

## CURRICULUM VITAE

**Name/Surname:** Rashad Aliyev

**Date and place of birth:** 06 August 1970, Agdam, Azerbaijan

**Position:** Professor

**Address:** Department of Mathematics, Faculty of Arts and Sciences, Eastern Mediterranean University, Famagusta, North Cyprus (via Mersin 10, Turkey)

### **Education**

BS/MS - Control Systems, Azerbaijan State Oil Academy, 1992

Ph.D. - Control Systems, Artificial Intelligence, Azerbaijan State Oil Academy, 1992

Doctor of Sciences - Control Systems, Soft Computing, Tashkent State Technical University, 2000

### **Academic Positions**

Assistant Professor - 1993-1995, Azerbaijan State Oil Academy

Associate Professor - 1995-2002, Azerbaijan State Oil Academy

Visiting Associate Professor - 2002-2008, Eastern Mediterranean University

Associate Professor - 2008-2014, Eastern Mediterranean University

Professor - 2014-present, Eastern Mediterranean University

### **Supervision of Ph.D. Theses**

**1. Mustafa Tanel Babagil:** "The development of multi-agent intelligent system for production SCM". Eastern Mediterranean University, October, 2007.

**2. Akif Vali Alizadeh:** "Models and Algorithms for Behavior Planning of Industrial Robots". Institute of Cybernetics of National Academy of Science of Azerbaijan, November 30, 2007 (supervision together with Prof. Dr. R.A.Aliyev).

**3. Ersin Kuset Bodur:** "Fuzzy Utility Based Decision Analysis in the Credit Scoring Problem". Eastern Mediterranean University, June, 2012.

**4. Derar Atallah Talal Mraiziq:** "Computation and Reasoning with Z-Numbers". Eastern Mediterranean University, July, 2015.

**5. Sara Salehi:** "Fuzzy Rule-Based Intelligent System for Predicting Hotel Occupancy". Eastern Mediterranean University, January, 2020.

**6. Hasan Temizkan:** "Decision Making under Fuzzy Environment". Eastern Mediterranean University, February, 2021.

## **Supervision of MS Theses**

- 1. Hamid Mir-Mohammad Sadeghi:** “Fuzzy Intelligent Traffic Control System”. Eastern Mediterranean University, June, 2010.
- 2. Andrew Adewale Alola:** “Analysis of Possibility Theory for Reasoning under Uncertainty”. Eastern Mediterranean University, June, 2012.
- 3. Lina Abed Al-Hakim Hamdan Al Shnaikat:** “Type-2 Fuzzy Logic in Modeling Uncertainty”. Eastern Mediterranean University, June, 2013.
- 4. Maysaa Jasim Mahmood Al-Obaidi:** “Fuzzy Game Theory for Decision Analysis”. Eastern Mediterranean University, July, 2013.
- 5. Nisreen Lukman Abdulnabi:** “Prospect Theory in Decision Making Process”. Eastern Mediterranean University, February, 2014.
- 6. Hayder Mosa Merza Al-Rubaiy:** “Query Processing for Data Retrieval from Distributed Database Management System”. Eastern Mediterranean University, February, 2014.
- 7. Hello Ali Hama:** “Hebb Rule Method in Neural Network for Pattern Association”. Eastern Mediterranean University, May, 2014.
- 8. Sara Salehi:** “Bayesian Probability Estimation for Reasoning Process”. Eastern Mediterranean University, May, 2014.
- 9. Pshtiwan Qader Rashid:** “Semantic Network and Frame Knowledge Representation Formalisms in Artificial Intelligence”. Eastern Mediterranean University, February, 2015.
- 10. Isma`il Muhammad Musa:** “Investigation of Basic Concepts of Fuzzy Arithmetic”. Eastern Mediterranean University, February, 2015.
- 11. Bareen Haval Sadiq Mzori:** “Forward and backward chaining techniques of reasoning in rule-based systems”. Eastern Mediterranean University, July, 2015.
- 12. Zewar Fadhlulddin Hasan:** “Implementation of strategies for solving constraint satisfaction problems”. Eastern Mediterranean University, July, 2015.
- 13. Haifaa Hussein Hameed:** “Smoothing techniques for time series forecasting”. Eastern Mediterranean University, July, 2015.
- 14. Bafreen Najeb Mohammed:** “Analysis of properties of fuzzy graphs”. Eastern Mediterranean University, January, 2017.
- 15. Kurdman Abdulrahman Rasol:** “Propositional Logic for Knowledge Representation and Formalization of Reasoning”. Eastern Mediterranean University, June, 2017.
- 16. Khaled A. O. Algasi:** “Uninformed and Informed Search Techniques in Artificial Intelligence”. Eastern Mediterranean University, November, 2017.

