DAMSS
DATA ANALYSIS METHODS FOR SOFTWARE SYSTEMS



17th Conference on

DATA ANALYSIS METHODS
for Software Systems

November 26–28, 2026

Druskininkai, Lithuania,
Hotel "Europa Royale"

PROGRAMME

https://www.mii.lt/DAMSS

Co-Chairmen:
Prof. Gintautas Dzemyda (Vilnius University, Lithuanian Academy of Sciences)
Dr. Saulius Maskeliūnas (Lithuanian Computer Society)

Programme Committee:
Prof. Jolita Bernatavičienė (Lithuania)
Prof. Juris Borzovs (Latvia)
Prof. Janusz Kacprzyk (Poland)
Prof. Ignacy Kaliszewski (Poland)
Prof. Bożena Kostek (Poland)
Prof. Tomas Krilavičius (Lithuania)
Prof. Olga Kurasova (Lithuania)
Assoc. Prof. Tatiana Tchemisova (Portugal)
Assoc. Prof. Gintautas Tamulevičius (Lithuania)
Prof. Julius Žilinskas (Lithuania)

Organizing Committee:
Prof. Jolita Bernatavičienė
Prof. Olga Kurasova
Assoc. Prof. Viktor Medvedev
Laima Paliulionienė
Assoc. Prof. Martynas Sabaliauskas
Prof. Povilas Treigys

Contacts:
Prof. Jolita Bernatavičienė
jolita.bernataviciene@mif.vu.lt
Prof. Olga Kurasova
olga.kurasova@mif.vu.lt
Tel. (+370 5) 2109 315

Programme at a Glance

Time	Room A	Room B	Room C	Room D
Thursday, November 26				
11:00–13:00	**Registration · Info Desk** · Room B			
13:00–13:30	**Opening** · Room A · p. 4			
13:30–14:30	**Keynotes: R. Mitkov, J. Ralytė** · Room A · p. 4			
14:30–15:30	**Poster Session I: AI in Health and Life Sciences** · Room B · p. 4 · coffee 15:00			
15:30–16:30 ‖ parallel	**Statistical Modelling and Simulation** Room A · p. 6		**Artificial Intelligence Applications** Room C · p. 6	**Cyber Security and Trustworthy Systems** Room D · p. 6
16:30–18:00	**Poster Session II: Cyber Security, Privacy and Software Systems** · Room B · p. 7			
19:00–20:30	*Welcome Party (Hotel Restaurant)*			
Friday, November 27				
9:00–10:00	**Keynotes: K. Diamantaras, C. M. Fonseca** · Room A · p. 9			
10:00–11:00 ‖ parallel	**Quantum Computing** Room A · p. 9		**Software Systems, Cloud and Education** Room C · p. 10	
11:00–11:20	*Coffee Break*			
11:20–12:20	**Poster Session III: Language Technologies and Generative AI** · Room B · p. 10			
12:20–14:00	*Group Photo · Lunch (Hotel Restaurant)*			
14:00–15:00 ‖ parallel		**Poster Session IV** Applied Data Science, Optimization and Security · p. 12		**Machine Learning Methods and Applications** Room D · p. 11
15:00–15:30	**Keynote: J. Kůdela** · Room A · p. 13			
15:30–16:00	*Coffee Break*			
16:00–17:30	**Science in Business: Vinted, Neurotechnology, Panel Discussion** · Room A · p. 13			
17:30–17:40	**Closing** · Room A			
17:40–18:40	**Poster Session V: Vision, Speech, Signals and Intelligent Decision Systems** · Room B · p. 13			
19:30–23:00	*Conference Dinner (Hotel Restaurant)*			
Saturday, November 28				
10:00–12:00	**General Discussion and Concluding Remarks** · Room A · p. 15			

Room A · Room B · Room C · Room D · Breaks & meals



Event Schedule

Thursday, November 26

11^{00}–13^{00}	**Registration (Room B)** **Info Desk**	**B**

13^{00}–13^{30}	**Opening. Welcome and Introductory Remarks**	**A**

Gintautas Dzemyda Data Analysis Methods for Software Systems (Vilnius University)

13^{30}–14^{30}	**Plenary Session (Room A)** **Keynote Talks**	**A**

13:30–14:00 **Ruslan Mitkov** Natural Language Processing in the Era of Artificial Intelligence: The Wind of Change is Blowing Stronger (Lancaster University, UK; University of Alicante, Spain)

14:00–14:30 **Jolita Ralytė** Large Language Models for Conceptual Modelling: From Automated Generation to Human-AI Collaboration (University of Geneva, Switzerland)

14^{30}–15^{30}	**Poster Session (I) (Room B)** **AI in Health and Life Sciences**	**B**

I-01 **Nika Bukolovaitė**, *Zigmantas Kęstutis Juškevičius, Žygimantas Abramikas, Viktor Medvedev, Jolita Bernatavičienė* Not Every Peak Is a Beat: R-Peak Detection Errors in Single-Lead Holter ECG

I-02 **Paulius Bundza**, *Justas Trinkūnas* Cross-Institution Reliability of Multi-Label Chest X-Ray Classification Software: Discrimination, Calibration and Subgroup Fairness under Domain Shift

I-03 *Romas Daugnora, Jonas Domarkas, Vilius Šarkinas, Eimantas Zaranka,* **Monika Katilienė** Patient-Specific 3D Drilling Aimer Generation for Mandibular Ramus Fractures

I-04 **Lina Kankevičienė**, *Julija Daranda* Separating Clinical Reasoning from Termination Authority in Agentic LLMs

I-05 *Jakub Kraus, Piotr Mika, Mateusz Wiśniewski,* **Paulina Trybek**, *Zbigniew Dendzik* Computational Methods for Investigating the Microscopic Mechanisms Underlying the Impact of Microplastics on Public Health

I-06 **Augustas Markevičius**, *Ramunė Bružaitė, Mindaugas Morkūnas* High-Resolution cfDNA Sequencing Data Simulation for the Development of a Minimal Cancer Residual Disease Monitoring Model

I-07 **Edita Mažonienė**, *Dmitrij Šešok* Grad-CAM Explainability in Chest Radiography: A Comparison of Correct and Incorrect Predictions

I-08 *Mesut Erkin Ozokutgen*, **Adebayo Adewumi Abayomi-Alli**, *Sema Nur Alan* Beyond Benchmark Accuracy: Cross-Dataset Generalization and Open-Set Safety in Gastrointestinal Endoscopy AI

I-09 **Linas Petkevičius** Lithuanian Medical Decision Models

I-10 *Naseha Wafa Qammar, Kristina Poškuvienė, Mantas Landauskas,* **Kiran Shahzadi**, *Minvydas Ragulskis, Alfonsas Vainoras, Nachum Plonka, Mike Atkinson, Rollin McCraty* Analyzing Group HRV Complexity Matching via Attractor State-Space Geometry

I-11 **Augustė Raišytė**, *Dalius Matuzevičius, Tadas Žvirblis, Linas Petkevičius* Evaluation of Multi-Model Translation Strategies for Lithuanian Medical Multimodal Dataset Construction

I-12 **Jonas Mindaugas Rimšelis**, *Žygimantas Abramikas, Zigmantas Kęstutis Juškevičius, Jurgita Markevičiūtė, Viktor Medvedev, Simonas Šimėnas, Povilas Treigys, Jolita Bernatavičienė* Impact of Diffusion-Denoising-Based ECG Augmentation on the Robustness of Beat-Level Arrhythmia Classification

15^{00}–15^{30}	**Coffee Break**

15^{30}–16^{30}	**Parallel Oral Session (Room A)** **Statistical Modelling and Simulation**	**A**

1. **Rūta Juozaitienė** Weak and Strong Tie Dynamics: A Continuous-Time Relational State Approach (Vytautas Magnus University)
2. **Jurgita Markevičiūtė**, *Diana Vereškaitė* Beyond Price History: Stability and Sensitivity of the News-Augmented GARCH Model (Vilnius University)
3. *Virgilijus Sakalauskas*, **Dalia Krikščiūnienė** An Ordinal Transport Framework for Paired Likert-Scale Responses (Kauno kolegija Higher Education Institution)
4. **Jose J. H. Galvez**, *Mathias Osorio, Alexis Lozano, Jose Evora, Jose J. Hernandez Cabrera* Public EV Charging under Changing Participation: A Stochastic Agent-Based Simulation (Universidad de Las Palmas de Gran Canaria, Spain)

15^{30}–16^{30}	**Parallel Oral Session (Room C)** **Artificial Intelligence Applications**	**C**

1. *Chia-Chi Hsiao, Kuan-Jung Chen, Chun-Chieh Wang*, **Da-Chuan Cheng** Clinical Transferability and Institution-Specific Adaptation of a prostateCA Foundation Model for Prostate MRI Zonal Segmentation (China Medical University, Taiwan)
2. **Julius Venskus**, *Robertas Jurkus, Povilas Treigys, Kasparas Kaukas, Clinton Iwuoha* Assessing Maritime Interaction Networks under Prediction Uncertainty with a Complex Network Theory Approach (Vilnius University; Klaipėda University)
3. **Joachim Włodarz** Edge AI in Data Processing (University of Silesia, Poland)

15^{30}–16^{30}	**Parallel Oral Session (Room D)** **Cyber Security and Trustworthy Systems**	**D**

1. **Arnoldas Budžys**, *Juozas Dautartas, Viktor Medvedev, Olga Kurasova* From Obfuscation to Defence: Adversarial Malware in Controlled C2 Environments (Vilnius University)
2. **Luis-Carlos Herrera**, *Justinas Janulevičius* Where Does Extraction Fail? Ambiguity-Stratified Evaluation of Security Control Extraction from Regulatory Text (Vilnius Gediminas Technical University)

3. **Kazimieras Bagdonas** Auditable Authority and Recoverable Execution in Distributed Scholarly Publishing (Kaunas University of Technology)

16^{30}–18^{00}	**Poster Session (II) (Room B)** **Cyber Security, Privacy and Software Systems**	**B**

II-01 **Edgaras Baranauskas**, *Jevgenijus Toldinas* Developing a Lithuanian Dataset of Malicious Social Media Communications

II-02 **Antanas Čypas**, *Juozapas Rokas Čypas, Juozas Dautartas, Viktor Medvedev* Trust Issues: AI Inside Command and Control Frameworks

II-03 **Andrius Daranda** Composing Independently Issued Grants for Cross-Organization LLM Agent Workflows

II-04 **Indrė Grigaravičiūtė**, *Nikolaj Goranin* A Multi-Criteria Decision-Making Framework for Cybersecurity Incident Severity Evaluation

II-05 *Diana Kalibatienė,* **Julius Jancevičius**, *Kęstutis Normantas, Algirdas Laukaitis, Mindaugas Jankauskas, Dovilė Jodenytė* A Privacy-Preserving Pipeline for Dialect-Aware Transcription and Evaluation of Admissions Interviews

II-06 **Karina Kulikauskaitė** Neuro-Fuzzy Prediction of Decision Making in Cyber Defense Exercises

II-07 **Tatjana Liogienė**, *Asta Danilevičiūtė, Vaidas Valukonis* Concept of a Cybersecurity Management Model for Higher Education Institutions

II-08 **Dalius Mažeika**, *Povilas Lajus* Hybrid Autoscaling Algorithm of Containerized Microservices for QoS Assurance in SaaS Systems

II-09 **Darius Migilinskas**, *Birutė Končė* Investigation of BIM Model Development for Cultural Heritage Buildings Using Artificial Intelligence and Other IT Solutions

II-10 **Jūratė Ragulskienė**, *Loreta Saunorienė, Minvydas Ragulskis* Perfect Coverings with Sparse Observation Windows for Secure Steganography

