



# DAMSS

DATA ANALYSIS  
METHODS FOR SOFTWARE  
SYSTEMS



## 15th Conference on

# DATA ANALYSIS METHODS

## for Software Systems

**November 28–30, 2024**

Druskininkai, Lithuania, Hotel “Europa Royale”  
<https://www.mii.lt/DAMSS>

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## Event Schedule

### Thursday, November 28

11 <sup>00</sup> –13 <sup>00</sup>	<b>Registration Info Desk</b>
13 <sup>00</sup> –13 <sup>30</sup>	<b>Opening. Welcome and Introductory Remarks</b>
<i>Gintautas Dzemyda</i> “Data Analysis Methods for Software Systems” (Vilnius University)	
13 <sup>30</sup> –14 <sup>30</sup>	<b>Plenary Session (Room A)</b>
<i>Bożena Kostek</i> “Perception-Driven Augmented Reality and Its Role in Machine Learning” (Gdansk University of Technology, Poland)	
<i>Boris Delibašić</i> “From Data Science to Decision Support and Back!” (University of Belgrade, Serbia)	

1. **Simran Kaur Hora**, *Antanas Čenys, Nikolaj Goranin* “Advanced Ensemble Techniques for IoT Cybersecurity: A Performance Comparison on the CICIoT2023 Dataset”
2. **Mindaugas Jankauskas**, *Artūras Serackis* “Integration of Wind Power Generation and Nord Pool Electricity Market Data”
3. **Julius Jancevičius**, *Diana Kalibaitienė* “Application of Image Recognition Methods to Determine Land Use Classes: Lithuanian Case Study”
4. **Oskaras Klimašauskas** “Applying Reinforcement Learning to Successfully Drive a Car Around a Track”
5. **Dalia Kriksciuniene**, *Virgilijus Sakalauskas* “Evaluating ML Binary Classification for Predicting Stroke-Related Mortality”
6. **Dalius Matuzevičius**, *Henrikas Giedra* “Benchmarking Synthetic Data Generation Approaches for Eyeglasses Detection Algorithms Development”
7. **Darius Sabaliauskas** “Analysis of the Concept of Reasoning”
8. *Milita Songailaitė, Justina Mandravickaitė, Eglė Rimkienė, Mindaugas Petkevičius, Eimantas Zaranka, Tomas Krilavičius* “Hate Speech Detection for Lithuanian Language”
9. **Dace Šostaka**, *Kārlis Sondors, Juris Borzovs, Jānis Zuters* “Information Retrieval Tool for Secondary Term Creating: Preliminary Results”
10. *Mantas Šutas, Eimutis Karčiauskas, Eglė Butkevičiūtė* “Automated Coin Classification Using Transformer-Based Deep Learning Models”
11. **Dominykas Vilčinskas**, *Lukas Voveris, Jolita Bernatavičienė* “Fault Detection In Solar Power Plants Using Energy Production Data”
12. **Gabriela Vdoviak**, *Tomyslav Sledevič* “Enhancing Keypoint Detection in Thermal Images through Loss Function Optimisation and Model Evaluation”

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13. *Dovydas Marius Zapkus, Asta Slotkienė* “Quality Assessment of LLM Models Generated Unit Tests: Quality Metrics Completeness from Code-Aware Perspective”
  14. *Rytis Petrauskas, Renaldas Urniezius, Karolis Mickevicius, Ignas Kristutis, Paulius OboleVICIUS* “The Hybrid Model Optimization of the Chiller Infrastructure and Its Preliminary Experimental Results”  
  
*Eimantas Zaranka, Dovilė Kuizinienė, Tomas Krilavičius* “Application of Machine Learning Techniques for Lithuanian Enterprise Clustering”

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15<sup>00</sup>–15<sup>30</sup>

Coffee Break

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**15<sup>30</sup>–16<sup>30</sup> Parallel Oral Session (Room A)**

