics

09.00-10.40

Chair: Caterina Urban

09.00-09.20 Krzysztof Szmigielski, Mirosław Kurkowski and Bogusław Gozdecki

Timed properties of cryptographic security protocols – simulation approach

09.20-09.40 Artur Soboń, Mirosław Kurkowski and Sylwia Stachowiak

ChaCha20 Cipher Cryptanalysis through SAT Problem Solving

09.40-10.00 Branislav Sobota, Štefan Korečko and Alexandra Javorská

Iconic-Text Education Method Utilization in a Virtual School

10.00-10.20 Branislav Sobota, Štefan Korečko and Richard Grec

XR Technologies-Based Experimental Therapy System for Visual Enhancement of Patient's Brain Associations

10.20-10.40 Štefan Korečko, Branislav Sobota, Peter Nehila, Damián Chmura

Architecture, Enhancements and Perspective of the L-NeRVEn Virtual Environment for Neurorehabilitation

Friday, November 15th, 2024

Session C: Artificial Intelligence and Machine Learning

09.00-10.20

Chair: Alžbeta Michalíková

09.00-09.20 Lenka Bubeňková, Emília Pietriková and Marcel Vološin
Clone Detection Techniques and Tools in Software Engineering

09.20-09.40 Kalina Juszczak-Janiszewska, Rafal Zapłata and
Mirosław Kurkowski
*Airborne laser scanning data and deep learning in the detection of archaeological
features*

09.40-10.00 Anna Kelm, Piotr Plebański and Robert Kłopotek
*Impact of Deep Learning-Based Text Feature Extraction Methods on Binary
Classification Quality of Customer Service Call Transcripts*

10.00-10.20 Adam Dudáš and Michal Vagač
*Diagnostic Analysis Approach to Correlation Maps Through Large Language
Models*

10.00-10.20 Jannatim Maisha, Muhammad Azmain Mahtab, Farhana
Hossain Swarnali, Tamanna Tabassum and Md. Tanvir Rouf Shawon
*Safeguarding Music Artists Through Machine Learning Based Singer
Classification*

Notes: