

TECHNICAL UNIVERSITY OF KOŠICE

Faculty of Aeronautics



**NEW TRENDS IN AVIATION DEVELOPMENT
2025**

20th INTERNATIONAL SCIENTIFIC CONFERENCE

High Tatras - Starý Smokovec, Slovakia



NTAD 2025

NEW TRENDS IN AVIATION DEVELOPMENT

20th INTERNATIONAL SCIENTIFIC CONFERENCE

FINAL PROGRAMME

DAY 1 – 27.11.2025

08:30 – 09:00	Registration
09:00 – 09:25	Opening of the Conference
09:25 – 10:15	Plenary Session 1 ^A (Invited Talks)
10:15 – 10:30	Welcome Group Photo
10:30 – 10:45	Coffee Break
10:45 – 12:15 *	Plenary Session 2 ^A
12:15 – 13:30	Lunch break
13:30 – 15:00	Plenary Sessions 3 ^A , 3 ^B
15:00 – 15:15	Coffee Break
15:15 – 16:30	Plenary Session 4 ^A
15:15 – 16:30	Poster Session ^B
18:30 – 19:00	Gala Evening
19:00 – 22:00	Gala Dinner

DAY 2 – 28.11.2025

08:30 – 09:00	Registration
09:00 – 10:30	Plenary Sessions 5 ^A , 5 ^B
10:30 – 10:45	Coffee Break
10:45 – 12:15	Plenary Sessions 6 ^A , 6 ^B
12:15 – 14:00	Closing Ceremony and Lunch

Sessions marked with A will be held in Hoepfner Hall

Sessions marked with B will be held in Fridrich August Lounge

* 10:45 – 12:15 — Aviation Workshop will take place in the Friedrich August Lounge



NTAD Programme – Day 1

27.11.2025 – Thursday

- 08:30 – 09:00 Registration**
- 09:00 – 09:25 Opening of the Conference** – Dean of the Faculty of Aeronautics, Technical University of Košice – assoc. prof. Ing. P. Korba, PhD.
- 09:25 – 10:15 Plenary Session 1^A** – Session Chair – prof. Ing. R. Andoga, PhD.
- 09:25 – 09:50 Invited Talk 1
- 09:50 – 10:15 Invited Talk 2
- 10:15 – 10:30 Welcome Group Photo**
- 10:30 – 10:45 Coffee Break**
- 10:45 – 12:15 Plenary Session 2^A** – Session Chair – M.Eng. Ing. M. Košuda, PhD.
- 10:45 – 11:00 Testing of the Ultrasonic Range Finder of the Mobile Sensor Unit in Windy Conditions – J. Novotňák, Z. Szőke, R. Bréda, P. Gašparovič, E. Dolný
- 11:00 – 11:15 Towards the Technical Integration of Vestibular Training for Pilots: Conceptual Design of a Multiaxial Flight Simulation System for Vestibular Illusion Training – V. Socha, D. Urban, S. Kusmirek, L. Hanakova, T. Havel, L. Socha
- 11:15 – 11:30 The impact of multi-frequency GNSS receivers on the reduction of ionospheric error – A. Novák, T. Lusiak, J. Zýka, A. Novák Sedláčková, S. D. Özdemirci



