

List of Publications

A. Publications in Journals

1. A.P. Singh, **S.P. Tiwari** and I. Perfilieva, L-fuzzy transforms: An operator oriented approach, *Soft Computing*, **29** (2025) 2581–2593.
2. A. Tripathi, **S.P. Tiwari**, K. Jacob, and S. Mahato, F -transforms determined by overlap and grouping maps over a complete lattice, *Soft Computing*, **28** (2024) 10781-10800.
3. M. Kumari, V.K. Yadav, S. Ruhela and **S.P. Tiwari**, On categories associated with crisp deterministic automata with fuzzy rough outputs and fuzzy rough languages, *Soft Computing*, **28** (2024) 9233–9252.
4. A. Tripathi and **S.P. Tiwari**, On categories associated with L -valued fuzzy approximation spaces, *Journal of Multiple-Valued Logic and Soft Computing*, **42** (2024), 517-543.
5. N. Choudhary, **S.P. Tiwari** and S. Singh, On compositions of (L -fuzzy) automata: A categorical approach, *Fuzzy Sets and Systems*, **475** (2024), 108749.
6. A. Tripathi, **S.P. Tiwari**, K. Jacob, D. Nagarajan, A fuzzy function granular F -transform and inverse F -transform with application, *Decision Analytics Journal*, 2023 (accepted).
7. Renu, R.K. Upadhyay, **S.P. Tiwari**, R.P. Yadav, Analysis of interval-valued model for interaction between plankton-fish population in marine ecosystem, *Ecological Modelling*, **484** (2023), 110448.
8. S. Singh, **S.P. Tiwari** and S. Mahato, On L -fuzzy automata, coalgebras and dialgebras: Associated categories and L -fuzzy topologies, *Fuzzy Sets and Systems*, **460** (2023), 143-185.
9. S. Singh and **S.P. Tiwari**, L -fuzzy automata theory: Some characterizations via general fuzzy operators, *Fuzzy Sets and Systems*, **460** (2023), 123-142.
10. A. Tripathi and **S.P. Tiwari**, On L -fuzzy topological spaces determined by implicators, *New Mathematics and Natural Computation*, **19**(3) (2023), 805-830.
11. S. Yadav, **S.P. Tiwari**, M. Kumari and V.K. Yadav, Generalized rough and fuzzy rough automata for semantic computing, *International Journal of Machine Learning and Cybernetics*, **13** (2022) 4013-4032.
12. S. Singh and **S.P. Tiwari**, On unification of categories of fuzzy automata as Qua category, *Soft Computing*, **26** (2022) 1509-1529.
13. S. Singh and **S.P. Tiwari**, Fuzzy partitioned discrete-event system and its supervisory control, *International Journal of General Systems*, **50** (2021) 339-365.
14. P. Pal, **S.P. Tiwari** and S. Singh, L -fuzzy rough automaton: A mathematical model for natural languages, *International Journal of Machine Learning and Cybernetics*, **12** (2021) 2091-2107.
15. A. Tripathi, **S.P. Tiwari** and I. Perfilieva, F -transforms determined by implicators, *Iranian Journal of Fuzzy Systems*, **18** (2021) 19-36.
16. S. Singh, **S.P. Tiwari** and P. Pal, On factorized L -fuzzy automaton and its L -fuzzy topological characterization, *Fuzzy Sets and Systems*, **420** (2021) 29-53.