## **List of Publications**

### **Books**

1. R.A.Aliev, A.C.Khanukaev, R.R.Aliev, “Dream, brought through centuries: Myths and reality of artificial intelligence”, p. 168, Elm, Baku, 1991 (in Russian).
2. R.A.Aliev, G.A.Mamedova, R.R.Aliev, “Fuzzy set theory and its application”, p. 224, Tabriz University Press, Iran, 1993.
3. R.A.Aliev, R.M.Vahidov, R.R.Aliev, “Artificial neural networks: Theory and practice”, p. 193, Tabriz University Press, Iran, 1995.
4. R.A.Aliev, R.R.Aliev, “Soft Computing. Part 1: Fuzzy sets and systems”, p. 181, Azerbaijan State Oil Academy Press, Baku, 1996 (in Russian).
5. R.A.Aliev, R.R.Aliev, “Soft Computing. Part 2: Artificial neural networks, genetic algorithms, chaos theory”, p. 144, Azerbaijan State Oil Academy Press, Baku, 1997 (in Russian).
6. R.A.Aliev, R.R.Aliev, “Soft Computing. Part 3: Hybrid intelligent systems”, p. 344, Azerbaijan State Oil Academy Press, Baku, 1997 (in Russian).
7. R.A.Aliev, R.M.Vahidov, R.R.Aliev, “Neural Networks”, p. 200, Azerbaijan State Oil Academy Press, Baku, 1997 (in Russian).
8. R.A.Aliev, R.R.Aliev, “The intelligent systems theory and its application”, p. 720, Chashioglu Publishing House, Baku, 2001 (in Russian).
9. **R.A.Aliev, R.R.Aliev, “Soft Computing and its Applications”, p. 444, World Scientific, 2001.**
10. R.A.Aliev, R.R.Aliev, “Soft Computing”, p. 680, Chashioglu Publishing House, Baku, 2004 (in Azerbaijani).
11. **Rafik A. Aliev, Bijan Fazlollahi, Rashad R. Aliev, “Soft Computing and its Applications in Business and Economics”, p. 446, Springer-Verlag, 2004.**
12. R.A.Aliev, R.R.Aliev, “Control Theory”, p. 640, Chashioglu Publishing House, Baku, 2007 (in Azerbaijani).
13. N.R.Yusupbekov, R.A.Aliev, R.R.Aliev, A.N.Yusupbekov, “Intelligent control and decision making systems”, p. 490, State scientific publishing house “Uzbekistan National Encyclopedia”, Tashkent, 2014 (in Russian).
14. **Rafik A Aliev, Oleg H Huseynov, Rashad R Aliyev, Akif A Alizadeh, “The Arithmetic of Z-Numbers: Theory and Applications”, p. 301, World Scientific Publishing Co, 2015.**

15. N.R.Yusupbekov, R.A.Aliev, R.R.Aliev, A.N.Yusupbekov, “Intelligent control systems and decision making”, p. 568, State scientific publishing house “Uzbekistan National Encyclopedia”, 2015 (in Uzbek).

16. R.A.Aliev, B.Fazlollahi, R.R.Aliev, “Esnek Hesaplama: İşletme ve Ekonomide Uygulamaları”, p. 444, Sakarya Üniversitesi Kütüphanesi Yayınevi, 2017 (in Turkish).

### **Papers published in journals covered by Science Citation Index (SCI) list**

1. R.A.Aliev, B.Fazlollahi, B.Guirimov, R.R.Aliev, “Fuzzy-genetic approach to aggregate production-distribution planning in supply chain management”, Information Sciences, Volume 177 (20), pp. 4241-4255, 2007.

2. R.A.Aliev, B.G.Guirimov, Bijan Fazlollahi, R.R.Aliev, “Evolutionary Algorithm-Based Learning of Fuzzy Neural Networks. Part 2: Recurrent Fuzzy Neural Networks”, Fuzzy Sets and Systems, Volume 160, Issue 17, pp. 2553-2566, 2009.

3. Rafik A. Aliev, Witold Pedrycz, Babek G. Guirimov, Rashad R. Aliev, Umit Ilhan, Mustafa Babagil, Sadik Mammadli, “Type-2 Fuzzy Neural Networks with Fuzzy Clustering and Differential Evolution Optimization”, Information Sciences, Volume 181, Issue 9, pp. 1591-1608, 2011.

### **Papers published in journals covered by Science Citation Index Expanded (SCIE) list**

1. Rafik Aliev, Bijan Fazlollahi, Rashad Aliev and Babek Guirimov, “Fuzzy Time Series Prediction Method Based on Fuzzy Recurrent Neural Network”, Lecture Notes in Computer Science (LNCS), Volume 4233, pp. 860-869, 2006.

2. R.A.Aliev, R.R.Aliev, B.Guirimov, K.Uyar, “Dynamic data mining technique for rules extraction in a process of battery charging“, Applied Soft Computing, Volume 8, Issue 3, pp. 1252-1258, 2008.

3. R.A.Aliev, B.Fazlollahi, R.R.Aliev, B.Guirimov, “Linguistic Time Series Forecasting Using Fuzzy Recurrent Neural Network“, Soft Computing, Volume 12(2), pp. 183-190, 2008.

4. Rashad Aliev, Rahib Abiyev, Mustafa Menekay, “Fuzzy Approach to Portfolio Selection Using Genetic Algorithms”, Intelligent Automation and Soft Computing, Vol. 14, No. 4, pp. 525-540, 2008.

5. Rashad R. Aliev, Ersin Kuset Bodur, “Fuzzy-valued Choquet integral based utility ranking in the credit scoring problem”, Applied and Computational Mathematics, Volume 11, No. 3, pp. 432-446, 2012.

