Name	Herman Fesenko
Position, Department/Faculty	Professor, Department of Computer Systems, Networks and Cybersecurity, Faculty of Radio Electronics, Computer Systems, and Infocommunications
Academic Degree, Academic Title	Doctor of Technical Sciences, Professor
Email:	h.fesenko@csn.khai.edu
Scopus Author ID:	57190123735
Web of Science ResearcherID:	H-7875-2018
ORCID iD:	0000-0002-4084-2101
Google Scholar:	https://scholar.google.com/citations?user=9zZ8AzYAAAAJ&hl=en
ResearchGate:	https://www.researchgate.net/profile/Herman-Fesenko

EDUCATION:

Basic education (university, major, year of graduation):

Kharkiv Military University, Educationally-qualifying level – Specialist in Automated Control Systems (qualification – Cybernetics Engineer), 1995.

Postgraduate/Doctoral studies:

1. Kharkiv Military University, Candidate of Technical Sciences (PhD), 2002.
2. National Aerospace University "Kharkiv Aviation Institute", Doctor of Technical Sciences (D. Sc.), 2021.

Additional training, certification programs:

Jean Monnet Module "European integration of Ukraine in Industry 4.0" (2021, Certificate No. 162/2021).

WORK EXPERIENCE:

Professional Career (Workplace, Years, Position):

1. September 1998 – August 2001 – Kharkiv Military University, Full-time adjunct.
2. August 2001 – November 2002 – Kharkiv Military University, Lecturer of the Department of Missile Weapons Operation Systems.
3. November 2002 – August 2004 – Kharkiv Military University, Head of the Research Laboratory - Senior Researcher of the Department of Metrology and Standardization.
4. August 2004 – April 2005 – Kharkiv Air Force University, Head of the Research Laboratory of the Department of Metrology and Standardization.
5. April 2005 – August 2006 – Academy of Civil Protection of Ukraine, Associate Professor of the Department of Special Training.

6. August 2006 – August 2009 – University of Civil Protection of Ukraine, Associate Professor of the Department of Organization of Civil Protection in Emergency Situations.
7. August 2009 – March 2010 – University of Civil Protection of Ukraine, Associate Professor of the Department of Pyrotechnics and Special Training.
8. March 2010 – August 2011 – National University of Civil Protection of Ukraine, Associate Professor of the Department of Pyrotechnics and Special Training.
9. September 2011 – April 2013 – Kharkiv National Municipal Academy, Associate Professor of the Department of Life Safety.
10. April 2013 – January 2014 – O.M. Beketov National University of Urban Economy in Kharkiv, Associate Professor of the Department of Life Safety.
11. January 2014 – August 2018 – O.M. Beketov National University of Urban Economy in Kharkiv, Associate Professor of the Department of Occupational and Life Safety.
12. September 2018 – August 2021 – National Aerospace University "Kharkiv aviation institute", Doctoral student.
13. September 2018 – May 2022 – National Aerospace University "Kharkiv aviation institute", Associate Professor of the Department of Computer Systems, Networks and Cybersecurity.
14. May 2022 – till now – National Aerospace University "Kharkiv aviation institute", Professor of the Department of Computer Systems, Networks and Cybersecurity.

Teaching Experience:

1. August 2001 – November 2002 – Lecturer (Kharkiv Military University).
2. April 2005 – May 2022 – Associate Professor (Academy of Civil Protection of Ukraine, University of Civil Protection of Ukraine, National University of Civil Protection of Ukraine, Kharkiv National Municipal Academy, O.M. Beketov National University of Urban Economy in Kharkiv, National Aerospace University "Kharkiv aviation institute").
3. May 2022 – till now – Professor (National Aerospace University "Kharkiv aviation institute").