NTAD Programme – Day 1

27.11.2025 – Thursday

- 11:30 – 11:45 Optimizing VHF Antenna Placement on Aircraft: A Comparative Simulation Study – *M. Češkovič, N. Gecejová, M. Komjáty*
- 11:45 – 12:00 Attitude synchronization and position consensus for a multi-agent autonomous system – *S. Kimathi, B. Beszédes, A. Benhamida*
- 12:00 – 12:15 Irradiance forecast-supported energy management and controlling – *P. Udvardy, G. Kánai, T. Jancsó, B. Beszédes*
- 12:15 – 13:30 Lunch Break**
- 13:30 – 15:00 Plenary Session 3^A – Session Chair – doc. Ing. M. Češkovič, PhD.**
- 13:30 – 13:45 The Dichotomy of the Skies: An Analysis of European UAS Integration, Regulatory Transposition, and Civil-Military Interoperability – *N. Kattan, M. Košuda, M. Kelemen, V. Polishchuk*
- 13:45 – 14:00 Legal Challenges for Space Traffic Management: A Framework for Global Governance – *M. Košuda, M. Podmajersky, N. Kattan*
- 14:00 – 14:15 A Quantitative Analysis of the Legacy ATM Financial Model – *M. Kosuda, M. Stessl, M. Kelemen, N. Kattan*
- 14:15 – 14:30 Use of Polymer Material-PETG in Environments with Chemical De-Icing Agents – *P. Kalvoda, D. Demydenko*
- 14:30 – 14:45 Monitoring of Engine Instruments by Novice Pilots in Training during Instrument Rules Flights – *A. Novák, F. Chodelka*



NTAD Programme – Day 1

27.11.2025 – Thursday

- 14:45 – 15:00 Adaptive Pilot Monitoring: Unsupervised Artifact Detection and Atypical State Identification in Multimodal Physiological Signals – *F. Zolfaghari, O. Alharasees, A. Kilikevičius, U. Kale*
- 13:30 – 15:00 Plenary Session 3⁸ – Session Chair – Ing. Samer Al-Rabeei, PhD.**
- 13:30 – 13:45 Next-generation infrastructure diagnostics: UAV-based thermal imaging approaches – *M. Foryciarz, A. Tomaszewski, M. Ščerba, J. Kozuba, M. Marcisz, M. Urzędowski*
- 13:45 – 14:00 Hydrogen in Aviation: A Comprehensive Analysis of Combustion and Fuel Cell Propulsion Systems for Decarbonized Flight – *V. Szomosi, M. Bobček, J. Šimčák, R. Štefko, Z. Čonka*
- 14:00 – 14:15 Geometric Motion-Based Approach to UAV Detection and Localization – *R. Dianovský, P. Pecho, A. Novák, J. Rostáš*
- 14:15 – 14:30 Design of a Material Transport Cart for a Factory in the Aviation Industry – *S. Dubovský, V. Tymofiiiv, S. Al-Rabeei, H. Pačaiová, M. Hovanec, M. Vencel*
- 14:30 – 14:45 Utilization of Progressive Technologies for Aircraft Airframe Conceptualization – *M. Jouvenat, S. Al-Rabeei, B. Rácek, M. Divok, M. Vencel*
- 14:45 – 15:00 Postural Stability in Pilots Under Simulated Mild Hypoxia – *L. Hanáková, B. Oniščenko, J. Weiss, V. Socha*
- 15:00 – 15:15 Coffee Break**



NTAD Programme – Day 1

27.11.2025 – Thursday

15:15 – 16:30 Plenary Session 4^A – Session Chair – doc. Ing. Z. Čonka, PhD.

15:15 – 15:30 Simulation Model for Estimating Battery State of Charge –
M. Schrötter, L. Kovács, L. Főző, R. Andoga

15:30 – 15:45 The impact of conflict situations on the workload of air traffic
controllers during simulator training – *J. Ulvr, O. Mach, V. Smrž,*
P. Michenka, T. Pecháček

15:45 – 16:00 Hazardous Energy control in Maintenance Operations –
H. Pačaiová, R. Turisová, A. Šútňová, M. Hovanec, S. Vargová

16:00 – 16:15 Antenna designs simulation for drone based communication
relays – *I. Kabács, K. Károly*

16:15 – 16:30 The challenges of drone-supported researches at the
University of Public Service Hungary – *T. Vas, M. Palik, M.*
Gajdos, Z. Dudás, K. Károly

15:15 – 16:30 Poster Session^B – Session Chair – prof. Ing. L. Főző, PhD.