6. Rashad R. Aliev, Derar Atallah Talal Mraiziq, and Oleg H. Huseynov, “Expected Utility Based Decision Making under Z-Information and Its Application”, Computational Intelligence and Neuroscience, Volume 2015, 11 pages, 2015.
7. Rashad Aliyev, Sara Salehi and Rafiq Aliyev, “Development of Fuzzy Time Series Model for Hotel Occupancy Forecasting”, Sustainability 2019, 11(3), 793.
8. Rashad Aliyev, Hasan Temizkan and Rafiq Aliyev, “Fuzzy Analytic Hierarchy Process-Based Multi-Criteria Decision Making for Universities Ranking”, Symmetry 2020, 12(8), 1351.
9. Kamala Aliyeva, Aida Aliyeva, Rashad Aliyev, and Mustafa Özdeşer, “Application of Fuzzy Simple Additive Weighting Method in Group Decision-Making for Capital Investment”, Axioms 2023, 12(8), 797.

#### **Papers in other refereed journals**

1. R.R.Aliev, “Expert system network for oil-refinery manufacturing“, Scientific notes, Azerbaijan State Oil Academy, № 2, pp. 51-58, 1992 (in Russian).
2. R.R.Aliev, “The distributed intelligent system for oil-refinery manufacturing“, News of Universities, "Oil and Gas", Azerbaijan State Oil Academy, № 5-6, pp. 69-74, 1992 (in Russian).
3. R.R.Aliev, “The components and structure of the Hardware of the distributed intelligent manufacturing system”, News of Universities, "Oil and Gas", Azerbaijan State Oil Academy, № 8, pp. 77-83, 1992 (in Russian).
4. R.R.Aliev, “The neural dynamic "ON-LINE" expert system”, News of Universities, "Oil and Gas", Azerbaijan State Oil Academy, № 11-12, pp. 77-84, 1992 (in Russian).
5. R.R.Aliev, “The controllers based on neural expert system for automatic control of the primary oil-refinery”, Scientific notes, Azerbaijan State Oil Academy, № 5, pp. 75-82, 1992 (in Russian).
6. R.A.Aliev, R.R.Aliev, “The design principles of the distributed intelligent manufacturing system”, Decision making methods and systems, Riga, Latvia, Technical University, pp. 125-132, 1993 (in Russian).
7. R.R.Aliev, “The neural controller for control of the technological processes”, Scientific notes, Azerbaijan State Oil Academy, № 2, pp. 88-98, 1994 (in Russian).
8. R.A.Aliev, R.H.Abiev, R.R.Aliev, “The synthesis of fuzzy control system with neural networks based tuner”, News of Academy of Science of Russia, "Technical cybernetics", Moscow, № 2, pp. 192-197, 1994 (in English and Russian).
9. R.R.Aliev, “An application of Soft Computing Technology for control of the Catalytic

Cracking”, News of Universities, "Oil and Gas", Azerbaijan State Oil Academy, № 3, pp. 7-8, 1995 (in Russian).

**10.** R.R.Aliev, “The fuzzy decision making for optimization of the Catalytic Cracking Process”, Scientific notes, Azerbaijan State Oil Academy, № 2, pp. 173-179, 1996 (in Russian).

**11.** R.R.Aliev, “The catalytic cracking process control in fuzzy environment”, Scientific notes, Azerbaijan State Oil Academy, № 4, pp. 162-168, 1996 (in Russian).

**12.** R.R.Aliev, “The computer modeling and practical realization of intelligent systems for catalytic cracking process”, News of Universities, "Oil and Gas", Azerbaijan State Oil Academy, № 1-2, pp. 74-75, 1997 (in Russian).

**13.** R.R.Aliev, “Soft Computing as a key methodology for construction of systems with high level Machine Intelligence”, Scientific notes, Azerbaijan State Oil Academy, № 1, pp. 179-185, 1997 (in Russian).

**14.** R.R.Aliev, “The comparing characteristics of components of Soft Computing”, Scientific notes, Azerbaijan State Oil Academy, № 3, pp. 172-178, 1997 (in Russian).

**15.** I.H.Muratov, R.R.Aliev, R.H.Abiev, “The learning systems on the base of neural networks for the control of technological processes”, Intelligent control and decision making systems, Thematic collected articles, Azerbaijan State Oil Academy, Baku, pp. 43-50, 1997 (in Russian).

**16.** R.R.Aliev, “Fundamentals of distributed multi-agent intelligence manufacturing control systems”, Intelligent control and decision making systems, Thematic collected articles, Azerbaijan State Oil Academy, № 1, pp. 81-90, 1997 (in Russian).

**17.** N.R.Yusupbekov, R.A.Aliev, R.R.Aliev, F.T.Adilov, “Some concepts and principles of design of distributed intelligent systems”, Mining bulletin of Uzbekistan, № 4 (11), pp. 39-41, 2002 (in Russian).

**18.** R.A.Aliev, B.G.Guirimov, R.R.Aliev, “Customer credit evaluation using soft computing based approach”, Business Journal, Vol. 1, pp. 13-16, Baku, 2003.

**19.** R.A.Aliev, B.G.Guirimov, R.R.Aliev, “Fraud detection on the basis soft computing based approach”, Business Journal, Vol. 2, pp. 8-10, Baku, 2003.

**20.** N.R.Yusupbekov, R.A.Aliev, R.R.Aliev, F.T.Adilov, “The synthesis of multivariable intelligent controller for reactor-regenerator block”, Chemistry and chemical technology, № 1, Tashkent, Uzbekistan, pp. 52-54, 2003 (in Russian).

**21.** N.R.Yusupbekov, R.A.Aliev, R.R.Aliev, F.T.Adilov, S.M.Gulyamov, “Predictive control of the oil catalysis cracking unit”, Industrial controllers, Uzbekistan, № 12, pp. 33-34, 2003 (in Russian).