Experience in International or National Projects:

A. International Projects:

1. The European Union Horizon 2020 ECHO project "European network of Cybersecurity centres and competence Hub for innovation and Operations" (2018–2023).
2. The European Union ERASMUS+ ALIOT project (573818-EPP-1-2016-1-UK-EPPKA2-CBHE-JP) "Internet of Things: Emerging Curriculum for Industry and Human Applications" (2016–2020);
3. AutoDroneUA project (PR758743 4500639807, National Aerospace University "Kharkiv Aviation Institute" and Fraunhofer Institute for Factory Operation and Automation) (2024).

B. National Projects:

B.1 Project participant:

1. Scientific basis and methods of ensuring the dependability of UAV fleets of intelligent monitoring systems for potentially dangerous and military objects (0121U112172, 2021-2023).
2. Methodology and information technologies for assessing and ensuring the safety of digital infrastructure of small modular reactors (0122U000977, 2022-2024).
3. Technologies, means of mathematical modeling, optimization and system analysis of coverage problems in space monitoring systems (0122U200468, 2022-2024).

B.2 Responsible project executor:

Methodological fundamentals and technologies for assessing and ensuring the safety (protection) of critical information infrastructures (0119U100979, 2029-2021).

B.3 Project manager:

Methods and means of explosive objects detection using multifunctional intelligent UAV systems (0123U101992, 2023-2024).

RESEARCH ACTIVITIES:

Main Research Areas:
Dependability of unmanned intelligent systems, technologies for big data storing and processing, cybersecurity incident response.

Number of Publications (Scopus, WoS, others):
More than 200 scientific publications (Scopus – 52, WoS – 22)

Monographs, Textbooks:
Fesenko H. Reliability of unmanned aerial vehicle fleets for monitoring systems of potentially dangerous objects / V. Kharchenko (ed.). National Aerospace University "Kharkiv aviation institute", 2022. 331 p.

Participation in Scientific Conferences:
1. IEEE International Conference on Dependable Systems, Services and Technologies (DESSERT).
2. International Conference on ICT in Education, Research, and Industrial Applications (ICTERI).
3. AIP Conference on Mathematical Methods and Computational Techniques in Science and Engineering (MMCTSE).
4. International Conference on Intelligent Data Acquisition and Advanced Computing Systems: Technology and Applications (IDAACS).
5. IEEE International Scientific-Practical Conference on Problems of Infocommunications Science and Technology (PIC S and T).
6. Advanced Trends in Radioelectronics, Telecommunications and Computer Engineering (TCSET).
7. Digital Transformation, Cyber Security and Resilience (DIGILIENCE).

TEACHING ACTIVITIES:

Courses Taught:
Big data technologies, Big Data Processing Technologies, Big Data for Cybersecurity, Theory and Methods of Data Science and Artificial Intelligence

Author Courses, Academic Programs:
Big data technologies, Big Data Processing Technologies, Big Data for Cybersecurity, Theory and Methods of Data Science and Artificial Intelligence

Methodological Materials, Textbooks:
1. Fesenko H.V. Internet of Drone Based Systems. Internet of Things for Industry and Human Application. In Volumes 1-3. Volume 3. Assessment and Implementation / V.S. Kharchenko (ed.). Ministry of Education and Science of Ukraine, National Aerospace University KhAI, 2019. P. 436–483.
2. Fesenko H.V., Kharchenko V.S. IoT Based Systems for Monitoring of Severe Accidents. Internet of Things for Industry and Human Application. In Volumes 1-3. Volume 3. Assessment and Implementation / V.S. Kharchenko (ed.). Ministry of Education and Science of Ukraine, National

Aerospace University KhAI, 2019. P. 672–712.

3. Fesenko H.V. Module 3.4 "Internet of Drone-Based Systems". Training 1. Determining the optimum number of single operator controlled unmanned aerial vehicles for NPP monitoring missions. Internet of Things for intelligent transport systems: Practicum / A.O. Sachenko (Eds.). Ministry of Education and Science of Ukraine, Ternopil National Economic University, Volodymyr Dahl East Ukrainian National University, National Aerospace University "Kharkiv Aviation Institute", 2019. P. 93–102.
4. Fesenko H.V. Module 3.4 "Internet of Drone-Based Systems". Training 2. Optimal redistribution of UAVs in case of changing monitoring zones after an NPP accident. Internet of Things for intelligent transport systems: Practicum / A.O. Sachenko (Eds.). Ministry of Education and Science of Ukraine, Ternopil National Economic University, Volodymyr Dahl East Ukrainian National University, National Aerospace University "Kharkiv Aviation Institute", 2019. P. 103–112.

