



**Strengthening Teaching Competences
in Higher Education
in Natural and Mathematical Sciences**

Co-funded by the
Erasmus+ Programme
of the European Union



**Engagement of teachers from enterprises
and teachers from abroad in MSc of the
Department of computer science,
Faculty of sciences and mathematics, UNI**

November 2021



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Master study programs, Department of computer science, Faculty of sciences and mathematics, UNI

A translation of the text written in Standard 6 of the documents for the accreditation of study programs of the Department of Computer Science is listed below.

“A numerous of subjects in this study program belong to the border area between computer science and educational sciences. Those courses were created within the framework of the Erasmus+ project "Strengthening Teaching Competences in Higher Education in Natural and Mathematical Sciences - TeComp", whose main goal is to improve the quality of higher education in the field of natural and mathematical sciences through greater integration of modern pedagogical approaches, methodologies and technologies in teaching and learning. Experts from partner universities from the European Union - Ghent, Oviedo, Granada, Ostrava and Banska Bistrica - invested their rich experience in creating these subjects. The state of our higher education, especially at this moment, fully justifies the need for such courses. However, the foreign study programs with which our study programs were compared have a general orientation towards computer sciences and do not contain subjects from the field of electronic and online learning.”

In order to improve the quality of teaching and achieve comparability and competitiveness with the European higher education scene, project consortium members Irina Perfilieva (UO) and Irene Diaz (UNIOVI), as well as many stakeholders from Serbian enterprises are engaged as lecturers from abroad for certain course contents at the Department of Computer science, Faculty of sciences and mathematics, UNI

moderator

prof. dr Jelena Ignjatović

DECLARATION OF INTENT

I declare that I agree to carry out a part of teaching at the study program of master academic studies „Machine Learning“ whose holder is the Faculty of Natural Sciences and Mathematics of the University of Niš.

I am particularly interested in teaching a part of the course „Fuzzy systems“.

Ostrava, 16.09.2020



Dr Irina Perfilieva, Full Professor
University of Ostrava
Institute for Research and
Applications of Fuzzy Modeling

Curriculum Vitae

Name: Irina Perfilieva, M.Sc., Ph.D., Professor

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Education:

MSc in Applied Mathematics in the Moscow State University, Department of Computer Mathematics and Cybernetics.

Degrees:

Degree of Candidate of Physical and Mathematical Sciences (PhD) in the Moscow State University. Theme of the doctoral thesis: “Functional Completeness in Many-Valued Logics”.

Habilitation: Degree of Docent in the Czech Technical University in Prague. Theme of the thesis: “The Theory of Representation of Functions by Fuzzy Logic Formulas”.

Full Professorship: Theme of Professor Lecture: “Fuzzy Approximation”, defended in the Czech Technical University in Prague and awarded by the President of the Czech Republic.

Honorary Degrees:

- In 2017, she was awarded a title of Professor Honoris Causa in Amity Institute of Information Technology, Amity University Uttar Pradesh, Noida, India.
- In 2019, she was awarded a title of Doctor Honoris Causa in the University of Latvia, Riga, Latvia.

Course of employment:

1982–1998: Moscow State Academy of Instrument-Making and Informatics, Assistant, Associate Professor, Professor,

1995–1998: Moscow State University Associate Professor,

1999–2001: University of Ostrava, Institute for Research and Applications of Fuzzy Modeling, Senior Scientist, Associate Professor,

1999–2001: University of Ostrava, Department of Mathematics, Associate Professor,

2001–: University of Ostrava, Institute for Research and Applications of Fuzzy Modeling, NCS IT4Innovations, Professor, Senior Scientist, Head of the Department of Theoretic Research.

Research Activities:

- fuzzy approximation and fuzzy topological spaces;
- fuzzy transforms, image processing, mathematical morphology;
- fuzzy differential equations;
- fuzzy logic, approximate reasoning;
- systems of relation equations and their solvability.

Awards:

For her long-term scientific achievements she was awarded on the International FLINS 2010. She received the memorial Da Ruan award in 2012. Since 2013, she is an EUSFLAT Honorary Member, and since 2019 she is an IFSA Fellow.