**22.** N.R.Yusupbekov, R.A.Aliev, F.T.Adilov, R.R.Aliev, S.M.Gulyamov, “Dynamic expert

system for control of continuous manufacturing”, "Oil and Gas" Journal, № 1, pp. 4-5, Tashkent, 2004 (in Russian).

**23.** R.A.Aliev, B.G.Guirimov, R.R.Aliev, “A Neuro-Fuzzy Graphic Object Classifier with Modified Distance Measure Estimator”, Iranian Journal of Fuzzy Systems, Volume 1, Issue 1, pp. 5-15, 2004.

**24.** R.R.Aliev, I.Z.Ahmedov, K.R.Aliyeva, “Fuzzy Delphi Method”, Business Journal, Vol. 1, pp. 3-4, Baku, 2004.

**25.** R.A.Aliev B.Fazlollahi, R.R.Aliev, “Neuro-computing in business processes modeling”, Business Journal, Vol. 1, pp. 5-7, Baku, 2004.

**26.** R.A.Aliev, B.Fazlollahi, R.R.Aliev, “Intelligent Management of Business and Economic Processes”, Business Journal, Vol. 2, pp. 5-40, Baku, 2004.

**27.** R.A.Aliev, R.R.Aliev, “Soft computing approach to decision making”, Business Journal, Vol. 4, pp. 3-20, Baku, 2004.

**28.** R.A.Aliev, R.R.Aliev, B.Guirimov, K.Uyar, “Recurrent Fuzzy Neural Network Based System for Battery Charging”, Lecture Notes in Computer Science (LNCS), Volume 4492, pp. 307-316, 2007.

**29.** R.R.Aliev, O.H.Huseynov, K.R.Aliyeva, “Z-valued t-norm and t-conorm operators-based aggregation of partially reliable information”, Procedia Computer Science 102 (2016), pp. 12-17 (12th International Conference on Application of Fuzzy Systems and Soft Computing, ICAFS 2016, 29-30 August 2016, Vienna, Austria).

**30.** R.A.Aliev, O.H.Huseynov, R.R.Aliyev, “A sum of large number of Z-numbers”, Procedia Computer Science 120 (2017), pp. 16-22 (9th International Conference on Theory and Application of Soft Computing, Computing with Words and Perception, ICSCCW 2017, 24-25 August 2017, Budapest, Hungary).

**31.** Akif V. Alizadeh, Rashad R. Aliyev, Oleg H. Huseynov, “Algebraic Properties of Z - Numbers under Additive Arithmetic Operations”, Advances in Intelligent Systems and Computing 896, Springer, pp. 893-900 (13th International Conference on Theory and Application of Fuzzy Systems and Soft Computing - ICAFS-2018, August 27-28, 2018, Warsaw, Poland).

**32.** Rashad R. Aliyev, Nigar E. Adilova, “Solution of Zadeh’s “Fast Way” Problem under Z-Information”, Advances in Intelligent Systems and Computing (AISC, volume 1095), pp. 86-92 (10th International Conference on Theory and Application of Soft Computing, Computing with Words and Perceptions - ICSCCW 2019, August 27-28, 2019, Prague, Czech Republic).

33. Rashad R. Aliyev, Hasan Temizkan, “Application of Analytic Hierarchy Process Method for Ranking of Universities”, *Advances in Intelligent Systems and Computing (AISC, volume 1095)*, pp. 772-780 (10th International Conference on Theory and Application of Soft Computing, Computing with Words and Perceptions - ICSCCW 2019, August 27-28, 2019, Prague, Czech Republic).
34. R. R. Aliyev, O. H. Huseynov, Javanshir Guliyev, “Toward an Analysis of Pairwise Comparison Matrices with Z-number-valued Elements”, *Lecture Notes in Networks and Systems (LNNS, volume 362)*, Springer, pp. 420-427 (11th International Conference on Theory and Application of Soft Computing, Computing with Words and Perceptions and Artificial Intelligence - ICSCCW-2021, 23-24 August, Antalya, Turkey).
35. R. R. Aliyev, O. H. Huseynov, Babek Guirimov, “Toward Z-Number-Based Classification of Dataset”, *Lecture Notes in Networks and Systems (LNNS, volume 610)*, Springer, pp. 637-644 (15th International Conference on Applications of Fuzzy Systems, Soft Computing and Artificial Intelligence Tools - ICAFS-2022, 26-27 August, Budva, Montenegro).