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1. **Janusz Kacprzyk** “Towards AI-assisted/Powered Smart Environments: from Techno-Centric to Human-Centric and Value-Centric Approaches” (Systems Research Institute of the Polish Academy of Sciences, Poland)
2. **Elijah Lifyand** “Certain Computational Aspects in Approximation and Harmonic Analysis” (Bar-Ilan University, Israel)

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**15<sup>30</sup>–16<sup>30</sup> Parallel Oral Session (Room C)**

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1. **Arnoldas Budžys, Viktor Medvedev, Olga Kurasova** “Enhancing Cybersecurity Using Keystroke Dynamics and Data Fusion Techniques” (Vilnius University)
2. **Virgilijus Krinickij, Linas Bukauskas** “Evidence-based Network Flow Modelling and Assessment for Cyber Security” (Vilnius University)  
**Juozas Dautartas, Arnoldas Budžys, Haroldas Jomantas, Olga Kurasova, Viktor Medvedev** “Red Team Tactics Against Malware Detection Using Adversarial Attacks” (Vilnius University)

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**15<sup>30</sup>–16<sup>30</sup> Parallel Oral Session (Room D)**

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1. **Rūta Juozaitienė, Ernst-Jan Camiel Wit** “It’s About Time: Revisiting Reciprocity and Triadicity in Relational Event Analysis” (Vytautas Magnus University)
  2. **Iulia Igescu** “Tracking Equilibrium Departures in Output with O-F SVM and Soft Data” (National Bank of Romania, Romania)
  3. **Rokas Gipiškis, Olga Kurasova** “Investigating Post-hoc Explainability Techniques for Image Segmentation” (Vilnius University)
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1. **Danylo Abramov**, *Eimantas Zaranka, Monika Zdanavičiūtė, Nerijus Šakinis, Tomas Krilavičius* “Order in Document Chaos: Logistics Documents Classification”
2. **Linus Aidokas** “The Potential of Humanoid Robots for Children with Autism Spectrum Disorders: a Preliminary Study”
3. **Kazimieras Bagdonas**, *Kajus Černiauskas, Dainius Kirsnauskas, Justinas Teselis, Vladyslav Levchenko, Mantvydas Deltuva, Ignas Sabaliauskas* “KATH: A Comprehensive Platform for Integrating DNA Analysis Tools, Genetic Databases, and Open-Data Standards in Genetic Research”
4. **Romas Baronas**, *Boleslovas Dapkūnas, Remigijus Šimkus* “Self-Organization of Bacterial and Human Populations: Same Model, Different Scale”
5. **Dalia Breskuvienė**, *Gintautas Dzemyda* “Highly Imbalanced Data Case: Pattern-Guided Feature Selection to Detect Financial Fraud”
6. **Veronika Bryskina**, *Bohdan Zhyhun, Paulius Savickas, Milita Songailaitė, Tomas Krilavičius* “DisinfoDetect: A Dashboard-Driven Solution for Identifying Misinformation in Media”
7. **Gabrielė Dargė**, *Gabrielė Kasputytė, Ričardas Krikštolaitis, Tomas Krilavičius, Dovilė Kuiziniienė, Adomas Bunevičius* “Leveraging Phone Sensors for Early Detection of Symptom Changes in Cancer Patients”
8. **Sobia Dastgeer**, *Povilas Treigys* “Transforming Black-Box Models into Explainable AI for Breast Cancer Recognition”
9. **Urtė Deinoravičiūtė**, *Jurgita Markevičiūtė, Povilas Treigys* “Cointegration of Functional Time Series”
10. **Martynas Dumpis**, *Dalius Navakauskas* “Case Study on Small-Scale Dynamic Neural Networks Explainability”
11. **Karina Čiurlienė** “Analysis of Event and Human Factor-Based Decision-Making in Cybersecurity Exercises Using MCDM”