II-11 **Martynas Sabaliauskas**, *Karolis Pempė* Making Invisible Colleges Visible: Multidimensional Scaling and Interactive 3D Exploration of the Vilnius University Co-Authorship Network

II-12 *Deividas Valiuška, Nerijus Šakinis, Eimantas Zaranka*, **Justinas Juozas Dainauskas**, *Rimantė Povilavičienė, Tomas Krilavičius* Unsupervised Graph Neural Network Anomaly Detection on Enterprise Firewall Traffic

II-13 **Ilona Veitaitė**, *Rasa Brūzgienė, Ieva Andrijauskaitė, Donatas Misiūnas* From Compliance to Control: Governing GenAI Through the CISO Function

II-14 **Algimantas Venčkauskas**, *Raimundas Matulevičius, André Zúquete*, *Csaba-Zoltán Kertesz* Challenge-Based Learning in Cyber Security Education Within a Federated Education Environment

II-15 **Tadas Verbyla**, *Audronė Lupeikienė* Design Pattern Specification Templates for Coordination Methods of Collectives: A Critical Analysis

II-16 **Dovydas Marius Zapkus**, *Asta Slotkienė* Assessment of Answer Reliability of a Cybersecurity Knowledge Graph Under Software Vulnerability Abstraction Perturbation

19^{00}–20^{30}	**Welcome Party (Hotel Restaurant)**



Event Schedule

Friday, November 27

9^{00}–10^{00}	**Plenary Session (Room A)** **Keynote Talks**	**A**

9:00–9:30 **Konstantinos Diamantaras** Mitigating Hallucinations in Large Language Models (International Hellenic University, Greece)

9:30–10:00 **Carlos M. Fonseca** Modelling Before Solving with Metaheuristics (University of Coimbra, Portugal)

10^{00}–11^{00}	**Parallel Oral Session (Room A)** **Quantum Computing**	**A**

1. **Ugnė Liaubaitė** From Bits to Qubits: Bridging Classical Reliability and Fault-Tolerant Quantum Algorithms (Vilnius University)
2. **Ernestas Filatovas**, *Dmitry Podkopaev*, *Remigijus Paulavičius* Quantum Optimization of Constrained Vehicle Routing Problems (Vilnius University)
3. **Marco Marcozzi**, *Savíns Puertas-Martín*, *Ana Cámara-Artigas*, *Ernestas Filatovas*, *Juana L. Redondo* Quantum Molecular Shape Similarity: A Variational Circuit for Three-Dimensional Ligand Comparison (Vilnius University)
4. **Fernando J. Alonso**, *Ester M. Garzón*, *Francisco Orts* A Reproducible Framework for Implementing and Benchmarking Quantum Comparator Circuits (University of Almería, Spain)

10^{00}–11^{00}	**Parallel Oral Session (Room C)** **Software Systems, Cloud and Education**	**C**

1. **Tomas Blažauskas**, *Eimutis Karčiauskas* Visual Programming Framework for Learning Data Analysis (Kaunas University of Technology)
2. **Algirdas Laukaitis**, *Diana Kalibatienė, Artūras Serackis, Kęstutis Normantas, Mindaugas Jankauskas, Julius Jancevičius, Dovilė Jodenytė* Building a Digital Twin of University Admissions from DreamApply Data (Vilnius Gediminas Technical University)
3. **Mikita Syravatnikau** On Enhancing Virtual Machine Placement Balancing Algorithms for Highly Overbooked Cloud Infrastructures (Vilnius Gediminas Technical University)

11^{00}–11^{20}	**Coffee Break**

11^{20}–12^{20}	**Poster Session (III) (Room B)** **Language Technologies and Generative AI**	**B**

III-01 **Błażej Białczak**, *Kamil Sterniuk, Bożena Kostek* Human-Language Model Alignment in Native and Foreign Language Processing: An Eye-Tracking Study of Cognitive Effort

