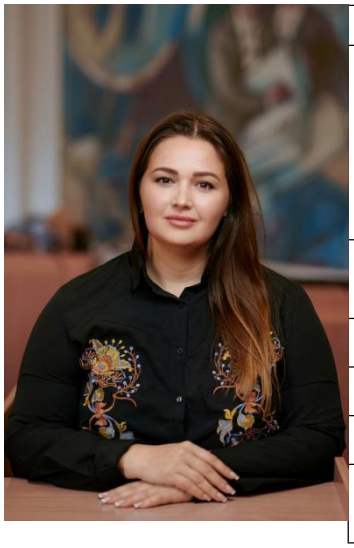

Name	Iryna Bychkova
Position, Department/Faculty	First Vice-Dean of the Intellegen Control Systems Faculty, Senior Lecturer Aircraft Conrtol Systems Department, National Aerospace University «Kharkiv Aviation Institute»
Academic Degree, Academic Title	Master Degree
Email:	i.bychkova@khai.edu
Scopus Author ID:	[59995387400]
ORCID iD:	[0000-0002-5828-6123]
Google Scholar:	[https://scholar.google.com.ua/citations?user=MDWkLAIAAAAJ&hl]

EDUCATION:

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

In 2003 graduated from the National Aerospace University "KhAI," earning a bachelor's degree with honors in "Aerospace Engineering."

In 2005 graduated from the National Aerospace University "KhAI," earning a master's degree with honors in "Control Systems for Aircraft and Complexes."

Postgraduate/Doctoral studies:
From 2005 to 2008 pursued postgraduate studies at the National Aerospace University "KhAI" in the specialty "Control Systems and Processes.""

Additional training, certification programs:
National Aerospace University "Kharkiv Aviation Institute," certificate of advanced training ПК 02066769/000279-18, comprehensive advanced training, 6 credits (180 hours).

Online course "Media Literacy for Educators" (60 hours, 2 ECTS credits) delivered via the Prometheus platform on February 10, 2024.

Online practical course "Safety on the Internet During Wartime" (15 hours, 0.5 ECTS credits) delivered via the Prometheus platform on February 19, 2024.

Online course "Finance for Non-Financiers" (60 hours, 2 ECTS credits) delivered via the Prometheus platform on February 19, 2024.

Completed the advanced training course "Comprehensive Course on AI in Education" (45 hours, 1.5 ECTS credits), May 26 to June 9 2025.

WORK EXPERIENCE:

Professional Career (Workplace, Years, Position):
Teaching Experience:
National Aerospace University «Kharkiv Aviation Institute», [01.03.2005 – 31.08.2013], assistant professor, Aircraft Control Systems Department.

National Aerospace University «Kharkiv Aviation Institute», [07.07.2013 – 31.08.2026], senior lecturer, Aircraft Control Systems Department.

Experience in International or National Projects:

RESEARCH ACTIVITIES:

Main Research Areas:
Rational control of unmanned aerial vehicles under uncertainty and external disturbances.
Autonomous navigation of UAVs based on integrated inertial, satellite, and vision systems.
GNSS/INS integration and visual navigation for resilient positioning in GNSS-denied environments.
Design and synthesis of adaptive and robust control systems for aerospace objects.
Mathematical modeling and identification of flight dynamics of aerial platforms.
State estimation and sensor fusion using Kalman filtering and nonlinear observers.
Embedded real-time computing systems for autonomous aerial platforms.
Intelligent decision-making algorithms for fully autonomous flight missions.
Development and validation of autopilot systems using multi-degree-of-freedom test rigs.
Experimental research and hardware-in-the-loop testing of UAV control and navigation systems.

Number of Publications (Scopus, WoS, others):
Over 40 scientific publications, including indexed articles in the Scopus and Web of Science databases; multiple conference proceedings and applied research outputs.

Monographs, Textbooks:
Co-author of 2 monographs and 10 textbooks in the fields of control system theory, measuring instruments construction and technology.

Participation in Scientific Conferences:
Regular participant and speaker at international and national scientific conferences:
Integrated Computer Technologies in Mechanical Engineering – ICTM
International Scientific Symposium Metrology and Metrology Assurance (MMA)
International Conference on Electronics and Nanotechnology (ELNANO)
International Scientific Conference 'Transport Means'

TEACHING ACTIVITIES:

Courses Taught:
Introduction to Avionics,
Fundamentals of Avionics System Simulation,
Aircraft Control Systems,
Fundamentals of Circuit Analysis,
Control Systems Disign.

