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Gia Sirbiladze

Experience

- 2005-present Iv.Javakhishvili Tbilisi State University, Tbilisi, Georgia, Full Professor, Faculty of Exact and natural Sciences, Department of Computer Sciences. Chair if Applied Informatics
- 1994-2005 Tbilisi State University, Tbilisi, Georgia, Professor, Faculty of Applied Mathematics and Computer Sciences, Chair of Random Processes Theory.
- 1981-1994 Tbilisi State University Tbilisi, Georgia, Docent, Faculty of Applied Mathematics and Computer Science, Chair of Random Processes Theory.

Education

- 2005 N. Muskhelishvili Institute of Computational Mathematics of Georgian Academy of Sciences, Tbilisi, Georgia, Doctor of Phys. Math. Sci (Probability Theory and Statistics).
- 1990 Institute of Applied Mathematics of Georgian Academy of Sciences, Tbilisi, Georgia, Ph. D. (Computational Mathematics).
- 1981 Tbilisi State University, Tbilisi, Georgia. Faculty of Applied Mathematics and Cybernetics. Diploma in Applied Mathematics and Cybernetics

Research Interests

1. Systems science and engineering;
2. Computational intelligence;
3. Evolutionary programming (genetic algorithms, estimation of distribution algorithms, hybrid algorithms) in the modeling of complex systems;
4. Extreme fuzzy dynamic systems - control, filtration, identification and prediction;
5. Soft-computing methodologies in finances and management;
6. Fuzzy technologies in decision-making intelligent support systems;
7. Multi –person, multi-criteria (multi-attribute) fuzzy decision making technologies;
8. Fuzzy aggregation operators in expert knowledge engineering and decision making. Theory and application;
9. Fuzzy optimization and decision making:
 - a) Fuzzy covering and partitioning problems;
 - b) Fuzzy vehicle routing problems for extreme environment –intelligent support systems;

- c) Fuzzy facility location problems for extreme environment –intelligent support systems;
- d) Fuzzy multi-objective emergency location-transportation problems (for post-disaster regions) –intelligent support systems;

Teaching Courses

Modeling and Simulation, Applied Statistics, Intelligent Systems, Intelligent Decision Support Systems, Genetic Algorithms, Neural Networks, Evolutionary Programming.

Performed Selected Projects

- 2017-2018 Planning of facilities location and goods transportation in extreme situations (STCU-2016-04 ; #6297)
- 2015-2017 The New Model of Vehicle Routes Planning in Extreme and Uncertain Environment (SRNF: AR/26/5-111/14).
- 2014-2015 Intelligent Support System for Optimal Route Planning for Transportation of Goods (MTCU/23/4-102/13), (STCU-SRNSF #5891).
- 2013-2014 Decision Making Operators and Schemes in Fuzzy Uncertainty Environment (SRNF: DO/140/4-102/13).
- 2009-2010 Decision-Making Support Fuzzy-Technologies in Expert Valuations Streams (SRNF: ST 08 1-361).

Selected Publications

- 1.G. Sirbiladze, N. Zaporozhets, About two Probability Representations of Fuzzy Measures on a Finite Set. The Journal of Fuzzy Mathematics. Los Angeles, The International Fuzzy Mathematics Institute, USA, Vol.10, No.3, 2003, 1-17 ;
- 2.G. Sirbiladze, A. Sikharulidze, Weighted Fuzzy Averages in Fuzzy Environment, Part I. Insufficient Expert Data and Fuzzy Averages. International Journal of Uncertainty, Fuzziness and Knowledge-Based Systems. Vol.11, No.2, 2003, 139-158 ;
3. G. Sirbiladze, A. Sikharulidze, Weighted Fuzzy Averages in Fuzzy Environment, Part II. Generalized Weighted Fuzzy Expected Values in Fuzzy Environment. International Journal of Uncertainty, Fuzziness and Knowledge-Based Systems. Vol. 11, No.2, 2003, 159-172 ;
4. G. Sirbiladze, Fuzzy Subset Construction through the Associated Probabilities. Bulletin of the Georgian Academy of Sciences, 163, N3, 2001, 436-440;
5. G. Sirbiladze, N. Zaporozhets, Choquet's Capacity of Order Two in the Murofushi-Sugeno's Probability Representation of a Fuzzy Measure. Bulletin of the Georgian Academy of sciences, 165, N2, 2002, 235-238 ;
6. G. Sirbiladze, B. Gvaberidze, Possibility Analysis of the Fuzzy Covering Problem. Bulletin of the Georgian Academy of Science, 167,N1, 2003,47-50 ;
7. G. Sirbiladze, F.Criado, T.Gachechiladze, Theory of Conectivity and Apportionment of Representative Chains in the Problem of Decision-making Concerning Earthquake Possibility. International Journal of General Systems, 32, No.2, 2003, 103-121 ;
8. G. Sirbiladze, T.Gachechiladze, Restored Fuzzy Measures in Expert Decision-Making. Information Sciences. An International Journal. 169 (1/2), 2005, 71-95;
9. G. Sirbiladze, Modeling of Extremal Fuzzy Dynamic Systems. Part I: Extended Extremal Fuzzy Measures. International Journal of General Systems. 34,2, 2005, 107-138;