GRANTS AND PROJECTS:

Participation in International and National Projects:

A. International Projects:

1. The European Union Horizon 2020 ECHO project "European network of Cybersecurity centres and competence Hub for innovation and Operations" (2018–2023).
2. The European Union ERASMUS+ ALIOT project (573818-EPP-1-2016-1-UK-EPPKA2-CBHE-JP) "Internet of Things: Emerging Curriculum for Industry and Human Applications" (2016–2020).
3. AutoDroneUA project (PR758743 4500639807, National Aerospace University "Kharkiv Aviation Institute" and Fraunhofer Institute for Factory Operation and Automation) (2024).

B. National Projects:

B.1 Project participant:

1. Scientific basis and methods of ensuring the dependability of UAV fleets of intelligent monitoring systems for potentially dangerous and military objects (0121U112172, 2021-2023);
2. Methodology and information technologies for assessing and ensuring the safety of digital infrastructure of small modular reactors (0122U000977, 2022-2024);
3. Technologies, means of mathematical modeling, optimization and system analysis of coverage problems in space monitoring systems (0122U200468, 2022-2024);

B.2 Responsible project executor:
Methodological fundamentals and technologies for assessing and ensuring the safety (protection) of critical information infrastructures (0119U100979, 2029-2021).

B.3 Project manager:
Methods and means of explosive objects detection using multifunctional intelligent UAV systems (0123U101992, 2023-2024).

PROFESSIONAL ACHIEVEMENTS AND AWARDS:

Distinctions, Awards, Prizes:

1. Letter of appreciation from the Mayor of Kharkiv, 2021.
2. Diploma of the professional skills competition "Icarus of Wartime 2022" for 2nd place in the nomination "Best Teacher of Professionally Oriented Disciplines", 2022.
3. Certificate of Merit from the Kharkiv Regional Council, 2023.

Membership in Professional Associations:

Member of the public organization "Ukrainian Scientific and Educational IT Society".

INTERNATIONAL ACTIVITIES:

Cooperation with Foreign Universities:

1. Fraunhofer Institute for Factory Operation and Automation (Germany).
2. KTH Royal Institute of Technology (Sweden).

Teaching/Lecturing Abroad:

Technical University of Applied Sciences Wildau

SELECTED PUBLICATIONS:

Key Articles (Scopus, WoS, others):

