Olexander BARMAK

professor, Sc. Dr. (Computer Science), Ph.D.

Head of Computer Science Department
Khmelnytskyi National University

Personal information:

Date of birth: 04.07.1963

Place of birth:
Khmelnytskyi region, Ukraine

Married, has two sons

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Research interests:

AI,
Robotics,
Non-verbal communication,
Analysis of textual information,
Pattern recognition,
Modeling, classification, and clustering of data - visual analysis,
Face emotional recognition

Experience:

- 2021-present – Head of Computer Science Department, Khmelnytskyi National University, Khmelnytskyi, Ukraine
- 2004-2021 –Senior Lecturer, Associate Professor, Professor of the Department of Information Technology, Khmelnytskyi National University, Khmelnytskyi, Ukraine
- 1991-2004 –Team Leader, Project Manager, Chief Executive Officer of Scientific and Technical Firm "Infoservice," Khmelnytskyi, Ukraine
- 1985-1991 –Software Engineer, Leading Software Engineer of Research and Production Association "KATION" Khmelnytskyi, Ukraine

Educational background:

- 2014 – Sc. Dr., V.M. Glushkov Institute of Cybernetics, National Academy of Sciences of Ukraine, Kyiv, Ukraine
- 2008-2010 – Sc. Dr. studies, V.M. Glushkov Institute of Cybernetics, National Academy of Sciences of Ukraine, Kyiv, Ukraine
- 2004 – Ph.D., V.M. Glushkov Institute of Cybernetics, National Academy of Sciences of Ukraine, Kyiv, Ukraine
- 2000-2004, Ph.D. studies, Taras Shevchenko Kyiv State University, Kyiv, Ukraine
- 1980-1985, I.I. Mechnikov Odesa State University, Specialist, Theoretical Mechanics, Odesa, Ukraine

R&D projects:

- supervisor and executor of over 5 R&D projects commissioned by the MES of Ukraine, NAS of Ukraine, The Science and Technology Center in Ukraine (STCU)

Experience of scientific expertise:

- over 5 years - a member of the specialized scientific councils for the defense of the dissertation;
- the opponent of more than ten dissertations;
- 2019-present – the expert in the Informatics and Cybernetics Section of the Scientific Council of the Ministry of Education and Science of Ukraine

Editor/Reviewer of Scopus/WoS Journals:

- Journal of Intelligent and Fuzzy Systems, ISSN: 18758967 – Editorial Board Member
- Reviewing for journals: INFORMATION, APPLIED SCIENCES-BASEL, ELECTRONICS, COMPUTATION, SENSORS, DIAGNOSTICS, MATHEMATICS, ALGORITHMS, ENTROPY, BIOENGINEERING-BASEL, BIOSENSORS-BASEL, PROCESSES

Public profiles:

ORCID ID	**0000-0003-0739-9678**
Scopus ID	57217176350
Researcher ID	I-2925-2018
Google Scholar ID	pl4wbzoAAAAJ&hl
ResearchGate ID	**O-Barmak**

