Name	Nina Savchenko
Position, Department/Faculty	Head of the Department of Higher Mathematics and Systems Analysis
Academic Degree, Academic Title	Candidate of Physical and Mathematical Sciences, Associate Professor
Email:	n.savchenko@khai.edu
Scopus Author ID:	60068522
Web of Science ResearcherID:	47268430
ORCID iD:	0000-0001-8144-9368
Google Scholar:	https://scholar.google.com/citations?user=SS6UQXEAAAAJ&hl=uk
ResearchGate:	https://www.researchgate.net/profile/Nina-Savchenko

EDUCATION:

Basic education (university, major, year of graduation):
M.S., Applied Mathematics, Donetsk National University, Donetsk, Ukraine, 2011
B.S., Applied Mathematics, Donetsk National University, Donetsk, Ukraine, 2010

Postgraduate/Doctoral studies:
Ph.D., Theoretical Mechanics, Institute of Applied Mathematics and Mechanics, Donetsk, Ukraine, 2014.

Additional training, certification programs:
international internship "Together with Outstanding Modern Leaders and Nobel Laureates: Values, Experience, Knowle Competences and Technologies for the Formation of a Successful Personality and Transformation of the Surrounding World (Dubai, Oslo, Stockholm, New York, Rome, Burgas, Jerusalem and Beijing) [20/10/2023 – 09/12/2023]

WORK EXPERIENCE:

Professional Career (Workplace, Years, Position):
Head of the Department of Higher Mathematics and Systems Analysis, National Aerospace University "Kharkiv Aviation Institute", Kharkiv, Ukraine, 2023- present

Associate Professor, Department of Higher Mathematics and Systems Analysis, National Aerospace University "Kharkiv Aviation Institute", Kharkiv, Ukraine, 2019 - 2023

Assistant Professor, Department of Higher Mathematics and Systems Analysis, National Aerospace University "Kharkiv Aviation Institute", Kharkiv, Ukraine, 2014 – 2019

Teaching Experience:
2014–present.

Experience in International or National Projects:

International Head of Category B in the field of Education and Science, according to the UNESCO classification", and "International Teacher/Lecturer"

RESEARCH ACTIVITIES:

Main Research Areas:

- Dynamics of Complex Mechanical Systems
- Study of Oscillations and Stability of Nonconservative Systems
- Theoretical Mechanics with Emphasis on Nonlinear Dynamics
- Multi-Criteria Choice Theory
- Modeling Using Fuzzy Systems in Optimization of Technical Processes

Number of Publications (Scopus, WoS, others):
More than 50 (12 Scopus)

Monographs, Textbooks:

1. Savchenko, N. V. Modeling of Problems on Graphs with Fuzzy Weights. [Textbook] / N. V. Savchenko. – Kharkiv: National Aerospace University “Kharkiv Aviation Institute”. Publisher: O. A. Miroshnychenko, 2024. – 96 p. [in Ukrainian]
2. Savchenko, N. V., Kuznichenko, V. M. Fuzzy Control Systems. [Textbook] / N. V. Savchenko, V. M. Kuznichenko. – Kharkiv: National Aerospace University “Kharkiv Aviation Institute”. Publisher: O. A. Miroshnychenko, 2024. – 118 p. [in Ukrainian]

Participation in Scientific Conferences:
More than 20

TEACHING ACTIVITIES:

Courses Taught:
Higher Mathematics — 2014–present.
Fuzzy modeling and optimization of complex systems and processes — 2020–present.
Logistics and inventory management — 2023–present.
Data analysis in Python – 2024–present.

Author Courses, Academic Programs:
Higher Mathematics
Fuzzy modeling and optimization of complex systems and processes
Logistics and inventory management
Data analysis in Python

Methodological Materials:
Developed electronic resources and video materials for hybrid and online teaching (LMS: Pilot, Moodle)

GRANTS AND PROJECTS:

Participation in International and National Projects:

Performer of the state-funded project: *"Development of Technology and Equipment for Cold Gas-Dynamic Spraying"* (No. D/R 0124U000553, 2024–2025)

Head of the research project for young scientists on the topic “Development of an Integrated Technology for Creating Wear-Resistant Coatings Based on NiTi and TiAl Intermetallics on Titanium Alloy Components” (D204-1/2025M, 2025–2027)

Grants, Scholarships, Academic Mobility Programs:

International educational grant NºEG/U/23 - 24/08/12 from the International Historical Biographical Institute (Dubai - New York - Rome - Burgas - Jerusalem - Beijing) within the framework of the International Scientific Project "East-West" and active participation in the XVIII International program of professional development of heads of educational and scientific institutions, pedagogical and scientific-pedagogical staff "Together with Outstanding Modern Leaders and Nobel Laureates: Values, Experience, Knowle Competences and Technologies for the Formation of a Successful Personality and Transformation of the Surrounding World” (project participant) [20/10/2023 – 9/12/2023]

PROFESSIONAL ACHIEVEMENTS AND AWARDS:

Honorary Titles:

- Certificate of Honor of the Kharkiv Regional Military Administration, 2024
- Gratitude of the Kharkiv Mayor, 2025
- Gratitude of the Ministry of Education and Science of Ukraine, 2025

Distinctions, Awards, Prizes:

Awarded prize-winning places determined by the Rector’s order in the professional excellence competition “Ikary KhAI” in the category “Best Lecturer in Fundamental Disciplines” (3rd place in 2022, 1st place in 2024).