### **Chapters in refereed books**

1. R.A.Aliev, K.W.Bonfig, F.T.Aliev, R.R.Aliev, (Chapter 5: “Kunstliche neuronale Netze”, pp. 133-156), in R.A.Aliev, K.W.Bonfig, F.T.Aliev: *Messen, Steuern und Regeln mit Fuzzy-logik*, Franzis-Verlag GmbH. Co.KG, Munchen, 1994 (in German).
2. R.R.Aliev, (Section 14.2 - “Industrielle Controller auf der Basis von neuronalen Expertensystemen“, pp. 293-304), in R.A.Aliev, K.W.Bonfig, F.T.Aliev, *Messen, Steuern und Regeln mit Fuzzy-logik*, Franzis-Verlag GmbH. Co.KG, Munchen, 1994 (in German).
3. R.A.Aliev, R.R.Aliev, “Fuzzy Distributed Intelligent System for Continuous Production”, in M.Jamshidi, A.Titli, L.Zadeh, and S.Boverie, *Application of Fuzzy Logic: Towards High Machine Intelligence Quotient Systems*. pp. 301-321, NJ: PTR Prentice Hall, USA, 1997.
4. R.R.Aliev, (Section 13.1.2 - “Bildung der Wissensbasen fur die reflektorische Tatigkeit des IR“, pp. 384-392; Section 10.2 - “Adaptive Steuerung auf Basis der Fuzzy-Logik und des genetischen Algorithmus“, pp. 314-317; Section 12.1 - “Anwendung von Soft Computing zur steuerung des Katalytischen Crackens“, pp. 354-371; Section 14.1 - “Prinzipien and Methoden fur den Aufbau von verteilten intelligenten Fuzzy-Systemen“, pp. 416-432), in R.A.Aliev, K.W.Bonfig, F.T.Aliev, *Soft Computing: eine grundlegende Einfuhrung*, Berlin: Verl. Technik, 2000 (in German).
5. R.A.Aliev, B.Fazlollahi, B.G.Guirimov, R.R.Aliev, “Recurrent Fuzzy Neural Networks



and Their Performance Analysis“, in Recurrent Neural Networks, edited by Xiaolin Hu and P.Balasubramaniam, I-Tech, 2008, pp. 107-126.

### **Papers in refereed international proceedings**

1. R.A.Aliev, K.W.Bonfig, F.T.Aliev, R.R.Aliev, “The distributed intelligent manufacturing system”, Proceedings of the First European Congress on Fuzzy and Intelligent Technologies, EUFIT’93, Germany, pp. 222-228, 1993.
2. R.R.Aliev, “Fuzzy neural system for technological process control”, Proceedings of the First International Conference on Application of Fuzzy Systems (ICAFS-94), Tabriz, Iran, pp. 63-66, 1994.
3. R.R.Aliev, B.A.Zahidov, “Synthesis of fuzzy industrial controllers”, Proceedings of the First International Conference on Application of Fuzzy Systems (ICAFS-94), Tabriz, Iran, pp. 140-143, 1994.
4. R.R.Aliev, “Neural Identification and control of industrial technological processes”, Proceedings of the First International Conference on Application of Fuzzy Systems (ICAFS-94), Tabriz, Iran, pp. 417-418, 1994.
5. R.A.Aliev, F.T.Aliev, R.H.Abiev, R.R.Aliev, “Industrial neural controllers”, Proceedings of the Second European Congress on Intelligent Techniques and Soft Computing, EUFIT’94, Aachen, Germany, pp. 1321-1325, 1994.
6. R.A.Aliev, R.R.Aliev, R.H.Abiev, “Synthesis of industrial neural controllers”, Proceedings of 1994 IEEE International Conference on Neural Networks (ISNN’94), IEEE World Congress on Computational Intelligence, 28 June - 2 July 1994, Orlando, FL, USA, Volume 3, pp. 1644-1649, 1994.
7. R.R.Aliev, “Use of Soft Computing Technology for synthesis of fuzzy multivariable controllers”, Proceedings of the Second International Conference on Application of Fuzzy Systems and Soft Computing, ICAFS-96, Siegen, Germany, June, 25-27, pp. 248-251, 1996.
8. R.R.Aliev, “An Intelligent Control System for the Catalytic Cracking Process”, Proceedings of the Second International Conference on Application of Fuzzy Systems and Soft Computing, ICAFS-96, Siegen, Germany, June, 25-27, pp. 466-469, 1996.
9. R.R.Aliev, B.A.Zahidov, K.R.Alieva, “Neural Identification of the Catalytic Cracking Process”, Proceedings of the Second International Conference on Application of Fuzzy Systems and Soft Computing, ICAFS-96, Siegen, Germany, June, 25-27, pp. 300-303, 1996.
10. R.A.Aliev, R.R.Aliev, ”Soft Computing Based Control System for Catalytic Cracking Processes”, Proceedings of the Biennial Conference of the North American

Fuzzy Information Processing Society - NAFIPS'96, June, 19-22, Berkeley, California, USA., pp. 387-391, 1996.

**11.** R.A.Aliev, Rashad R.A., F.T.Aliev, "Fuzzy Distributed Multi-Agent Manufacturing System", Proceedings of the Biennial Conference of the North American Fuzzy Information Processing Society NAFIPS'97, Syracuse, New York, September 21-24, USA, pp. 311-316, 1997.

**12.** R.R.Aliev, "Distributed Multi-Agent Control System", Proceedings of the Third International Conference on Application of Fuzzy Systems and Soft Computing, ICAFS-98, Wiesbaden, Germany, October, 5-7, pp. 80-85, 1998.

**13.** F.T.Aliev, R.R.Aliev, W.Steinmann, R.H.Abiev, I.H.Muratov, "Neural Learning Systems for Technological Processes Control", Proceedings of the Third International Conference on Application of Fuzzy Systems and Soft Computing, ICAFS-98, Wiesbaden, Germany, October, 5-7, pp. 94-99, 1998.

**14.** B.Fazlollahi, R.R.Aliev, Brian Shott, A.Azizov, "'On-line" prediction ensemble for forecasting in chaotic time series", Proceedings of the Fourth International Conference on Application of Fuzzy Systems and Soft Computing, ICAFS-2000, Siegen, Germany, June 27-29, pp. 276-279, 2000.