III-02 **Beata Gancevska**, *Simona Ramanauskaitė* Identifying Unusual Topic Alignment Patterns in E-Learning Materials

III-03 **Dalia Jakulytė**, *Vitalij Denisov*, *Arturas Garbuz* Bridging Corpus Linguistics and Relational Lexical Databases Through Machine Learning: The SERMIS Approach

III-04 **Danguolė Kalinauskaitė** Benchmarking Large Language Models in Lithuanian

III-05 **Natalija Matyjaškoit**, *Pavel Stefanovič, Simona Ramanauskaitė* Evaluating Information Retrieval Effectiveness of RAG Architectures Across Diverse LLM Scales Using HotpotQA and MuSiQue

III-06 **Emilija Mazūraitė**, *Deimantė Zaikauskaitė, Justina Mandravickaitė, Milita Songailaitė, Tomas Krilavičius* A Diagnostic Framework for Assessing Social Bias in Lithuanian and English Datasets and Language Models

III-07 **Artūras Nakvosas**, *Virginijus Marcinkevičius* The Impact of Stated Source Reliability on Face Verification with Multimodal Large Language Models

III-08 **Urtė Radvilaitė**, *Birutė Pliuskuvienė, Simona Ramanauskaitė, Pavel Stefanovič* Detecting GenAI-Generated Open-Ended Exam Answers Across Multiple Computer Science Subjects

III-09 **Lurda Songailaitė**, *Justinas Juozas Dainauskas, Milita Songailaitė, Tomas Krilavičius* A Lithuanian-Specific E5 Text Embedding Model

III-10 **Milita Songailaitė**, *Tomas Krilavičius* How Well Do LLMs Detect Disinformation Narratives? Retrieval vs. Zero-Shot on Familiar and Unseen News

III-11 **Deividas Valiuška**, *Justina Mandravickaitė, Milita Songailaitė, Tomas Krilavičius* Data Balance Analysis for Lithuanian and English NLP

III-12 **Eimantas Zaranka**, *Roel Pieters, Tomas Krilavičius* Language Models in Human-Robot Collaboration: Past, Present and Future

---

12^{20}–12^{40}	**DAMSS 2026 Group Photo**	
12^{40}–14^{00}	**Lunch (Hotel Restaurant)**	
14^{00}–15^{00}	**Parallel Oral Session (Room D)** **Machine Learning Methods and Applications**	**D**

1. **Mantas Globys**, *Viktor Medvedev* When Malware Changes: Assessing Detection Robustness with Generative AI (Vilnius University)
2. **Mykolas Motiejūnas**, *Lukas Janušauskas, Loann Brahimi, Baptiste Quidet, Gaël Pagès* Forecasting German Day-Ahead Electricity Market Prices with Regularized Linear Models (Vilnius University; Improm AI)
3. **Adriana Voišvilo** Machine Learning for Laryngeal Cancer Detection Using Endoscopic Images, Voice Signals, and Multimodal Data (Vilnius University)
4. **Glauco Endrigo Moura de Lima**, *Remigijus Paulavičius* Geometry-Informed Comparison of Quantum and Classical Molecular Generative Models (Vilnius University)
5. **Vytautas Lėveris**, *Gražina Korvel* Graphemes, Stressed Graphemes, or Phonemes? Text Input Representations for Lithuanian VITS Speech Synthesis (Vilnius University)

14^{00}–15^{00}	**Poster Session (IV) (Room B)** **Applied Data Science, Optimization and Security**	**B**

IV-01 **Paulius Balčiūnas** Lossy Compression of Simulated High-Energy Physics Data Using Vector Quantization

IV-02 **Romas Baronas**, *Linas Litvinas*, *Karolis Petrauskas* Computational Optimization of Enzyme-Based Biosensors with Cyclic Signal Amplification

IV-03 *Eugenijus Gabrielius Ivanauskas, Liepa Urbonaitė,* **Saulius Jokubaitis** Financing Green Solutions: Asset Returns and Tail Risks