Membership in Professional Associations:

Active member of the public organization "Ukrainian Scientific and Educational IT Society" since 16.06.2021 Certificate No. 21-99942 FS

Member, Expert in accreditation of educational programs in the field of knowledge "Information Technologies", National Agency for Education Quality, Kyiv, Ukraine, 2022 – present

INTERNATIONAL ACTIVITIES:

Internships:

Scientific and pedagogical internship *“Theory and Practice of Scientific and Pedagogical Approaches in Education”* at ISMA University of Applied Sciences, Riga, Latvia, with a total duration of 180 hours (Certificate No. 1-22/90-23 dated May 17, 2023)

Cooperation with Foreign Universities:

Reviewer of scientific materials submitted to the 2nd International Symposium on Frontiers of Mechanical and Material Engineering (September 21–22, 2024, Hangzhou, China)

SELECTED PUBLICATIONS:

Key Articles (Scopus, WoS, others):

1. Volodymyr Puzyrov, Nataliya Losyeva, Nina Savchenko. Nonlinear Vibration Isolator with Softening Spring and Nonlinear Damping// Advances in Transdisciplinary Engineering series, volume 58, pp. 503-511, 2024. doi:10.3233/ATDE240666
2. Puzyrov, V., Awrejcewicz, J., Losyeva, N., Savchenko, N., Nikolaieva, O. (2024). Estimation of Regions of Attraction of Dynamical Systems via Polynomial Lyapunov Function. In: Awrejcewicz, J. (eds) Perspectives in Dynamical Systems II — Numerical and Analytical Approaches. DSTA 2021. Springer Proceedings in Mathematics & Statistics, vol 454. Springer, Cham, p. 457-473, 2024. doi: 10.1007/978-3-031-56496-3_29
3. Volodymyr Puzyrov, Nataliya Losyeva, Nina Savchenko. Parametric Analysis of the Dynamics of a Nonlinear Vibration Isolator// Advances in Transdisciplinary Engineering, pp. 391-396, 2023.
   doi: 10.3233/ATDE230485
4. Puzyrov V., Losyeva N., Savchenko N. On mitigation of oscillations of a mechanical system with two degrees of freedom in the vicinity of external resonances // Journal of Theoretical and Applied Mechanics 61, 3, pp. 613-624, Warsaw 2023. doi: 10.15632/jtam-pl/168601
5. Nikolaev O., Holovchenko O., Savchenko N. Green's functions of the first and second boundary value problems for the Laplace equation in the nonclassical domain // Radioelectronic and Computer Systems. – 2022, no. 4(104). Pp. 30-49. doi: 10.32620/reks.2022.4.03
6. Volodymyr Puzyrov, Nataliya Losyeva, Nina Savchenko, Oksana Nikolaieva, Olga Chashechnikova. Lyapunov Function-Based Approach to Estimate Attractors for a Dynamical System with the Polynomial Right Side. Advanced Manufacturing Processes IV. Springer, 2022. pp 482–494. doi: 10.1007/978-3-031-16651-8_46
7. Volodymyr Puzyrov, Jan Awrejcewicz, Nataliya Losyeva and Nina Savchenko. On the stability of the equilibrium of the double pendulum with follower force: Some new results. Journal of Sound and Vibration 523, Elsevier, 2022. P. 116699. doi: 10.1016/j.jsv.2021.116699
8. Volodymyr Puzyrov, Leonardo Acho Zuppa, Gisela Pujol Vazquez, Nina Savchenko and Nelya Kyrylenko. Neutralization of the Destabilization Effect Caused by Small Damping Force in Non-conservative System. Advanced Manufacturing Processes III. Springer, 2022. pp.546-556.
   doi: 10.1007/978-3-030-91327-4_53
9. Leonardo Acho Zuppa, Jan Awrejcewicz, Nataliya Losyeva, Volodymyr Puzyrov, Nina Savchenko. Energy Harvesting for System of Coupled Oscillators Under External Excitation in the Vicinity of Resonance 1:1 // //Journal of Computational and Nonlinear Dynamics. – 2020. – Volume 15. – pp. 121005-1 – 121005-9.
10. Cheib A.K., Puzyrov V., Savchenko N. Analysis of the dynamics of a two-degree-of-freedom nonlinear mechanical system under harmonic excitation//Nonlinear Dynamics and Systems Theory. – 2020. – Volume 20, Number 2. – pp. 168 – 178.

Books, Chapters in Collective Monographs:

1. Savchenko, N. V. Modeling of Problems on Graphs with Fuzzy Weights. [Textbook] / N. V. Savchenko. – Kharkiv: National Aerospace University "Kharkiv Aviation Institute". Publisher: O. A. Miroshnychenko, 2024. – 96 p. [in Ukrainian]
2. Savchenko, N. V., Kuznichenko, V. M. Fuzzy Control Systems. [Textbook] / N. V. Savchenko, V. M. Kuznichenko. – Kharkiv: National Aerospace University "Kharkiv Aviation Institute". Publisher: O. A. Miroshnychenko, 2024. – 118 p. [in Ukrainian]

Links to Citation Database Profiles:
Scopus Author ID: 60068522
ORCID iD: 0000-0001-8144-9368
Google Scholar: https://scholar.google.com/citations?user=SS6UQXEAAAAJ&hl=uk

ADDITIONAL INFORMATION:

Language Proficiency:
Ukrainian, English

IT Skills:
C++ / C# / MATLAB / Python / Microsoft Office / Microsoft Excel / Social Media / Zoom / Google Drive / Microsoft Powerpoint / Skype / etc.

Social and Community Activities:
Participation in organizing and conducting the City Open Mathematical Quest-Competition "Space Math Magic: Stars of Kharkiv" 2024 for school students.