**15.** R.A.Aliev, K.W.Bonfig, F.T.Aliev, R.R.Aliev, "Synthesis of a fuzzy multi-dimensional control system", Proceedings of the World Conference on Intelligent Systems for Industrial Automation (WCIS-2000), Tashkent, Uzbekistan, September, 14-16, pp. 64-67, 2000.

**16.** B.Fazlollahi, R.R.Aliev, "Forecasting Time-Series System with Fuzzy Decision Maker", Proceedings of the World Conference on Intelligent Systems for Industrial Automation (WCIS-2000), Tashkent, Uzbekistan, September, 14-16, pp. 111-114, 2000.

**17.** F.T.Aliev, R.R.Aliev, T.M.Gasimzade, J.R.Mammadov, R.F.Sadikhov, K.R.Aliyeva, "Fuzzy chaos based tuning of fuzzy controller", Proceedings of the First International Conference on Soft Computing and Computing with Words in System Analysis, Decision and Control (ICSCCW-2001), Antalya, Turkey, June 6-8, 2001, pp. 100-102, 2001.

**18.** K.W.Bonfig, F.Aliev, R.R.Aliev, B.G.Gurimov, K.R.Aliyeva, "Handwritten Image Recognition by using Neuro-Fuzzy Approach", Proceedings of the Second World Conference On Intelligent Systems For Industrial Automation (WCIS-2002), Tashkent, Uzbekistan, June 3-4, pp. 1-5, 2002.

**19.** B.Fazlollahi, R.A.Aliev, R.R.Aliev, "Fuzzy-Genetic Approach Based Multi-Agent System", Proceedings of the Fifth International Conference on Application of Fuzzy Systems and Soft Computing (ICAFS-2002), September 17-18, Milan, Italy, pp. 174-180, 2002.

- 20.** Aliev R.R., "Perception Based Evaluation of Service Quality", Proceedings of the Second International Conference on Soft Computing and Computing with Words in System Analysis, Decision and Control (ICSCCW-2003), Antalya, Turkey, September 9-11, pp. 216-217, 2003.
- 21.** R.A.Aliev, R.R.Aliev, N.R.Yusupbekov, F.T.Adilov, "Basic principles of design of distributed intelligent systems", Proceedings of the XVI International Conference on Mathematical methods in techniques and technologies, Rostov-on-Don, pp. 126-128, 2003 (in Russian).
- 22.** B.Fazlollahi, R.A.Aliev, R.R.Aliev, "Soft Computing in Business and Economics", Proceedings of the Sixth International Conference on Application of Fuzzy Systems and Soft Computing (ICAFS-2004), September 28-30, Barcelona, Spain, pp. 5-38, 2004.
- 23.** J.R.Mammadov, R.A.Aliev, R.M.Mammadov, R.R.Aliev, "Application of Fuzzy Chaos to Linear Programming Based Scheduling Problem", Proceedings of the Sixth International Conference on Application of Fuzzy Systems and Soft Computing, ICAFS-2004, September 28-30, Barcelona, Spain, pp. 66-69, 2004.
- 24.** R.A.Aliev, B.G.Guirimov, R.R.Aliev, K.W.Bonfig, F.T.Aliev, "Genetic Algorithm-Based Learning of Recurrent Fuzzy Neural Networks", Proceedings of the Sixth International Conference on Application of Fuzzy Systems and Soft Computing, ICAFS-2004, September 28-30, Barcelona, Spain, pp. 109-115, 2004.
- 25.** R.A.Aliev, B.G.Guirimov, R.R.Aliev, "Recurrent Fuzzy Neural Model for Forecasting and Identification", Proceedings of the Third World Conference on Intelligent Systems for Industrial Automation (WCIS-2004), October 12-13, Tashkent, Uzbekistan, pp. 6-12, 2004.
- 26.** B.Fazlollahi, R.A.Aliev, R.R.Aliev, "Soft Computing Based Methods in Management of Business and Economic Processes", Proceedings of the International Conference on Computational Intelligence (ICCI-2004), May 27-29, Near East University, North Cyprus, pp. IP10-IP21, 2004.
- 27.** Rashad Aliyev, Mustafa T. Babagil, "Dempster's Rule Based Decision Making in Stock Market Analysis", Proceedings of the International Conference on Computational Intelligence (ICCI-2004), May 27-29, Near East University, North Cyprus, pp. 12-14, 2004.
- 28.** Rashad Aliev, "Hebb Algorithm Based Neural Expert System for Car Failure Diagnosing", Proceedings of the Third International Conference on Soft Computing, Computing with Words and Perceptions in System Analysis, Decision and Control, (ICSCCW-2005), Antalya, Turkey, September 1-2, pp. 89-94, 2005.
- 29.** R.R.Aliev, R.M.Mammadov, K.R.Aliyeva, J.R.Mammadov, "Computing with Words and its Application in Risk Analysis in E-Commerce", Proceedings of the Third International Conference on Soft Computing, Computing with Words and Perceptions in System Analysis,

Decision and Control (ICSCCW-2005), Antalya, Turkey, September 1-2, pp. 119-123, 2005.

**30.** R.A.Aliev, O.Guseynov, R.R.Aliev, B.Guirimov, “CW-Based Control System for Biological Treatment of Wastewater”, Proceedings of the Third International Conference on Soft Computing, Computing with Words and Perceptions in System Analysis, Decision and Control (ICSCCW-2005), Antalya, Turkey, September 1-2, pp. 260-262, 2005.