IV-04 **Robertas Jurkus**, *Vitalijus Denisovas*, *Darius Drungilas*, *Mindaugas Kurmis* Multi-Level Reinforcement Learning for Dynamic Assortment Control in a Cosmetics Retail Network

IV-05 **Gabrielė Kasputytė**, *Tomas Krilavičius* Unsupervised Learning of Player Roles and Lineup Archetypes in EuroLeague Basketball

IV-06 **Maksym Lapin**, *Dalius Navakauskas* Disentangling Sources of Variability in Sensor-Channel Importance Rankings for Human Activity Recognition

IV-07 **Justinas Lekavičius**, *Valentas Gružauskas* Data Augmentation for Multi-Temporal Rooftop Solar Panel Segmentation in Lithuanian Orthophotos

IV-08 **Faustas Litvinaitis**, *Simona Ramanauskaitė* Structuring Cybersecurity Hygiene Indicators: Automated Assessment Complexity, Data Privacy and Indicator Prioritisation

IV-09 **Arnas Matusevičius**, *Gabrielė Kasputytė, Monika Papartė, Gintautas Mozgeris, Tomas Krilavičius* Segmented or Pooled Models? Machine Learning Estimation of Stem Volume from Lithuanian NFI, LiDAR and Sentinel-2 Data

IV-10 *Alfonsas Misevičius,* **Dovilė Verenė**, *Gintaras Palubeckis* On the Arithmetic Optimization Algorithm for the Quadratic Assignment Problem

IV-11 **Monika Petrulevič**, *Simona Ramanauskaitė* Artificial Intelligence-Based Automated Real Estate Valuation

IV-12 **Irmantas Pilypas**, *Irma Šileikienė, Asta Slotkienė* Data-Driven Imputation of Missing Economic Indicators for EU Regions: A Multi-Metric Accuracy Assessment

IV-13 **Raigardas Tautkus**, *Mantas Vaitonis* Hidden Market Regimes in Daily Cryptocurrency Data: HMM-Based Forecasting and Trading Evaluation

---

15^{00}–15^{30}	**Plenary Session (Room A)** **Keynote Talk**	**A**

15:00–15:30 **Jakub Kůdela** A Tour of the Separate Islands of Model-Based Optimization (Brno University of Technology, Czech Republic)

15^{30}–16^{00}	**Coffee Break**

16^{00}–17^{30}	**Science in Business (Room A)**	**A**

Gytis Kulaitis Democratizing In-Database Machine Learning at Scale: BigQuery ML Adoption at Vinted (Vinted, Lithuania)

Vytas Mulevičius Automated R&D with AI Agents (Neurotechnology, Lithuania)

Panel Discussion: Science in Business – *with the industry speakers and invited researchers. Moderator: [TBA]*

17^{30}–17^{40}	**Closing Session (Room A)**	**A**

17^{40}–18^{40}	**Poster Session (V) (Room B)** **Vision, Speech, Signals and Intelligent Decision Systems**	**B**

V-01 **Juozapas Rokas Čypas**, *Olga Kurasova, Viktor Medvedev, Juozas Dautartas* Mask Off: Adversarial Training Against Malware Disguised with Benign-Category APIs

V-02 *Pascual Fernández*, **Algirdas Lančinskas**, *Julius Žilinskas* Budget-Constrained Competitive Facility Location-Design with Sequential Customer Choice Rules

V-03 **Laimonas Janutėnas**, *Dmitrij Šešok* Evaluating GAN-Based Augmentation Across Deep Learning Architectures for Endoscopic Image Classification

V-04 **Michał Kalinowski**, *Bożena Kostek* Mutual Knowledge Distillation Between Heterogeneous Architectures for Continuous Sign Language Recognition

V-05 **Giedrė Keršulytė**, *Artūras Serackis* MORPHO-NN: Adaptive Growth and Pruning for Information Structure Recovery in Multichannel Signals

V-06 *Kürşat Kömürcü,* **Vytautas Paura**, *Valentas Gružauskas, Linas Petkevičius* SAR-to-Optical Image Translation Using Wavelet Based GAN Networks