17. S. Singh and **S.P. Tiwari**, On category of L -fuzzy automata, coalgebras and dialgebras, *Fuzzy Sets and Systems*, **420** (2021) 1-28.
18. P. Pal and **S.P. Tiwari**, Category of L -valued multiset automata and Brzozowski's algorithm, *New Mathematics and Natural Computation*, **16**(3) (2020), 481-496.
19. S. Mahato and **S.P. Tiwari**, On relationship between L -valued approximation spaces and L -valued transformation systems, *International Journal of Computational Intelligence Systems*, **13** (2020), 1464-1472.
20. P. Pal, **S.P. Tiwari** and J. Kavikumar, Measure of operators associated with fuzzy automata, *New Mathematics and Natural Computation*, **16**(1) (2020), 17-35.
21. M.K. Dubey, **S.P. Tiwari** and A. Šostak, Categories of quantale-valued fuzzy automata: determinization and minimization, *Journal of Applied Mathematics and Computing*, **63** (2020), 771-785.
22. P. Pal and **S.P. Tiwari**, On L^M -valued automata: an operator oriented view, *Journal of Applied Mathematics and Computing*, **62** (2020), 587-609.
23. J. Kavikumar, **S.P. Tiwari**, N.A. Ebas and A.H. Nor Shamsidah, General fuzzy finite switchboard automata, *New Mathematics and Natural Computation*, **15**(2) (2019), 283-305.
24. M.K. Dubey and **S.P. Tiwari**, On the relationship among fuzzy languages, upper sets and fuzzy ordered monoids, *New Mathematics and Natural Computation*, **15**(2) (2019), 1-12.
25. J. Kavikumar, **S.P. Tiwari**, A.H. Nor Shamsidah, Shambhu Sharan, Restricted cascade and wreath products of fuzzy finite switchboard state machines, *Iranian Journal of Fuzzy Systems*, **16** (2019), 75-88.
26. P. Pal, **S.P. Tiwari** and R. Verma, On different operators in automata theory based on residuated and co-residuated lattices, *New Mathematics and Natural Computation*, **15** (1) (2019), 169-190.
27. R. Verma, **S.P. Tiwari** and R.K. Upadhyay, Transmission dynamics of epidemic spread and outbreak of Ebola in West Africa: Fuzzy modeling and simulation, *Journal of Applied Mathematics and Computing*, **60** (2019), 637-671.
28. **S.P. Tiwari**, V.K. Yadav, B. Davvaz and R. Verma, A categorical approach to minimal realization for a fuzzy language, *Fuzzy Sets and Systems*, **351** (2018), 122-137.
29. V. Gautam, **S.P. Tiwari**, P. Pal and J. Tripathi, On categories of automata and languages based on a complete residuated lattice, *New Mathematics and Natural Computation*, **14** (2018), 423-444.
30. **S.P. Tiwari**, V.K. Yadav, P. Pal and B.K. Sharma, Minimal fuzzy realization for fuzzy behaviour: A bicategory-theoretic approach, *Journal of Multiple-Valued Logic and Soft Computing*, **31** (2018), 105-121.
31. **S.P. Tiwari**, I. Perfilieva and A.P. Singh, On generalized residuated lattices based F -transform, *Iranian Journal of Fuzzy Systems*, 2017, **15** (2018), 165-182.
32. I. Perfilieva, A.P. Singh and **S.P. Tiwari**, On the relationship among F -transform, fuzzy rough set and fuzzy topology, *Soft Computing*, **21** (2017), 3513-3523.

