

2nd International Workshop on Advances in Civil Aviation Systems Development



ACASD – 2024

March 26, 2024

WORKSHOP SCHEDULE

March 26, 2024

Start at 10:00 (GMT+3)

Conference time: 10:00 – 15:00

Coffee break: 12.00-12:20

Track A. DEVELOPMENT OF CIVIL AVIATION SYSTEMS

Academic Building 11, room 11.320

Moderator – Ivan Ostroumov

Computational Intelligence in Air Traffic Management

1. Spatial Indexing of Airplane Trajectory with Open Location Code and Hexagonal Hierarchical Index
Ivan Ostroumov
2. Air Traffic Management with Hierarchical Hexagonal Geospatial Index
Ivan Ostroumov and Oleg Ivashchuk
3. Aircraft Flight Path Correction During the Flight Execution Phase using the Operative information on Weather Hazards
Maxim Ivanytskyi, Yuliya Averyanova, Yevheniia Znakovska, and Bohdan Shershen

Data Processing in Civil Aviation

4. Factorization of DEF Matrices in the Space of Isomorphic Images
Anatoly Beletsky, Denys Navrotskyi, Arsen Kovalchuk, and Dmytro Poltoratsky
5. Enhancing Altitude Data Accuracy in Small Aircraft Systems Using Standard Kalman Filters
Olena Kozhokhina, Yaroslav Yakovlev, Liudmyla Blahaia, Olga Shcherbyna, and Serhii Yehorov
6. [Information Technology for Identification of the Dynamics Model of Multidimensional Moving Object](#)
Valerii Zozulya and Sergei Osadchy (on-line)

Automatic Control in Civil Aviation Systems

7. Mathematical Description of System for Stabilization of Aviation Equipment in Problems of Synthesis and Simulation
Olha Sushchenko, Yuriy Bezkorovainyi, Olexandr Salyuk, and Serhii Yehorov
8. Hierarchical-Correlation Method for Designing of an Adaptive Neural Flight Control System in Compliance with European and US Standards
Dmytro Prosvirin and Volodymyr Kharchenko

Global Navigation Satellite System

9. Revealing the Criteria for Detecting the Spoofing and Premediated Interference of GNSS Signals Using the Experimental Simulation Model
Valery Konin, Olexiy Pogurelskiy, Iryna Prykhodko, Tetiana Maliutenko, Alexey Zhalilo, and Alexandr Yakovchenko

10. Performance Analysis of Intentional Interference on Multi-GNSS Receivers
Oleksii Sushych, Olexiy Pogurelskiy, Valery Konin, Oleksandr Kutsenko, Iryna Prykhodko, and Tetiana Maliutenko
11. Simulation of the Functional and Performance Behavior of Multi-GNSS Constellation
Olexiy Pogurelskiy, Valery Konin, Iryna Prykhodko, Tetiana Maliutenko, Oleksii Sushych, and Oksana Ishchenko
12. [Operationalizing the Split-Beam Ionospheric Scintillation Model in GNSS RF Simulators: Geometrical Optics to Nakagami-m Distribution](#)
Ivan G. Petrovski II (on-line)
13. [Regional Navigation Satellite Systems Exploration and Integration: Concept Evaluation with the Agile SDR Platform](#)
Ivan G. Petrovski II (on-line)

Inertial Navigation System

14. Autonomous Latitude Determination Using an Inertial Measuring Unit
Vadym Avrutov, Oleksii Hehelskyi, Lev Ryzhkov, Sergii Rupich, and Alexander Zamorsky

Instrument Landing System

15. Comparison of Instrument and Satellite Landing Systems
Leonid Sibruk, Viktor Sibruk, and Ihor Zakutynskyi
16. Alert System Notifying the Crew of the Necessity for a Go-Around
Yurii Hryshchenko, Oleksii Chuzha, Oleksii Romanenko, and Oleksandra Bankova