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**42.** R.A.Aliev, B.Guirimov, R.R.Aliev, U.Ilhan, M.Babagil, S.Mammadli, “Type-2 fuzzy neural inference system with fuzzy clustering and differential evolution optimization”, Proceedings of the Eighth International Conference on Application of Fuzzy Systems and Soft Computing, ICAFS-2008, Helsinki, Finland, September 1-3, pp. 368-386, 2008.

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**44.** R.R.Aliev, Hamid Mir-Mohammad Sadeghi, “Fuzzy logic based system for optimal control of traffic urban intersections”, Proceedings of the Ninth International Conference on Application of Fuzzy Systems and Soft Computing (ICAFS-2010), Prague, Czech Republic, August 26-27, pp. 123-133, 2010.

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47. Akif V. Alizadeh, Akif F. Musayev, Rashad R. Aliev, "Application of the fuzzy optimality concept to decision making with imprecise probabilities", Proceedings of the Sixth International Conference on Soft Computing, Computing with Words and Perceptions in System Analysis, Decision and Control (ICSCCW-2011), Antalya, Turkey, September 1-2, 2011, pp. 373-382.
48. R.R.Aliev, Mobina Beheshti, "Fuzzy database management system for real estate analysis", Proceedings of the Tenth International Conference on Application of Fuzzy Systems and Soft Computing (ICAFS-2012), Lisbon, Portugal, August 29-30, pp. 105-109, 2012.
49. Akif V. Alizadeh, Rashad R. Aliev, Rafiq R. Aliyev, "Operational approach to Z-information-based decision making", Proceedings of the Tenth International Conference on Application of Fuzzy Systems and Soft Computing (ICAFS-2012), Lisbon, Portugal, August 29-30, pp. 269-277, 2012.
50. Akif V. Alizadeh, Rashad R. Aliev, Rafiq R. Aliyev, "Computations with Z-numbers", Proceedings of the Seventh World Conference on Intelligent Systems for Industrial Automation (WCIS-2012), Tashkent, Uzbekistan, November 25-27, 2012, pp. 101-107.
51. Akif V. Alizadeh, Oleg H. Huseynov, Rashad R. Aliyev, "Numerical computations with discrete Z-numbers", Proceedings of the Seventh International Conference on Soft Computing, Computing with Words and Perceptions in System Analysis, Decision and Control (ICSCCW-2013), Izmir, Turkey, September 2-3, 2013, pp. 71-82.
52. R.R.Aliev, Ersin Kuset Bodur, Derar Atallah Talal Mraiziq, "Z-number based decision making for the application to economic problem", Proceedings of the Seventh International Conference on Soft Computing, Computing with Words and Perceptions in System Analysis, Decision and Control (ICSCCW-2013), Izmir, Turkey, September 2-3, 2013, pp. 251-257.
53. R.A.Aliev, R.S.Gurbanov, R.R.Aliev, K.R.Aliyeva, "Properties of Z-numbers", Proceedings of the Eleventh International Conference on Application of Fuzzy Systems and Soft Computing (ICAFS-2014), France, September 2-3, 2014, pp. 55-60.
54. R.S.Qurbanov, K.R.Alieva, R.R.Aliev, O.H.Huseynov, "Operations on random variables", Proceedings of the Eighth World Conference on Intelligent Systems for Industrial Automation (WCIS-2014), Tashkent, Uzbekistan, November 25-27, 2014, pp. 156-159.
55. R.R.Aliev, O.H.Huseynov, K.R.Aliyeva, "Aggregation of an expert group opinion under Z-information", Proceedings of the Eighth International Conference on Soft Computing, Computing with Words and Perceptions in System Analysis, Decision and Control (ICSCCW-2015), Antalya, Turkey, September 3-4, 2015, pp. 115-124.
56. Rashad R. Aliev, Sara Salehi, "Implementation of fuzzy C-means clustering technique for the hotel occupancy problem", Proceedings of the Ninth World Conference on Intelligent

Systems for Industrial Automation, WCIS-2016, 25-27 October 2016, Tashkent, Uzbekistan, pp. 14-19.

### **Scholarships**

**Fulbright Scholar** (USA, Georgia State University, 1999-2000)

**DAAD Scholar** (Germany, Siegen University, 1997-1998)

### **Courses taught**

**Undergraduate courses:** Programming Languages, Introduction to Computer Science - I, Artificial Intelligence, Discrete Mathematics, Database Management Systems, File Organization and Processing, Neural Network, Fundamentals of Computer Science - I, Computer Networks and Communication, Object Oriented Programming, Discrete Mathematics for Information Technology, Web Design, Data Mining, Internet Programming and Web Design, Data Analytics

**Graduate courses:** Artificial Intelligence, Decision Making and Forecasting, Data Mining, Database Management Systems, Soft Computing, Decision Making, Computational Intelligence

### **Membership in program committees of international conferences**

- Second International Conference on Soft Computing and Computing with Words in System Analysis, Decision and Control, ICSCCW-2003, Antalya, Turkey, September 9-11, 2003.
- International Conference on Computational Intelligence, ICCI 2004, Near East University, TRNC, May 27-29, 2004.
- Sixth International Conference on Application of Fuzzy Systems and Soft Computing, ICAFS-2004, Barcelona, Spain, September 28-30, 2004.
- Third World Conference on Intelligent Systems for Industrial Automation, Tashkent, Uzbekistan, October 12-13, 2004.
- Third International Conference on Soft Computing, Computing with Words and Perceptions in System Analysis, Decision and Control, ICSCCW-2005, Antalya, Turkey, September 1-2, 2005.
- Seventh International Conference on Application of Fuzzy Systems and Soft Computing, ICAFS-2006, Siegen, Germany, September 13-14, 2006.
- Fourth International Conference on Soft Computing, Computing with Words and Perceptions in System Analysis, Decision and Control, ICSCCW-2007, Antalya, Turkey, August 27-28, 2007.