She is an **Member of the Advisory Board** of the journals

- Int. Journal of Computational Intelligence Systems,
- Journal of Fuzzy Logic and Modeling in Engineering

and an **Editorial Board member** of the journals

- Transactions on Fuzzy Systems (IEEE CIS),
- Int. Journal of Fuzzy Sets and Systems,
- Int. Journal of Soft Computing (area editor),
- Iranian Journal of Fuzzy Systems,
- Int. Journal of Fuzzy Information and Engineering.

Prof. Perfilieva has published over 270 scientific papers, two patents in the area of time series processing and the Internet service technique, project reports and theses. Her Scopus H-index is 28.

She has published the following **Books and the edited volumes:**

- Perfilieva I.: *Fuzzy Set Theory and Applications*. Itogi Nauki i Techniki 29 (1990), 83-151. (In Russian)
- Novák, V., I. Perfilieva (eds.): *Discovering the World With Fuzzy Logic*. Springer-Verlag, Heidelberg 2000, (Studies in Fuzziness and Soft Computing, Vol. 57) ISBN 3-7908-1330-3.
- Novák, V., Perfilieva I. and J. Močkoř: *Mathematical Principles of Fuzzy Logic*. Kluwer, Boston/Dordrecht 1999.
- Novák, V., Perfilieva I. and J. Močkoř: *Matematicheskie Principy Nechetkoj Logiki*, Moskva, Nauka 2006, in Russian.
- N. G. Jarushkina, T. V. Afanas'eva, I. G. Perfilieva, *Intellectual'nyj analiz vremennyh rjadov*, Moskva, Forum, 2012, in Russian.
- T. V. Afanas'eva, A.M. Namestnikov, I. G. Perfil'eva, A. A. Romanov, N. G. Jarushkina, *Prognozirvanie vremennyh rjadov. Nechetkie modeli*, Ulyanovsk, ULGTU, 2014, in Russian.
- Novák, V., Perfilieva, I. and Dvořák, A.: *Insight into Fuzzy Modeling*. J. Wiley & Sons 2016.
- J. Medina, M. Ojeda-Aciego, J. Verdegay, I. Perfilieva, B. Bouchon-Meunier, R. Yager (Eds.) *Information Processing and Management of Uncertainty in Knowledge-Based Systems*, 17th International Conference, IPMU 2018,

Cadiz, Spain, June 11-15, 2018, Proceedings I - III

Prof. Perfilieva served as a **PC Chair** and *PC member* of the prestigious International Conferences and Congresses in the area of fuzzy and knowledge-based systems including IFSA 1997-2013, EUSFLAT 2005-2013, FUZZ-IEEE 2011-2015, IPMU 2010-2014, WConSC 2010-2014, FLINS'2002-20014, FCTA 2012-2014. She organized several invited sessions and mini-tracks (e.g. EUFIT'97, EUFIT'98, CIMA'2001, EUSFLAT'2005-2019, FSTA'2006-2012, IPMU'2006-2018, FLINS 2008-2018, FUZZ-IEEE 2017, 2019, IFSA 2009 – 2019, WCCI, ICIEV, FCTA, NAFIPS, WConSC, IDS

Prof. Perfilieva gave **invited/plenary talks** on a number of conferences (EUFIT'98, FUZZIEEE'99, ESSLI'99, ECMI'2000, Logic of Soft Computing 2001-2004, CW in Berkeley 2003-2005, WILF 2005 (Italy), FSTA 2006 (Slovakia), Zittau E-W Colloquium 2006 (Germany), All-Russian Conf. on SC 2008 (Russia), 1st and 2nd QL&QS 2009-2010 (China), SOCO 2012 (Czech Republic), ODAM 2013 (Czech Republic); IWAT 2015 (South Korea)), IDS 2016, Dubai, ICRITO' 2017, Amity University Uttar Pradesh (AUUP), Noida, UP, India; ICMMAS 2017, St. Petersburg, Russia; Computational Intelligence and Granular Computing for Computer Vision and Image Understanding, KUL, Lublin, Polsko, 2018; ISAS 2018 Valladolid (Spain); FUZZ-IEEE 2018, Rio de Janeiro, Brazil; FARMS 2019 Riga, Latvia; IIKMIR 2019 Dubna, Russia; NAFIPS 2020, Redmont, USA; FIAM-2020, India; FuzzyMad 2020, Madrid, Spain.