33. R. Verma and **S.P. Tiwari**, Distinguishability and completeness of crisp deterministic fuzzy automata, *Iranian Journal of Fuzzy Systems*, **14** (2017), 19-30.
34. S. Sharan, A.K. Srivastava and **S.P. Tiwari**, Characterizations of rough finite state automata, *International Journal of Machine Learning and Cybernetics*, **8** (2017), 721-730.
35. **S.P. Tiwari**, V.K. Yadav and V. Gautam, On minimal fuzzy realization for a fuzzy language: A categorical approach, *Journal of Multiple-Valued Logic and Soft Computing*, **28** (2017) 361-374.
36. B.K. Sharma, V. Gautam, **S.P. Tiwari** and V. Bhattacharjee, On fuzzy multiset regular languages, *Journal of Fuzzy Set Valued Analysis*, **2017(1)** 2017, 50-61.
37. S. Sharan, **S.P. Tiwari** and N. Kumari, On relationship between generalized rough multisets and multiset topologies, *International Journal of Machine Learning and Cybernetics*, **8** (2017) 2017-2024.
38. B.K. Sharma, **S.P. Tiwari** and S. Sharan, On algebraic study of fuzzy multiset finite automata, *Fuzzy Information and Engineering*, **8**(2016), 315-327.
39. A.P. Singh and **S.P. Tiwari**, Lattice F -transform for functions in two variables, *Journal of Fuzzy Set Valued Analysis*, **2016(3)** 2016, 185-195.
40. V.K. Yadav, V. Gautam and **S.P. Tiwari**, On minimal realization of IF-languages: A categorical approach, *Iranian Journal of Fuzzy Systems*, **13** (2016) 19-34.
41. **S.P. Tiwari** and V. Gautam, On a category of fuzzy automata with relations, *Journal of Intelligent and Fuzzy Systems*, **30**(6) (2016) 3301-3309.
42. **S.P. Tiwari**, V.K. Yadav and M.K. Dubey, Minimal realization for fuzzy behaviour: A bicategory-theoretic approach, *Journal of Intelligent and Fuzzy Systems*, **30**(2) (2016) 1057-1065.
43. **S.P. Tiwari**, V. Gautam and M.K. Dubey, On fuzzy multiset automata, *Journal of Applied Mathematics and Computing*, **51** (2016) 643-657.
44. A.K. Singh, **S.P. Tiwari**, On IF-closure spaces vs IF-rough sets, *Annals of Fuzzy Mathematics and Informatics*, **11** (2016), 159-171.
45. **S.P. Tiwari**, V. Gautam and B. Davvaz, On minimal realization for a fuzzy language and Brzozowski's algorithm, *Journal of Intelligent and Fuzzy Systems*, **29**(2015), 1949-1956.
46. **S.P. Tiwari**, V.K. Yadav and A.K. Singh, On algebraic study of fuzzy automata, *International Journal of Machine Learning and Cybernetics*, **6** (2015), 479-485. (Springer)
47. S. Sharan, **S.P. Tiwari** and V.K. Yadav, Interval type-2 fuzzy rough sets and interval type-2 fuzzy closure spaces, *Iranian Journal of Fuzzy Systems*, **12** (3) (2015), 113-125.
48. **S.P. Tiwari** and A.K. Singh, IF-preorder, IF-topology and IF-automata, *International Journal of Machine Learning and Cybernetics*, **6** (2015), 205-211. (Springer)
49. **S.P. Tiwari**, A.K. Singh, S. Sharan and V.K. Yadav, Bifuzzy core of fuzzy automata, *Iranian Journal of Fuzzy Systems*, **12** (2) (2015), 63-73.
50. **S.P. Tiwari**, V.K. Yadav and A.K. Singh, Construction of a minimal realization and monoid for a fuzzy language: a categorical approach, *Journal of Applied Mathematics and Computing*, **47** (2015), 401-416. (Springer)

51. **S.P. Tiwari** and S. Sharan, Products of rough finite state machines, *Journal of Multiple-Valued Logic and Soft Computing*, **25** (2014) 339-356.
52. **S.P. Tiwari**, S. Sharan and V.K. Yadav, Fuzzy closure spaces vs fuzzy rough sets, *Fuzzy Information and Engineering*, **6** (2014), 93-100. (Elsevier)
53. **S.P. Tiwari** and A.K. Singh, On minimal realization of fuzzy behaviour and associated categories, *Journal of Applied Mathematics and Computing*, **45** (2014) 223-234 (Springer)
54. **S.P. Tiwari**, A.K. Singh and S. Sharan, Fuzzy subsystems of fuzzy automata based on lattice-ordered monoid, *Annals of Fuzzy Mathematics and Informatics*, **7** (2014), 437-445.
55. **S.P. Tiwari** and A.K. Srivastava, Fuzzy rough sets, fuzzy preorders and fuzzy topologies, *Fuzzy Sets and Systems*, **210** (2013), 63-68 [**This research paper was in Science Direct Top 25 Hottest Articles during July 2012-March 2013**]. (Elsevier)
56. **S.P. Tiwari** and S. Sharan, On coverings of products of rough transformation semigroups, *International Journal of Foundations of Computer Science*, **24** (2013) 375-391. (World Scientific)
57. **S.P. Tiwari** and A.K. Singh, On bijective correspondence between IF-preorders and saturated IF-topologies, *International Journal of Machine Learning and Cybernetics*, **4** (2013), 733-737. (Springer)
58. **S.P. Tiwari**, S. Sharan and B. Davvaz, l -valued automata and associated l -valued topologies, *International Journal of Granule Computing, Rough Sets and Intelligent Systems*, **3** (2013) 84-95.
59. **S.P. Tiwari**, S. Sharan, B. Dutta and A.K. Singh, Roughness in Banach algebra, *Journal of the Orissa Mathematical Society*, **32** (2013) 47-58.
60. **S.P. Tiwari**, A.K. Singh and S. Sharan, Fuzzy automata based on lattice-ordered monoid and associated topology, *Journal of Uncertain Systems*, **6** (2012), 51-55. (World Academic Press)
61. **S.P. Tiwari** and S. Sharan, Fuzzy automata based on lattice-ordered monoids with algebraic and topological aspects, *Fuzzy Information and Engineering*, **4**(2012), 155-164. (Springer)
62. A.K. Srivastava and **S.P. Tiwari**, On another decomposition of fuzzy automata, *Journal of Uncertain Systems*, **5** (2011), 33-37. (World Academic Press)
63. A.K. Srivastava and **S.P. Tiwari**, IF topologies and IF automata, *Soft Computing*, **14** (2010), 571-578. (Springer)
64. **S.P. Tiwari**, On relationship among intuitionistic fuzzy approximation operators, intuitionistic fuzzy topology and intuitionistic fuzzy automata, *Journal of Applied Mathematics & Informatics*, **28** (2010), 99-107.
65. **S.P. Tiwari** and A.K. Srivastava, A decomposition of fuzzy automata, *Fuzzy Sets and Systems*, **151** (2005), 503-511. (Elsevier)
66. A.K. Srivastava and **S.P. Tiwari**, Fuzzy Chu spaces and fuzzy topologies, *International Journal of Uncertainty, Fuzziness and Knowledge-based Systems*, **12** (2004), 245-254. (World Scientific)