– Comparison of Fundamental Sources for Creation of Legal Norms for Civil
and State Aviation – *P. Kontriš, R. Klír*

– Integrating PEAR-Based Human Factors Assessment with SEM-AHP for AI-
Assisted UAV Operations – *O. Alharasees, F. Zolfaghari, A. Kilikevičius, U. Kale*

– Software Solution for Assessing the Level of Practical Knowledge of Air
Traffic Controller Students – *M. Kelemen, V. Polishchuk, I. Polishchuk, M.*
Kelemen, Jr., J. Jevčák, B. Mikula

– Exploring the present and future of Africa's air travel industry – *B. Mikula,*
E. Jenčová, I. Polishchuk

– Cybersecurity Preparedness of Future Aviation Professionals: A Survey-
Based Analysis – *L. Socha, V. Socha, P. Hanák, L. Hanáková, T. Havel*



NTAD Programme – Day 1

27.11.2025 – Thursday

- Virtual Reality and Artificial Intelligence in Aviation Safety Training: A Comparative Review – *S. Vargová, P. A. Skřehot, D. Charvátová, D. Tuček*
- Exoskeletons in Aircraft Maintenance : Overview of Available Knowledge and Implementation Experience – *D. Charvátová, S. Vargová, P.A. Skřehot, J. Sinay*
- Air Traffic Control Room Design in the Context of Actual Operator Requirements – *P. A. Skřehot, S. Vargova, D. Charvatova*
- AetherLedger: A Novel Hierarchical Layer-2 Blockchain Architecture for Secure Satellite Communications – *M. Podmajerský, M. Košuda, M. Kelemen, L. Főző*
- Concept of the Obstacles Optical Detection System for the Aircraft and Unmanned Aerial Vehicles – *N. Gecejová, M. Češkovič, P. Kurdel*
- Multiview X-ray Systems at Regional Airports: Economic Feasibility – *P. Koščák, Ľ. Szökeová, M. Koščáková, M. Tírpáková*
- Theoretical background and methodological approaches for the assessment of the professional workload of air traffic controllers – *J. Ulvr, J. Mazánek, T. Pecháček, V. Smrž, P. Engelová*

18:30 – 19:00 Gala Evening

19:00 – 22:00 Gala Dinner



NTAD Programme – Day 2

28.11.2025 – Friday

- 08:30 – 09:00 Registration
- 09:00 – 10:30 Plenary Session 5^A – Session Chair – doc. Ing. M. Antoško, PhD.**
- 09:00 – 09:15 In-orbit experience from VZLUSAT-2 mission: From freely rotating to nadir pointing CubeSat – *D. Hriadel, P. Svoboda Jerie, F. Rak, V. Dániel, R. László*
- 09:15 – 09:30 Accident Prediction Models and Human Factor Analysis in Aviation: A Systematic Review of Emerging Approaches – *S. Vargová, P. A. Skřehot, T. Zeman, J. Strohmandl*
- 09:30 – 09:45 Reducing ATCO workload by implementing FMC at LZTT – *Ľ. Nosál, B. Kandra*
- 09:45 – 10:00 Environmental and Economic Assessment of Aircraft Noise and Emissions in Flight Trajectory Optimization – *S. Číkovský, P. Šváb, P. Dzurovčin, P. Korba, N. Daneshjo*
- 10:00 – 10:15 Analysis of changes in predispositions and skills for people applying for a Commercial Pilot License – *M. Ščerba, J. Mendala, R. Wieszala, N. Daneshjo, J. M. Jusko, M. Foryciarz*
- 10:15 – 10:30 Environmental and Economic Analysis of Sustainable Aviation Fuels in the Context of Circular Economy: A Case Study – *A. Tobisová, R. Rozenberg, A. Turac, M. Boháč*
- 09:00 – 10:30 Plenary Session 5^B – Session Chair – Ing. E. Jenčová, PhD.**
- 09:00 – 09:15 Military Aviation Regulations and their Interaction with Civil Aviation Regulations – *R. KLÍR, P. KONTRIŠ*
- 09:15 – 09:30 Regulatory Framework of EASA, European Strategies, and Practical Applications of Artificial Intelligence in Aviation – *T. Gajdušková, E. Jenčová, A. Turac, D. Majorská, K. Hrešková, G. Galgóci*