Last year:

- Int. Conference on Trends in Computational and Cognitive Engineering (TCCE)-2021, organized by University Tun Hussein Onn Malaysia (UTHM);
- Recent Trends in Research Special Reference to Data Science, Machine Learning and Explainable Artificial Intelligence, organized by AMITY INSTITUTE OF INFORMATION TECHNOLOGY, India;
- European Symposium on Computational Intelligence and Mathematics (ESCIM 2021), Budapest (Hungary);
- 1st International Lotfi A.Zadeh Conference: Fuzzy Logic and Applications, Organized by Baku State University, Azerbaijan;
- The Symposium on Logic and Artificial Intelligence, SLAI-2022, Organized by Louisiana Scholars' College at Northwestern State University, USA

The most important publications:

- PERFILIEVA, I. Logical foundations of rule-based systems, *Fuzzy Sets and Systems*, 157 (2006) 615-621.
- PERFILIEVA, I. Fuzzy Transforms: Theory and Applications, *Fuzzy Sets and Systems*, 157, Issue 8, 16 April 2006, 993-1023

- Perfilieva, I., Holčapek, M., Kreinovich, V. A New Reconstruction from the F-Transform Components. *Fuzzy Sets and Systems*. 2016, 288, 3-25. ISSN 1063-6706.
- Perfilieva, I., Daňková, M., Bede, B. Towards a higher degree F-transform. *Fuzzy Sets and Systems* 2011, 180, 3-19. ISSN 1063-6706.
- Perfilieva, I. Finitary Solvability Conditions for Systems of Fuzzy Relation Equations. *Inform. Sciences*. 2013, 29-43. ISSN 0020-0255.
- Perfilieva, I., Hodáková, P., Hurtk, P. Differentiation by the F-transform and Application to Edge Detection. *Fuzzy Sets and Systems*. 2016, 288, 96-114.
- Novák, V., Perfilieva, I., Holčapek, M. and V. Kreinovich. Filtering out high frequencies in time series using F-transform. *Information Sciences*, 274(2014), 192-209.
- Di Martino, F., Hurtk, P., Perfilieva, I. and S. Sessa. A Colour Image Reduction Based on Fuzzy Transforms. *Information Sciences*. 2014, 266, 101-111.
- D. Paternain, M. J. Campion, R. Mesiar, I. Perfilieva, H. Bustince, Internal Fusion Functions. *IEEE Trans. Fuzzy Systems* 26(2) (2018) 487-503.
- M. Zeinali, R. Alikhani, S. Shahmorad, F. Bahrami, I. Perfilieva, On the structural properties of Fm-transform with applications, *Fuzzy Sets and Systems* 342, (2018) 32-52.
- Nicolas Madrid, Manuel Ojeda-Aciego, Jesus Medina, Irina Perfilieva, L-fuzzy relational mathematical morphology based on adjoint triples, *Information Sciences*, 474 (2018) 75 – 89.
- Perfilieva, I., Vlasanek P., Total Variation with Nonlocal FT-Laplacian for Patch-based Inpainting, *Soft Computing*, 23, 2019, 1833-1842.
- Nguyen, L. T., Perfiljeva, I. and Holapek, M., Boundary Value Problem: Weak Solutions Induced by Fuzzy Partitions. *Discrete And Continuous Dynamical Systems B*, 25(2) (2020) 715-732.
- Perfiljeva, I. and P. Hurtk, The F-transform preprocessing for JPEG strong compression of high-resolution images. *Information Sciences*, 550 (2021) 221-228.
- K. A. Zakeri, S. Ziari, M. A. F. Araghi and I. Perfilieva, Efficient Numerical Solution to a Bivariate Nonlinear Fuzzy Fredholm Integral Equation, *IEEE Transactions on Fuzzy Systems*, 29/2 (2021) 442-454.