Author Courses, Academic Programs:
Introduction to Avionics,
Fundamentals of Avionics System Simulation,
Aircraft Control Systems,
Fundamentals of Circuit Analysis,
Control Systems Disign.

Methodological Materials, Textbooks:
Miroshnichenko H. A., Bychkova I. V., Piavka Ye. V., Sokol D. V. Modern Methods of Design and Modeling of Control Systems: Methodical Guide. Kharkiv: National Aerospace University "Kharkiv Aviation Institute", 2025. 61 p. ISBN 978-966-996-075-7.

Actuators in Control Systems / Приводи в системах управління : Training Man. for Lab. Works / I. Bychkova, A. Zymovin, Ye. Piavka, I. Piavka ; Min. of Education and Science of Ukraine, N. Ye. Zhukovskiy Nat. Aerospace Univ. "Kharkiv Aviation Inst.". - Kharkiv. - National Aerospace University Kharkiv Aviation Institute, 2019. - 56 p. - 978-966-662-715-8

Bychkova I. V., Nemshylov Yu. O. Aircraft control systems / Systemy upravlinnia litalnykh aparativ: textbook. Kharkiv: National Aerospace University "Kharkiv Aviation Institute", 2021. 124 p.

PROFESSIONAL ACHIEVEMENTS AND AWARDS:

Distinctions, Awards, Prizes:
Certificate of Honor from the Minister of Education and Science of Ukraine for effective work with students and preparation of a winner of the 3rd stage of the All-Ukrainian Research Paper Competition of the Junior Academy of Sciences of Ukraine, 2022

Diploma for 3rd Place in the Professional Excellence Competition "KhAI Icari 2024", nomination "Best Student Mentor"

Certificate of Honor from the Kharkiv Regional Council for long-term dedicated service, significant contribution to the development of the university's material and technical base, and on the occasion of World Science Day

SELECTED PUBLICATIONS:

Key Articles (Scopus, WoS, others):

Simulation Platform for Testing and Validating of UAV Visual Guidance Algorithms
K Dergachov, V Dubinin, E Ovdiyuk, I Bychkova - International Workshop on Advances in Civil Aviation, 2025

Taran A. N., Firsov S. N., Bychkova I. V. Calculation of efficiency of application of a fault-tolerant attitude control and stabilization system of a satellite // Systemy obrobky informatsii. 2021. No. 8 (98). P. 45–49.

Kulyk A. S., Hordyn A. H., Narozhnyi V. V., Bychkova I. V. Problems of development of advanced small-sized flying robots [Electronic resource]. 2025.

Dubinin V. A., Bychkova I. V. Method of tracking specified faces in video stream without frame-by-frame deep analysis // Theoretical and Practical Aspects of Modern Research: Proceedings of the XXVI International Scientific and Practical Conference (June 5–7, 2024, Ottawa, Canada). Ottawa: International Scientific Unity, 2024. P. 24–28.

Dubinin V., Havrylenko O., Bychkova I. Task formulation for the development of automated learning system using LLM and RAG // World Ways and Methods of Improving Outdated Theories and Trends: Proceedings of the XXIII International Scientific and Practical Conference (June 11–14, 2024, Zagreb, Croatia). Zagreb: ISG, 2024. P. 315–320.

Books, Chapters in Collective Monographs:

Bychkova I. V., Bilozerskyi V. O., Havrylenko O. V. et al. Rational Control of Dynamic Objects under Uncertainty of Destabilizing Influences: Monograph / edited by A. S. Kulyk, K. Yu. Derhachov. Kharkiv: National Aerospace University named after M. Ye. Zhukovsky "Kharkiv Aviation Institute", 2024. 376 p.

Rational Control of the Functioning of Technical Systems with Uncertain Dynamics: Final Research Report / Ministry of Education and Science of Ukraine, National Aerospace University named after M. Ye. Zhukovsky "Kharkiv Aviation Institute"; research supervisor A. Kulyk; performed by I. Bychkova et al. Kharkiv, 2023. 379 p. State registration No. 0121U108867. Inventory No. 0224U001073.

ADDITIONAL INFORMATION:

Language Proficiency:

Ukrainian, English

IT Skills:

Microsoft Office / Zoom / Skype / Microsoft teams / Google meet / MathCAD / AutoCad / CorelDraw / Photoshop / MatLab

Social and Community Activities:

NGO Street Culture
NGO Iron Balls
NGO SvoRa