- Eighth International Conference on Application of Fuzzy Systems and Soft Computing (ICAFS-2008), Helsinki, Finland, September 1-3, 2008.
- Fifth International Conference on Soft Computing, Computing with Words and Perceptions in System Analysis, Decision and Control, ICSCCW 2009, Famagusta, North Cyprus, September 2-4, 2009.
- Ninth International Conference on Application of Fuzzy Systems and Soft Computing, ICAFS-2010, Prague, Czech Republic, August 26-27, 2010.
- Sixth International Conference on Soft Computing, Computing with Words and Perceptions in System Analysis, Decision and Control, ICSCCW-2011, Antalya, Turkey, September 1-2, 2011.
- Tenth International Conference on Application of Fuzzy Systems and Soft Computing (ICAFS-2012), Lisbon, Portugal, August 29-30, 2012.
- Seventh International Conference on Soft Computing, Computing with Words and Perceptions in System Analysis, Decision and Control (ICSCCW-2013), Izmir, Turkey, September 2-3, 2013.
- Eleventh International Conference on Application of Fuzzy Systems and Soft Computing (ICAFS-2014), France, September 2-3, 2014.
- Eighth World Conference on Intelligent Systems for Industrial Automation (WCIS-2014), Tashkent, Uzbekistan, November 25-27, 2014.
- Eighth International Conference on Soft Computing, Computing with Words and Perceptions in System Analysis, Decision and Control (ICSCCW-2015), Antalya, Turkey, September 3-4, 2015.
- 12th International Conference on Application of Fuzzy Systems and Soft Computing, ICAFS-2016, 29-30 August 2016, Vienna, Austria.
- Ninth World Conference on Intelligent Systems for Industrial Automation (WCIS-2016), Tashkent, Uzbekistan, 25-27 October, 2016.
- 9th International Conference on Theory and Application of Soft Computing, Computing with Words and Perception (ICSCCW-2017), August, 2017, Budapest, Hungary.
- 13th International Conference on Theory and Application of Fuzzy Systems and Soft Computing - ICAFS-2018, 27-28 August, 2018, Warsaw, Poland.
- Tenth World Conference on Intelligent Systems for Industrial Automation (WCIS-2018), 25-26 October, 2018, Tashkent, Uzbekistan.
- 10th International Conference on Theory and Application of Soft Computing, Computing with Words and Perceptions - ICSCCW-2019, 27-28 August 2019, Prague, Czech Republic.



- 14th International Conference on Applications of Fuzzy Systems, Soft Computing and Artificial Intelligence Tools - ICAFS 2020, 27th - 28th August 2020, Budva - Montenegro.
- 11th International Conference on Theory and Application of Soft Computing, Computing with Words and Perceptions and Artificial Intelligence - ICSCCW-2021, 23-24 August, Antalya, Turkey.
- 15th International Conference on Applications of Fuzzy Systems, Soft Computing and Artificial Intelligence Tools – ICAFS 2022, August 26-27 2022, Budva - Montenegro.
- 12th World Conference on Intelligent systems for industrial automation – WCIS 25-26 November, 2022 Tashkent, Uzbekistan.
- 16th International Conference on Applications of Fuzzy Systems, Soft Computing and Artificial Intelligence Tools – ICAFS 2023, September 14-15 2023, Antalya - Turkey.

### **Membership in organization committees of international conferences**

- First International Conference on Application of Fuzzy Systems - ICAFS-94, Tabriz, Iran, October 17-19, 1994.
- Second International Conference on Application of Fuzzy Systems and Soft Computing, ICAFS-96, Siegen, Germany, June 25-27, 1996.
- Third International Conference on Application of Fuzzy Systems and Soft Computing, ICAFS-1998, Wiesbaden, Germany, October 5-7, 1998.
- Fourth International Conference on Application of Fuzzy Systems and Soft Computing, ICAFS-2000, Siegen, Germany, June 27-29, 2000.
- First World Conference on Intelligent Systems for Industrial Automation (WCIS 2000), Tashkent, Uzbekistan, September 14-16, 2000.
- First International Conference on Soft Computing and Computing with Words in System Analysis, Decision and Control, Antalya, Turkey, June 6-8, 2001.
- Fifth International Conference on Application of Fuzzy Systems and Soft Computing, ICAFS-2002, Milan, Italy, September 17-18, 2002.
- 7th Conference on Machines, Computations and Universality, Eastern Mediterranean University, Famagusta, North Cyprus, 9-11 September, 2015.

### **Edited conference proceedings**

- R.A.Aliev, K.W.Bonfig, F.T.Aliev, R.R.Aliev (Eds.), Application of Fuzzy Systems and Soft Computing, p. 249, b-Quadrat Verlag, Germany, 2004.
- B.Turksen, R.A.Aliev, S.V.Ulyanov, R.R.Aliev (Eds.), Soft Computing, Computing with Words and Perceptions in System Analysis, Decision and Control, p. 270, b-Quadrat Verlag,

Germany, 2005.