Track B. RELIABILITY AND EFFICIENCY ANALYSIS OF CIVIL AVIATION SYSTEMS

Academic Building 11, room 11.328

Moderator – Maksym Zaliskyi

Artificial Intelligence in Civil Aviation Systems

1. Integration of Deterministic, Stochastic, and Non-Stochastic Models to Obtain an Optimal Collaborative Decision in the Flight Emergency
Tetiana Shmelova, Yuliya Sikirda, Maxim Yatsko, and Vadym Stratonov
2. Comparison of Neural Network and Statistical Approaches to the Problem of Signal Detection
Ihor Prokopenko, Kostiantyn Prokopenko, and Anastasiia Dmytruk
3. Optimal Pathfinding Based on Artificial Intelligence Tools
Serhii Migel, Maryna Maloied, Maksym Zaliskyi, Anzhela Lelechenko, Alina Osipchuk, and Oleksandr Solomentsev
4. Self-Organization Technique with a Norm Transformation Based Filtering for Sustainable Infocommunications Within CNS/ATM Systems
Oleksii Holubnychyi, Maksym Zaliskyi, Ivan Ostroumov, Olha Sushchenko, Oleksandr Solomentsev, and Yuliya Averyanova

Methods of Operational Efficiency Improvement for Civil Aviation Systems

5. Efficiency Analysis of Current Repair Procedures for Aviation Radio Equipment
Oleksandr Solomentsev, Maksym Zaliskyi, Oleksii Holubnychyi, Ivan Ostroumov, Olha Sushchenko, and Yurii Bezkorovainyi
6. Method of Reliability Increasing Based on Spare Parts Optimization for Telecommunication Equipment
Georgiy Konakhovych, Maksym Zaliskyi, Serhii Tarasiuk, Bohdan Chumachenko, Oleksandr Lavrynenko, and Veniamin Antonov
7. [Optimization of the Length of an Information Packet for Transmitting Radar Information in Interrogative Radar Systems for Airspace Surveillance](#)
Iryna Svyd, Georgiy Konakhovych, Ivan Obod, Anton Romanov, Oleksandr Vorgul, and Mykyta Romanov (on-line)
8. Reliability Assessment of Highly Reliable Samples Using the Tolerance Limits and the Weibull's Law
Valentyn Dyptan, Petro Yablonsky, Oleksandr Avramenko, Volodymyr Klymchuk, Pavlo Openko, and Vasyl Polishchuk

Management and Automation

9. Formation of a System for Optimizing Business Processes of Aviation Enterprises Based on Their Automation
Zarina Poberezhna
10. Optimizing Supply Chain Operations with Unmanned Aerial Vehicles
Li Haoyang and Volodymyr Kharchenko

Human Factor in Civil Aviation

11. Developing Future Aviation Specialists' Readiness for Professional Activity through System-Synergetic Diagnostic Technologies
Elvira Luzik, Nataliia Ladohubets, and Lesia Konoplianyk
12. Multi-criterion Evaluation of the Criteria of the Information Model Conformity of the Air Traffic Controller Simulator to the Real System
Volodymyr Kolotusha, Tetiana Shmelova, and Dmytriy Bondarev
13. Using Time Series for Biomedical Signal Processing under Uncertainties
Mikle Burichenko, Olga Ivanets, Maryna Arkhyrei, Rimvidas Khrashchevskyi, and Oleg Melnykov

Sensors in Civil Aviation

14. Integration of Lightweight Sensors for Altitude Measurement in Compact Aviation Systems
Olena Kozhokhina, Yaroslav Yakovlev, Liudmyla Blahaia, Svitlana Pavlova, and Aria Nazarpav
15. Researching Influence of Vortex Generators on Aircraft Aerodynamic Characteristics
Oleksander Zhdanov, Valerii Orlianskyi, and Olha Sushchenko
16. Modified Chua's Circuit in Different State Spaces
Roman Voliansky and Nina Volianska

Day 2. Modern Systems Engineering

March 27, 2024

Start at 10:00 (GMT+3)

On-line (FREE)

Modern Systems Engineering, Avionics Look-ahead. *(in Ukrainian)*

Speaker: Oleksandr Kurlovych (Boeing Ukraine)

Registration is required: <https://forms.gle/sZKFPP59DiQTgSCH9>

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Excursion for workshop participants around research facilities and campus of the
National Aviation University
(Ask your moderator about more information)

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Authors are expected to make oral reports using their presentations. Durations for the reports are as follows:

- presentation up to 15 minutes;
- discussion up to 5 minutes.

The presentations will be recorded. Papers not presented at the conference will not be submitted for indexing.

All times is local Ukrainian time (GMT+3).

Location: National Aviation University, Liubomyra Huzara ave., 1, Kyiv, Ukraine

Geolocation code: CCQH+MX5 Kyiv

ATTENTION: Due to the high risk of missile attacks workshop may be interrupted for duration of alarm in Kyiv region. Participants of ACASD have to follow rules, given by moderator to relocate to a secured safety area. Workshop schedule will be recovered in 10 min after alarm is off.