Департаман за рачунарске науке

Листа предавача из привреде (школска 2021/22. година)

дни у ој	Име и презиме	Звање	Предмет	Ниво студија / Студијски програм	Семестар	Фонд часова	Акредитационо оптерећење	Институција у којој са пуним радним временом
1.	Владан Тодоровић	Предавач ван радног односа	Безбедност информација	МАС Рачунарске науке	1. семестар	1 час предавања и 1 час аудиторних вежби	0.50+0.25+0.50 +0.25+0.08 =1.58	Advanced Security Technologies, Беогр:
			Вештачке неуронске мреже	МАС Рачунарске науке	2. семестар	1 час предавања и 1 час аудиторних вежби		
2.	Ненад Живић	Предавач ван радног односа	Машинско учење и вештачка интелигенција	МАС Рачунарске науке	1. семестар	2 часа предавања и 3 часа аудитор- них вежби	1.00+0.75+0.05 +0.17=1.97	Advertima, St. Galler Switzerland, огранак Београду, и Complete Genomics, Mountain View, CA, USA
			Примена вештачке интелигенције у биоинформатици	МАС Рачунарске науке	4. семестар	2 часа аудиторних вежби		
3.	Иван Живковић	Предавач ван радног односа	Обрада великих скупова података	МАС Рачунарске науке	2. семестар	1 час предавања и 2 часа ДОН	0.50+0.50+0.08 = 1.08	Accordia Group LLC, огранак у Нишу
4.	Младен Манчић	Предавач ван радног односа	Паралелно и дистри- буирано машинско учење	МАС Рачунарске науке	3. семестар	1 час предавања и 1 час аудиторних вежби	0.50+0.25+0.09 +0.17=1.01	Nordeus, Београд
			Обрада природних језика	МАС Рачунарске науке	4. семестар	4 часа аудиторних вежби		
5.	Сања Богдановић Динић	Предавач ван радног односа	Базе података	МАС Рачунарске науке	1. семестар	2 часа предавања и 3 часа ДОН	1.00+0.75+0.08 =1.83	НТЕС Београд, огранак у Нишу
6.	Владан Петковић	Предавач ван радног односа	Дизајн софтвера	МАС Рачунарске науке	1. семестар	2 часа ДОН	0.50+0.08=0.58	NIRI, Ниш

7.	Далибор Алексов	Предавач ван радног односа	Тестирање и метрика софтвера	МАС Рачунарске науке	2. семестар	4 часа аудиторних вежби	0.10+0.08=0.18	Nutanix, Београд
8.	Ђорђе Јанчић	Предавач ван радног односа	Развој мобилних апликација	МАС Рачунарске науке	3. семестар	2 часа аудиторних вежби	0.50+0.17=0.67	Peakstel, Ниш
9.	Душан Шарковић	Предавач ван радног односа	Интернет паметних уређаја	ОАС Рачунарске науке	5. семестар	2 часа аудиторних вежби	0.27	DMV doo, Ниш
10.	Елизабета Маркуш Митриновић	Предавач ван радног односа	Мултимедијални информациони системи	МАС Рачунарске науке	2. семестар	2 часа аудиторних вежби	0.50+0.08=0.58	Stankovićsoft, Ниш
11.	Божидар Игњатовић	Предавач ван радног односа	Управљање пројектима у ИТ	ОАС Рачунарске науке	6. семестар	1 час предавања и 2 часа аудиторних вежби	0.29+0.09=0.38	Vadin Soft, Ниш
12.	Ненад Ђорђевић	Предавач ван радног односа	Развој веб апликација	МАС Рачунарске науке	2. семестар	2 часа аудиторних вежби	0.50+0.08=0.58	Трохо доо, Ниш
13.	Ненад Илић	Предавач ван радног односа	Рачунарска графика 1	МАС Рачунарске науке	2. семестар	4 часа аудиторних вежби	0.10+0.10+0.17=0.37	Atomia, Ниш
			Рачунарска графика 2	МАС Рачунарске науке	4. семестар	4 часа аудиторних вежби		
14.	Александар Милинчић	Предавач ван радног односа	Технолошки практикум напредне обраде података	МАС Рачунарске науке	1. семестар	2 часа аудиторних вежби	0.13+0.08=0.21	RCMT Technologies, огранак у Нишу
15.	Иван Станковић	Предавач ван радног односа	Дигитална обрада слика	МАС Рачунарске науке	2. семестар	4 часа аудиторних вежби	0.21+0.08=0.29	SOLERA, Ниш
			Ненадгледано машинско учење	МАС Рачунарске науке	3. семестар	2 часа ДОН		
16.	Тамара Станковић	Предавач ван радног односа	Софтверске платформе и програмски језици за интелигентну обраду података	МАС Рачунарске науке	2. семестар	4 часа аудиторних вежби	1.00+0.21+0.17=1.38	Microsoft Serbia



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