1. Kliushnikov I., Fesenko H., Kharchenko V., Illiashenko O., Morozova O. UAV Fleet Based Accident Monitoring Systems with Automatic Battery Replacement Systems: Algorithms for Justifying Composition and Use Planning. International Journal of Safety and Security Engineering. 2021. Vol. 11, no. 4. P. (Scopus Q3). URL: https://www.iieta.org/journals/ijsse/paper/10.18280/ijsse.110404
2. Харченко В. С., Фесенко Г. В., Ілляшенко О. О. Базова модель нефункційних характеристик для оцінки якості штучного інтелекту. Radioelectronic and Computer Systems. 2022. No. 2 (102). P.131–144. DOI: 10.32620/reks.2022.2.11 (Scopus Q3). URL: https://doi.org/10.32620/reks.2022.2.11
3. Kharchenko V., Fesenko H., Illiashenko O. Quality Models for Artificial Intelligence Systems: Characteristic-Based Approach, Development and Application. Sensors. 2022. Vol. 22, no. 13, article no. 4865. P.1–36. DOI:10.3390/s22134865 (Scopus Q1). URL: https://doi.org/10.3390/s22134865
4. Kharchenko V., Kliushnikov I., Rucinski A., Fesenko H., Illiashenko O. UAV Fleet as a Dependable Service for Smart Cities: Model-Based Assessment and Application. Smart Cities. 2022. Vol. 5, no. 3. P. 1151–1178. DOI:10.3390/smartcities5030058 (Scopus Q1). URL: https://doi.org/10.3390/smartcities5030058
5. Sun Y., Fesenko H., Kharchenko V., Zhong L., Kliushnikov I., Illiashenko O., Morozova O., Sachenko A. UAV and IoT-Based Systems for the Monitoring of Industrial Facilities Using Digital Twins: Methodology, Reliability Models, and Application. Sensors. 2022. Vol. 22, no. 17, article no. 6444. P.1–31. DOI:10.3390/s22176444 (Scopus Q1). URL: https://doi.org/10.3390/s22176444
6. Kharchenko V., Ponochovnyi Y., Ivanchenko O., Fesenko H., Illiashenko O. Combining Markov and Semi-Markov Modelling for Assessing Availability and Cybersecurity of Cloud and IoT Systems. Cryptography. 2022. Vol. 6, no. 3, article no. 44. P.1–33. DOI: 10.3390/cryptography6030044 (Scopus Q2). URL: https://doi.org/10.3390/cryptography6030044
7. Illiashenko O., Kharchenko V., Babeshko I., Fesenko H., Di Giandomenico F. Security-Informed Safety Analysis of Autonomous Transport Systems Considering AI-Powered Cyberattacks and Protection. Entropy. 2023. Vol. 25, no. 8, article no. 1123. P. 1–35. DOI: 10.3390/e25081123 (Scopus Q2). URL: https://doi.org/10.3390/e25081123
8. Fesenko H., Illiashenko O., Kharchenko V., Kliushnikov I., Morozova O., Sachenko A., Skorobohatko S. Flying Sensor and Edge Network-Based Advanced Air Mobility Systems: Reliability Analysis and Applications for Urban Monitoring. Drones. 2023. Vol. 7, no. 7, article no. 409. P. 1–27. DOI: 10.3390/drones7070409 (Scopus Q1). URL: https://www.mdpi.com/2504-446X/7/7/409

9. Fedorenko G., Fesenko H., Kharchenko V., Kliushnikov I., Tolkunov I. Robotic-biological systems for detection and identification of explosive ordnance: concept, general structure, and models. Radioelectronic and Computer Systems. 2023. No. 2 (106). P. 143–159. DOI: 10.32620/reks.2023.2.12 (Scopus Q3). URL: http://nti.khai.edu/ojs/index.php/reks/article/view/reks.2023.2.12.
10. Leichenko K., Fesenko H., Kharchenko V., Illiashenko O. Deployment of a UAV swarm-based LiFi network in the obstacle-ridden environment: algorithms of finding the path for UAV placement. Radioelectronic and Computer Systems. 2024. No. 1(109). P. 176–195. DOI: 10.32620/reks.2024.1.14.
URL: http://nti.khai.edu/csp/nauchportal/Arhiv/REKS/2024/REKS124/14Leichenko.pdf
11. Skorobohatko S., Fesenko H., Kharchenko V., Yakovlev S. Architecture and Reliability Models of Hybrid Sensor Networks for Environmental and Emergency Monitoring Systems. Cybernetics and Systems Analysis. 2024. Vol. 60, no. 2. P. 293–304. DOI: 10.1007/s10559-024-00670-x. URL: https://link.springer.com/article/10.1007/s10559-024-00670-x (Scopus Q3).
12. Fesenko H., Illiashenko O., Kharchenko V., Leichenko K., Sachenko A., Scislo L. Methods and Software Tools for Reliable Operation of Flying LiFi Networks in Destruction Conditions. Sensors. 2024. Vol. 24, no. 17, article no. 5707. P. 1–32. DOI: 10.3390/s24175707 (Scopus Q1). URL: https://www.mdpi.com/1424-8220/24/17/5707.
13. Mishchuk V., Fesenko H., Kharchenko V. Deep learning models for detection of explosive ordnance using autonomous robotic systems: trade-off between accuracy and real-time processing speed. Radioelectronic and Computer Systems. 2024. No. 4(112). P. 99–111. DOI: 10.32620/reks.2024.4.09.
URL: http://nti.khai.edu/ojs/index.php/reks/article/view/reks.2024.4.09.
14. Leichenko K., Skorobohatko S., Fesenko H., Kharchenko V., Yakovlev S. Assessment of the Reliability of Wireless Sensor Networks for Forest Fire Monitoring Systems Considering Fatal Combinations of Multiple Sensor Failures. Cybernetics and Systems Analysis. 2025. Vol. 61, no. 1. P. 137–147. DOI: 10.1007/s10559-025-00753-3. URL: https://link.springer.com/article/10.1007/s10559-025-00753-3.
15. Kharchenko V., Yakovlev S., Veprytska O., Illiashenko O., Fesenko H. Explaining Artificial Inelligence as a Service: Metodology of Assessment and Quality Models. Cybernetics and Systems Analysis. 2025. Vol. 61, no. 2. P. 175–185. DOI: 10.1007/s10559-025-00757-z. URL: https://link.springer.com/article/10.1007/s10559-025-00757-z.