V-07 *Tomas Krilavičius, Justina Mandravickaitė, Monika Katilienė, Tadas Žiemys,* **Hande Safiye Erdal**, *Eimantas Zaranka* Single-Reference Identity Preservation for Dogs Through Large-Scale Adapter Training

V-08 **Tautvydas Kvietkauskas**, *Ūla Šveiterytė* A Lithuanian Image-Caption Dataset: Combining News Media and Translated Benchmarks

V-09 *Michele Pizzi*, **Gražina Korvel**, *Bożena Kostek, Povilas Treigys* Identifying Emotion-Sensitive Acoustic Features in Italian Speech: A Comparative Analysis of Anger and Neutral Expression

V-10 **Justina Ramonaitė**, *Gražina Korvel* Towards Noise-Adaptive Training of GANs: Adding Noise Information to the Objective Function

V-11 *Julius Venskus*, **Robertas Jurkus** Manoeuvre Compatibility Networks to Support Autonomous Ship Decisions

V-12 **Nojus Zaronskis**, *Milita Songailaitė, Rūta Juozaitienė, Tomas Krilavičius* Acoustic Water Leak Detection Using Machine Learning Methods

19^{30}–23^{00}	**Dinner (Hotel Restaurant)**

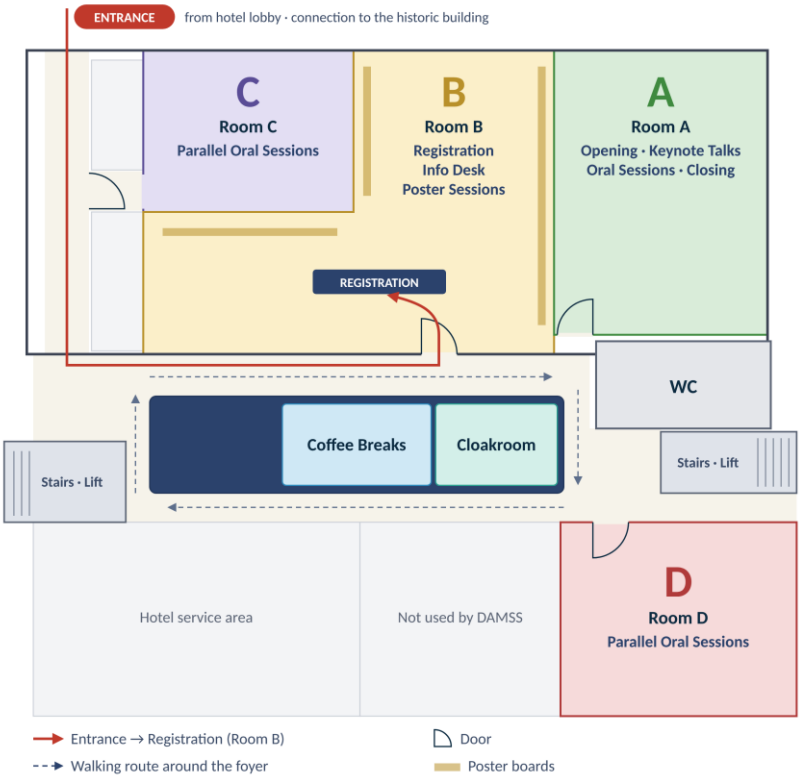
Event Schedule

Saturday, November 28

10^{00}–12^{00}	General Discussion and Concluding Remarks	A

Round table discussion

Conference Venue Map



DAMSS 2026 is supported by

Organizers:

Vilnius University Institute of Data Science and Digital Technologies

Lithuanian Academy of Sciences, Lithuanian Computer Society

Partners

International Federation for Information Processing

IEEE Lithuania Section

General Sponsors

Neurotechnology

Novian UAB

3RTechnology

Research Council of Lithuania

Vinted UAB

Main Sponsor

Visoriai Information Technology Park (VITP)