10. G. Sirbiladze, Modeling of Extremal Fuzzy Dynamic Systems. Part II: Extended Extremal Fuzzy Measures on Composition Products of Measurable Spaces. *International Journal of General Systems*. 34,2, 2005, 139-167;
11. G. Sirbiladze, Modeling of Extremal Fuzzy Dynamic Systems. Part III: Modeling of Extremal and Controllable Extremal Fuzzy Processes. *International Journal of General Systems*. 34,2, 2005, 169-198;
12. G. Sirbiladze, About a Universal Representation-Interpretator of a Fuzzy Measure. *Bulletin of the Georgian Academy of Sciences*. 170, N3,2004, 454-457;
13. G. Sirbiladze, Modeling of Extremal Fuzzy Dynamic Systems. Part IV: Identification of Fuzzy-Integral Models of Extremal Fuzzy Processes. *International Journal of General Systems*. 35, 4, 2006, 435-459;
14. G. Sirbiladze, Modeling of Extremal Fuzzy Dynamic Systems. Part V: Optimization of Continuous Controllable Extremal Fuzzy Processes and the Choice of Decisions. *International Journal of General Systems*. 35, 5, 2006, 529-554;
15. G. Sirbiladze, Modeling of Extremal Fuzzy Dynamic Systems. Part VI: Problems of States Estimation (Filtration) of Extremal Fuzzy Process. *International Journal of General Systems*. 36,1 2007, 19-58.
16. G. Sirbiladze, Transformation Theorems for Extended Lower and Upper Sugeno Integrals. *Mat. Zametki*, 2008, Volume 83, Issue 3, Pages 439–460 .
17. G. Sirbiladze, On Fuzzy Optimal Controls in the Weakly Structurable Continuous Dynamic Systems (WSCDS). *New Mathematics and Natural Computation*. 4,1 2008, 41-60.
18. G. Sirbiladze, B. Ghvaberidze, T. Latsabidze, B. Matsaberidze, Using Minimal Fuzzy Covering in Decision-making Systems. *Information Sciences. An International Journal*, 179, 2009, 2022-2027.
19. G. Sirbiladze, A. Sikharulidze, N. Sirbiladze, Fuzzy Programming Problem in the Weakly Structurable Dynamic System and Choice of Decisions. *WSEAS Transactions on Systems and Control* , Issue 11, vol. 3, 2008, 937-953.
20. G. Sirbiladze, Fuzzy Dynamic Programming Problem for Extremal Fuzzy Dynamic System, in „*Studies in Fuzziness and Soft Computing*“, 2010, Vol. 254, “Fuzzy optimization“, 231 -270.
21. G. Sirbiladze: Fuzzy Identification Problem for Continuous Extremal Fuzzy Dynamic System, *Fuzzy Optimization and Decision Making* , 2010, vol. 9, N. 3, 233-274.
22. G. Sirbiladze, A. Sikharulidze, B. Ghvaberidze, and B. Matsaberidze, Fuzzy probabilistic aggregations in the discrete covering problem', *International Journal of General Systems*, 2011, 40: 2, 169 — 196.
23. G. Sirbiladze, I. Khutsishvili and B. Ghvaberidze, Multistage decision-making fuzzy methodology for optimal investments based on experts' evaluations, *European Journal of Operational Research*, Elsevier pub., 232, 2014, 169–177.
24. G. Sirbiladze, B. Ghvaberidze, B. Matsaberidze, Bicriteria Fuzzy Vehicle Routing Problem for Extreme Environment. *Bulletin of the Georgian National Academy of Sciences*, vol. 8, no. 2, 41-48, 2014.

25. G.Sirbiladze, K. Gelashvili, I. Khutsishvili and A. Sikharulidze, Temporalized Structure of Bodies of Evidence in the Multi-Criteria Decision-Making Model, *International Journal of Information Technology & Decision Making*, Vol. 14, No. 03, pp. 565-596, 2015.
26. G. Sirbiladze, New Fuzzy Aggregation Operators Based on the Finite Choquet Integral — Application in the MADM Problem, *International Journal of Information Technology & Decision Making* 15(3) (2016) 517-551.
27. G. Sirbiladze, O. Badagadze, Intuitionistic Fuzzy Probabilistic Aggregation Operators Based on the Choquet Integral: Application in Multicriteria Decision-Making, *International Journal of Information Technology & Decision Making*, 2017, Vol. 16, No. 01 : pp. 245-279.
28. G. Sirbiladze, B. Ghvaberidze, B. Matsaberidze and A.Sikharulidze, Multi-Objective Emergency Service Facility Location Problem Based on Fuzzy TOPSIS, *Bulletin of the Georgian National Academy of Sciences*, 11(1), 23-30, 2017.
29. Gia Sirbiladze, *Extremal Fuzzy Dynamic Systems. Theory and Applications*. IFSR International Series on Systems Science and Engineering, Springer, New York- Heidelberg- Dordrecht- London, 422 p.28, 2013.
30. Roberto Santana, Gia Sirbiladze, Bezhan Ghvaberidze and Bidzina Matsaberidze, A comparison of probabilistic-based optimization approaches for vehicle routing problems, 2017 IEEE Congress on Evolutionary Computation (CEC), IEEE Xplore, 2017, 2606-2613.
31. Gia Sirbiladze, Irina Khutsishvili, Otari Badagadze and Gvantsa Tsulaia, Associated Probability Intuitionistic Fuzzy Weighted Operators in Business Start-up Decision Making, *Iranian Journal of Fuzzy Systems*, 2017 (accepted for publication).