67. A.K. Srivastava and **S.P. Tiwari**, On relationship among fuzzy approximation operators, fuzzy topology, and fuzzy automata, *Fuzzy Sets and Systems*, **138** (2003), 197-204. (Elsevier)

B. Publications in Proceedings

1. P. Pal and **S.P. Tiwari**, On a category of deterministic fuzzy automata, in: Proc. EUSFLAT 2019, 205-211.
2. S. Singh and **S.P. Tiwari**, On L -fuzzy partitioned automata, in: Proc. EUSFLAT 2019, 212-219.
3. A. Tripathi, **S.P. Tiwari** and A.P. Singh, On L^M -valued F -transforms and L^M -valued fuzzy rough sets, in: Proc. EUSFLAT 2019, 220-226.
4. S. Mahato and **S.P. Tiwari**, On fuzzy approximation operators and fuzzy transformation systems, in: Proc. EUSFLAT 2019, 274-280.
5. M.K. Dubey, V.K. Yadav and S.P. Tiwari, On the category of quantale-semimodules, *Advances in Intelligent Systems and Computing*, **714** (2018), 595-605.
6. I. Perfilieva, **S.P. Tiwari** and A.P. Singh, Lattice-valued F -transforms as interior operators of L -fuzzy pretopological spaces, in: Proc. IPMU 2018, Communications in Computer and Information Science, **854** (2018) 163-174.
7. I. Perfilieva, A.P. Singh and **S.P. Tiwari**, On F -transforms, L -fuzzy partitions and L -fuzzy pretopological spaces, *IEEE Xplore*, 2017, DOI: 10.1109/SSCI.2017.8285171.
8. A.P. Singh and **S.P. Tiwari**, On residuated lattice based fuzzy variable precision F -transform, *IEEE Xplore*, 2017, DOI: 10.1109/IFSA-SCIS.2017.8023235.
9. S. Sharan and **S.P. Tiwari**, Products of Mealy-type rough finite state Machines, in: Proc. NCCCS, *IEEE Xplore*, 2012, 1-5.
10. **S.P. Tiwari** and S. Sharan, Topologies associated with rough automata, in: Proc. RAIT, *IEEE Explore*, 2012, 922-926.
11. **S.P. Tiwari** and A.K. Singh, Fuzzy preorder, fuzzy topology and fuzzy transition system, in: Proc. ICLA, *Lecture Notes in Computer Science*, **7750** (2013), 210-219.
12. V. Gautam, V.K. Yadav, A.K. Singh and **S.P. Tiwari**, On the topological structure of rough soft sets, *Lecture Notes in Artificial Intelligence*, **8818** (2014) 39-48.
13. **S.P. Tiwari** and S. Sharan, On coverings of rough transformation semigroups, in: Proc. RSFDGrC, *Lecture Notes in Artificial Intelligence*, **6743**, 2011, 79-86.
14. A.K. Srivastava and **S.P. Tiwari**, Intuitionistic fuzzy automata and associated topologies, in: Proc. ICCTA, *IEEE*, (2007), 267-271.
15. A.K. Srivastava and **S.P. Tiwari**, A topology for fuzzy automata, in: Proc. AFSS Internat. Conf. on Fuzzy Systems, *Lecture Notes in Artificial Intelligence*, **2275** (2002), 485-490. (Springer)