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12. **Henrikas Giedra**, *Dalius Matuzevičius* “Optimising Deep Vision Models for Eyeglasses Detection in Low-Power Devices”
  13. **Uladzislau Hadalau** “Classification of Cardiovascular Diseases Using Machine Learning Methods and PQRST Intervals Segmentation of Electrocardiogram Records from Holter Monitoring”
  14. **Viroslava Kapustynska**, *Vytautas Abromavičius, Artūras Serackis, Šarūnas Paulikas, Kristina Ryliškienė, Saulius Andruškevičius* “Detecting Pre-Migraine Night Patterns with Wearable Biosensors and Machine Learning”
  15. **Faustas Žiliajevas**, *Justina Ramonaitė, Daniel Zakševski, Gražina Korvel, Gintautas Tamulevičius* “Noise Dataset for Deep Learning-Based Speech Enhancement”
  16. **Aidas Žygas**, *Gražina Korvel* “An Overview of the Machine Learning Algorithms Used for Music Source Separation”

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**19<sup>00</sup>–20<sup>30</sup>**

**Welcome Party (Hotel Restaurant)**





## Event Schedule

### Friday, November 29

#### 9<sup>00</sup>–10<sup>00</sup> Plenary Session (Room A)

**Chih-Kuang Yeh** “Trapping and Manipulating Drug-loaded Microbubbles by Acoustic Vortex Tweezers” (National Tsing Hua University, Taiwan)

**Sanda Martinčić-Ipšić** “From Text to Insight: Enhancing Relation Extraction in Climate Change Research” (University of Rijeka, Croatia)

#### 10<sup>00</sup>–11<sup>00</sup> Parallel Oral Session (Room A)

1. **Justina Mandravickaitė, Eglė Rimkienė, Danguolė Kotryna Kapkan, Danguolė Kalinauskaitė** “On the Road to the Automatic Text Simplification for Lithuanian” (Vytautas Magnus University)
2. **Ernestas Serkovas** “Access Control Approach in Microservices Architecture” (Kaunas University of Technology)
3. **Laura Maria Donaire, Gloria Ortega, Francisco Orts, Ester Martín Garzón, Ernestas Filatovas** “Quantum Machine Learning for Liver Disease Prediction” (University of Almería, Spain)

#### 10<sup>00</sup>–11<sup>00</sup> Parallel Oral Session (Room C)

1. **Milita Songailaitė, Tomas Krilavičius** “Analysing and Identifying Disinformation in Lithuania Using Graph Kernels” (Vytautas Magnus University)
2. **Stefano Sanfilippo, Lorenzo Farina; Pietro De Vito, Mattia Repossi, José Juan Hernández-Cabrera, José Évora-Gomez, José Juan Hernández Gálvez, Anna Bolognesi, Daniele Domanin** “An Agent Based Simulation and Optimization Model for Minimizing Costs of Renewable Energy Communities” (STAM S.r.l, Italy)
3. **Simona Ramanauskaitė, Eglė Baradinskienė, Cristina Ionela Bulat, Umberto Morelli** “Automated Course Similarity Estimation, Based on Course Syllabi” (Vilnius Gediminas Technical University)