Books, Chapters in Collective Monographs:

1. Kliushnikov I., Kharchenko V. Fesenko H. UAV Fleet Routing with Battery Recharging for Nuclear Power Plant Monitoring Considering UAV Failures. ICTERI 2021 Workshops. ICTERI 2021. Communications in Computer and Information Science / ed. by O. Ignatenko, V. Kharchenko, V. Kobets, H. Kravtsov, Yu. Tarasich, V. Ermolayev. Cham, Switzerland : Springer, 2022. Vol. 1635. P. 442–454. DOI:10.1007/978-3-031-14841-5_29 (Scopus Q4). URL: https://doi.org/10.1007/978-3-031-14841-5_29
2. Kharchenko V., Illiashenko O., Fesenko H., Babeshko I. AI Cybersecurity Assurance for Autonomous Transport Systems: Scenario, Model, and IMECA-Based Analysis. Multimedia Communications, Services and Security. MCSS 2022. Communications in Computer and Information Science / ed. by A. Dziech, W. Mees, M. Niemiec. Cham, Switzerland : Springer, 2022. Vol. 1689. P. 66–79. DOI:10.1007/978-3-031-20215-5_6 (Scopus Q4). URL: https://doi.org/10.1007/978-3-031-20215-5_6

Links to Citation Database Profiles:

Scopus authors: https://www.scopus.com/authid/detail.uri?authorId=57190123735
Web of Science: https://www.webofscience.com/wos/author/record/H-7875-2018
Google Scholar: https://scholar.google.com/citations?user=9zZ8AzYAAAAJ&hl=en
ORCID: https://orcid.org/0000-0002-4084-2101
ResearchGate: https://www.researchgate.net/profile/Herman-Fesenko

ADDITIONAL INFORMATION:

Language Proficiency:

Ukrainian, English

IT Skills:

Operation Systems: Windows.
Programming Languages: Scala, SQL.
Mathematical Programs: MatLab.
Learning Platform: Moodle, Mentor.
Big data frameworks: Apache Spark.
Technologies: Neural Network, IoT, Machine learning, big data.

Social and Community Activities:

1. Member of the public organization "Ukrainian Scientific and Educational IT Society".
2. Member of the Specialized Academic Council D 64.062.07 for the defense of dissertations for the degree of Doctor (Candidate) of Technical Sciences in the following specialties: 05.07.12 - Remote aerospace research - technical sciences; 05.12.17 - Radio engineering and television systems - technical sciences, at the National Aerospace University "Kharkiv Aviation Institute".
3. Member of the Specialized Academic Council D 64.062.21 for the defense of dissertations for the degree of Doctor (Candidate) of Technical Sciences in the specialty 05.13.06 - Information technology at the National Aerospace University "Kharkiv Aviation Institute".
4. Member of the editorial board of the Radioelectronic and Computer Systems journal.