Selected publications

Papers in high-impact Journals

1. Radiuk P, Barmak O, Manziuk E, Krak I. **Explainable Deep Learning: A Visual Analytics Approach with Transition Matrices**. *Mathematics*. 2024; 12(7):1024. https://doi.org/10.3390/math12071024, Open Access: https://www.mdpi.com/https://www.mdpi.com/2227-7390/12/7/10242227-7390/12/7/1024 (**Q1**)
2. Krak Iu., Barmak O. **The Technique of Inverse Multidimensional Scaling for the Synthesis of Machine Learning Models** // Cybernetics and Systems Analysis, 2023, 59(5), pp. 725–732 (**Q2**)
3. Kalyta O., Barmak O., Radiuk P., Krak I. **Facial emotion recognition for photo and video surveillance based on machine learning and visual analytics**. Applied Sciences. 2023. Vol. 13. No. 17. P. 9890. DOI: https://doi.org/10.3390/app13179890 Open Access: https://www.mdpi.com/2076-3417/13/17/9890 (**Q2**)
4. Krak I., Barmak O., Manziuk E. **Using visual analytics to develop human and machine-centric models: A review of approaches and proposed information technology** // Computational Intelligence, 2022, 38(3), pp. 921–946. DOI: https://doi.org/10.1111/coin.12289 (**Q1**)
5. Krak I., Barmak O., Bahrii R. **Information technology augmentative and alternative communication using smart mobile devices** // Journal of Mobile Multimedia, 2021, 17(4), pp. 527. DOI: https://doi.org/10.13052/jmm1550-4646.1743 (**Q2**)
6. Kryvonos, I.G., Krak, I.V., Barmak, O.V., Kulias, A.I. **Methods to Create Systems for the Analysis and Synthesis of Communicative Information.** Cybernetics and Systems Analysis**,** 2017, 53(6), pp. 847–856 **– Q2**
7. Kryvonos, I.G., Krak, I.V., Barmak, O.V., Bagriy, R.O. **Predictive Text Typing System for the Ukrainian Language. Cybernetics and Systems Analysis**, 2017, 53(4), pp. 495–502 **– Q2**
8. Kryvonos, I.G., Krak, I.V., Barmak, O.V., Bagriy, R.O**. New Tools of Alternative Communication for Persons with Verbal Communication Disorders.** Cybernetics and Systems Analysis, 2016, 52(5), pp. 665–673 **– Q2**
9. Krak, I.V., Kryvonos, I.G., Barmak, O.V., Ternov, A.S. **An Approach to the Determination of Efficient Features and Synthesis of an Optimal Band-Separating Classifier of Dactyl Elements of Sign Language**. Cybernetics and Systems Analysis, 2016, 52(2), pp. 173–180 **– Q2**

Other Journal's papers

10. Krak, I.V., Kasianiuk, V.S., Kudin, H.I., Barmak, O.V., Manziuk, E.A. **Multivariate Scaling of the Characteristic Features Based on Pseudo-Inverse Operations for Recognition Problems Solving.** Pattern Recognition and Image Analysis, 2020, 30(2), pp. 184–191 **– Q3**
11. Manziuk, E., Wojcik, W., Barmak, O.V., Krak I. V. et. al. **Approach to creating an ensemble on a hierarchy of clusters using model decisions correlation** Przeglad Elektrotechniczny, 2020, 96(9), pp. 108–113 **– Q3**
12. Krak, I., Kruchynin, K., Barmak, O., Manziuk, E., Kruchinin, S.P. **Visual Analytics in Machine Training Systems for Effective Decision**. NATO Science for Peace and Security Series A: Chemistry and Biology, 2020, pp. 327–338 **– Q4**
13. Barmak, A.V., Krak, Y.V., Manziuk, E.A., Kasianiuk, V.S. **Information technology of separating hyperplanes synthesis for linear classifiers.** Journal of Automation and Information Sciences, 2019, 51(5), pp. 54–64 **– Q3**
14. Krak, I.V., Barmak, O.V., et. al. **Rapid text entry using mobile and auxiliary devices for people with speech disorders communication.** International Journal of Electronics and Telecommunications, 2020, 66(2), pp. 273–279 **– Q4**

Monographs

15. Sergienko I.V., Krak I.V., Barmak O.V., Manziuk, E.A. **«Intelligent information technologies: human-centered approach, principles of ethics and trust»**. – Kyiv: Nauk. opinion, 2023. – 310 p. (in Ukrainian)
16. Sergienko I.V., Krak I.V., Barmak O.V., Kulyas A.I. **"Sign communication systems: modeling and recognition of dactyl sign language."** Kyiv: Nauk. opinion, 2019, 284 p. (in Ukrainian)
17. Y. G. Krivonos, I.V. Krak, O.V. Barmak, S.O. Romanyshyn **"Sign communication systems: transformation of text into gestures."** Kyiv: Nauk. opinion, 2016, 231 p. (in Ukrainian)
18. Yu. G. Krivonos, Iu.V. Krak, O.V. Barmak **"Gesture communication systems: modeling of information processes."** Kyiv: Nauk. opinion, 2014, 228 p. (in Ukrainian)
19. Krak Iu., Barmak O., Romanyshyn S. **Information technology for automated translation from inflected languages to sign language** In Monograph: Recent Advances in Information Technology. Ed. By Waldemar Wojcik, Jan Sikora. CRC Press, 2017, 100 p.
20. Barmak O., Krak Iu., Romanyshyn S. **Text to gestures translation for inflected languages**. LAP LAMBERT Academic Publishing, 2017, 110 p.