#### 11<sup>00</sup>–11<sup>20</sup> Coffee Break

1. *Kęstutis Girnius, Aušra Gadeikytė, Eglė Butkevičiūtė* “Enhancing 3D Map Generation from Satellite Imagery Using R-CNN”
2. *Vytautas Kiudelis, Robertas Petrolis, Rima Ramonaitė, Dainius Jančiauskas, Juozas Kupčinskas, Povilas Šabanas, Algimantas Kriščiukaitis* “Identification of Key Areas in Histology Images for Detection of Collagenous Colitis: A Deep Learning Approach”
3. *Kūršat Kōmūrciū, Linas Petkevičius* “Change Detection in Satellite Imagery Using Transformer Models and Machine Learning Techniques: a Comprehensive Captioning Dataset”
4. *Eduardas Kutka, Jolita Bernatavičienė* “High-Performance Computing in Science”
5. *Algirdas Lančinskas, Pascual Fernández, Julius Žilinskas* “Robust Facility Location Under Uncertainty in Customer Behavior”
6. *Mindaugas Mačernis, Goda Bankovskaitė, Jonas Franukevičius, Darius Abramavicius* “Spectral and Molecular Dynamics Studies of Carotenoids and Stilbene in Complex Systems for Supercomputing”
7. *Arnas Matusėvičius, Gabrielė Kasputytė, Anton Volčok, Martynas Narmontas, Gintautas Mozgeris, Ljusk Ola Eriksson, Tomas Krilavičius* “Adapting AI and Tree Growth Models for Sustainable Forestry in Lithuania”
8. *Kęstutis Pakrijauskas, Dalius Mažeika* “Increasing Availability of Low Latency Stateful Microservices”
9. *Jolanta Miliauskaitė, Diana Kalibatienė, Asta Slotkienė* “The Rapid Application Development (RAD) in Digital Transformation Era”
10. *Tautvydas Naudžiūnas, Guoda Perminaitė, Povilas Treigys* “Exploring Techniques for Diffraction Ring Detection in Molecular Research”

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11. **Jonas Mindaugas Rimšelis**, *Gajane Mikalkėnienė, Jolita Bernatavičienė* “Comparative Evaluation of Adjacency Matrix Applications for EEG Signal Classification Tasks”
  12. **Tatiana Tchemisova**, *Adam Nowak, Anna Laska-Leśniewicz, Tomasz Kopczyński, Jacek Stańdo, Nina Szczygie, Ana Breda, Beatrix Bačová, Mária Kúdelčíková, Michaela Holešová* “Virtual Reality Meets Mathematics: Innovative Teaching Modules for Geometry. Challenges and Results of the Math3DgeoVR Project”
  13. **Jolanta Miliauskaitė**, *Asta Slotkienė, Luis Mendes Gomes* “Social Factors Affecting Internal Stakeholders' Perceptions of Software Product Quality Characteristics”
  14. **Brendonas Stakauskas**, *Virginijus Marcinkevičius* “Visualising SARS-CoV-2 Phylogenetic Relationships Using Protein Language Models”
  15. **Stepas Toliautas**, *Delianas Palinauskas, Laura Baliulytė, Darius Abramavičius* “Looking for Simplified Molecular Reaction Coordinates from Computation Data”
  16. **Daniel Zakševski**, *Gintautas Tamulevičius* “Are We Able to Model the Human Auditory System in Speech Signal Enhancement?”

<b>12<sup>20</sup>–12<sup>40</sup></b>	<b>DAMSS 2024 Photo</b>
<b>12<sup>40</sup>–14<sup>00</sup></b>	<b>Lunch (Hotel Restaurant)</b>

<b>14<sup>00</sup>–15<sup>30</sup></b>	<b>Plenary Session (Room A)</b>
	<p><i>Andrius Januta</i> “Adversarial Attacks on AI: Understanding and Securing Machine Learning in Cybersecurity” (Nord Security, Lithuania)</p> <p><i>Dmitri E. Kvasov</i> “Advanced Global Optimization Techniques and Their Applications” (University of Calabria, Italy)</p> <p><i>Rajesh Sharma</i> “Social Media Analytics for Making Online Platforms Safer!” (University of Tartu, Estonia; IIT Delhi Insitute, India)</p>
<b>15<sup>30</sup>–16<sup>00</sup></b>	<b>Coffee Break</b>
<b>16<sup>00</sup>–16<sup>50</sup></b>	<b>Discussion Session: Science in Business (Room A)</b>
	<p><i>Artsem Varyvoda</i> “Tech and Environment: Linking SQL and DB Performance with CO2 Emissions Control” (EPAM)</p> <p><i>Vytas Mulevičius</i> “Advancing NLP for Lithuanian Language at Neurotechnology” (Neurotechnology)</p>
<b>16<sup>50</sup>–17<sup>00</sup></b>	<b>Closing Session (Room A)</b>