NTAD Programme – Day 2

28.11.2025 – Friday

- 09:30 – 09:45 Resilient Aviation Security: A Hybrid Approach Combining Facial and Appearance Recognition – *J. Jevčák, M. Kelemen Jr., J. M. Jusko*
- 09:45 – 10:00 Innovative Approach to Non-Destructive Diagnostics of UAV Components Using Integrated Sensors – *J. Kessler, J. Novotňák, Z. Szőke, A. Polakovič*
- 10:00 – 10:15 Analysis of the Difference in Production Parameters Between Low-Cost and High-Cost 3D Printers – *I. Koláriková, V. Tymofiiv, M. Hovanec, S. Al-Rabeei*
- 10:15 – 10:30 Implementation of the GBAS system as a prospect for increasing the accessibility of regional airports – *D. Majorská, P. Dzurovčin, P. Korba, R. Čatloš*
- 10:30 – 10:45 Coffee Break**
- 10:45 – 12:15 Plenary Session 6^A – Session Chair – Ing. M. Schrötter, PhD.**
- 10:45 – 11:00 Mapping the evolution of Smart Airport Research: A Bibliometric Analysis – *K. Kováčiková, A. Novák, M. Kováčiková, R. Dianovský*
- 11:00 – 11:15 Review of a Historical Timeline and Evolution of Sustainable Aviation Fuel Development – *A. Yakovlieva, P. Kurdel, R. Andoga, S. Boichenko, M. Češkovič, N. Gecejova*
- 11:15 – 11:30 Validating Sustainable Atmospheric Profiling for Future Unmanned Aerial Systems Integration – *A. SABÓ, M. Kupec, M. Grega*
- 11:30 – 11:45 Field Testing the AeroCloud System for Aeronautical Meteorology: A Case Study from Presov Airport – *L. Choma, M. Kelemen, L. Ivica, I. Polyshchuk, K. Ozdincova*



NTAD Programme – Day 2

28.11.2025 – Friday

- 11:45 – 12:00 Task balancing of Private Pilot Training programs – *J. Juracka, Z. Hubnerova, J. Hammer*
- 12:00 – 12:15 Agile Combat Support – Second-Level Logistic Support of Air Forces – *P. Davidová, Z. Korecki, T. Hoika*
- 10:45 – 12:15 Plenary Session 6^B – Session Chair – Ing. M. Koščáková, PhD.**
- 10:45 – 11:00 Tracking and localization of an acoustic source in the observed area using a webcam – *J. Galanda, M. Hovanec, S. Al-Rabeei, E. Jenčová, G. Feketi*
- 11:00 – 11:15 A Systematic Methodology for Efficient Airport 5.0 Deployment – *P. Šváb, S. Číkovský*
- 11:15 – 11:30 Marketing Preferences for Paid versus Free Digital Platforms and AI-powered Tools in Aviation English Language Learning – *R. Rozenberg, A. Čekanová, M. Šemančíková, D. Čekanová, M. Bugnová*
- 11:30 – 11:45 Portable 3D Scanning Technologies for Flight Ground Support: A Literature Review – *D. Demydenko, L. Čičmanec, J. Bořil*
- 11:45 – 12:00 Conceptual Design of Microwire-Based Magnetic Sensors for Space Applications – *A. Polakovič, K. Draganová, J. Kessler, J. Novotňák*
- 12:00 – 12:15 Analysis of Security Check Load at Košice Airport – *P. Koščák, K. Hrešková, M. Koščáková*
- 12:15 – 14:00 Closing Ceremony and Lunch**

End of the Conference