1. **Beata Gancevska**, *Simona Ramanauskaitė* “Analysis of Blended Course Quality Metrics: Research, University and Student Perspectives”
2. **Javier Navarro**, *Gloria Ortega, Ester Martín Garzón, Antonio Manuel Puertas* “CUDA Implementations for the Acceleration of Microrheology Models”
3. **Gediminas Navickas**, *Gailius Raškinis, Danguolė Mikulėnienė, Vytautas Kardelis, Indrė Makauskaitė, Pijus Kasparaitis, Margarita Beniušė, Laimonas Vėbra, Steponas Tolomanovas, Asta Kazlauskienė, Saulė Milčiuvienė, Gražina Korvel* “Development of a Large Lithuanian Speech Corpus for Speech Recognition, Artificial Intelligence, and Other Innovative Language Technologies”
4. **Linus Petkevičius** “Multi-Source Data Merging of Orthoimagery and Satellite Imagery for Deep Learning”
5. *Algirdas Pocius*, **Tomas Blažauskas**, *Eglė Butkevičiūtė* “Voxel-Based 3D Object Generation from Single Images Using an Enhanced Deep Learning Architecture”
6. **Sergej Pokusajev**, *Pavel Stefanovič* “The Analysis of ChatGPT Efficiency for Context Extraction Using Lithuanian News Multi-label Text Dataset”
7. *Urtė Radvilaitė*, **Birutė Pliuskuvienė**, *Pavel Stefanovič, Simona Ramanauskaitė* “Peculiarities of GenAI Usage in Higher Education: Possibilities and Additional Challenges”
8. **Jūratė Ragulskienė**, *Kęstutis Pilkauskas, Paulius Palevičius* “The Elastic Slit Membrane: The Concept and the Target Transient Modes”
9. **Martynas Sabaliauskas**, *Igoris Belovas, Rugilė Čepaitytė* “Exploring the Distribution of Zeros of the Prime Zeta Function: New Insights Through 3D Visualization and Statistical Analysis”
10. **Stefano Sanfilippo**, *José Juan Hernández Gálvez, Christoph Kändler, José Juan Hernández-Cabrera, José Évora-Gomez*,

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*Octavio Roncal Andrés* “A Neural Network for Electricity Demand Modeling: El Espino Case”

11. **Rokas Štrimaitis**, *Simona Ramanauskaitė, Pavel Stefanovič* “The Analysis of Synthetic Data Application Peculiarities on Time-Series Forecast Model Selection”
12. **Tadas Telksnys**, *Inga Telksnienė, Romas Marcinkevičius, Zenonas Navickas, Minvydas Ragulskis* “Constructing Solitary Solutions to Nonlinear Differential Equations Using AI-Assisted Differentiation Operators”
13. **Justas Trinkūnas**, *Roma Puronaitė, Laurent Jacotot, Mike Woodward, Mindaugas Morkūnas* “Information System Architecture of the Lithuanian National Biobanking Infrastructure”
14. **Ilona Veitaitė**, *Audrius Lopata, Saulius Gudas* “Visual Representations in Financial Process Mining”
15. **Julius Venskus**, *Robertas Jurkus, Povilas Treigys* “A Complex Network Approach to Marine Traffic Interaction Modeling: Feature Extraction for Real-Time Traffic Awareness”
16. *Eimantas Zaranka, Monika Zdanavičiūtė, Tomas Krilavičius* “From Images to Smart Data: Digitization of Logistic Documents”

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19<sup>00</sup>–21<sup>00</sup>

**Dinner (Hotel Restaurant)**



## Event Schedule

### Saturday, November 30

**10<sup>00</sup>–12<sup>00</sup>**

**General Discussion and Concluding Remarks**

*Round table discussion*

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