Shortest Path Algorithms : Review

Dr. Priyanka A. Pathade
Assistant Professor, Department of Mathematics
Shri. S.J.S.P.M Arts, Commerce and Science College, Dhanora, Gadchiroli (MS), India
priyankapathade88@gmail.com

Abstract: *This paper aims at being knowledge to understand the various types of fuzzy transportation problems by presenting shortest path's and algorithms used in different types of fuzzy numbers as well as shortest path algorithms. Shortest path's is one of the most challenging tasks in transportation problem. In this paper review shows that the majority of studies in shortest path's algorithms. Total 30 publications have been taken for review. All of them attempts for applied aspects of shortest route. The objective of this review paper is to present an updated shortest path's algorithms which helps in transportation problems*

Keywords: Shortest path algorithm, Optimization techniques, Fuzzy approach, Literature review.

REFERENCES

[1] C. Barrett, K.Bisset, R. Jacob and G. Konjevod, "Classical and contemporary shortest path problems in road networks",10th Annual European Symposium, vol.2461, pp:126-138,2002.

[2] A. Sengupta and T. K. Pal, "Solving the shortest path problem with integral arcs", *Optimization and Decision Making*, vol. 5, pp:71-89,2006.

[3] L.Fu,D.Sun and L.R. Rilett,"Heuristic shortest path algorithms for transportation applications: State of the art",Computers and OPertation Research, vol.33,pp:3324-3343,2006.

[4] G. Golankar and A. A Alesheikh, "Solving best path problem on multimodal transportation networks with fuzzy costs", *Iranian Journal of Fuzzy Systems*, vol. 7, No. 3, pp: 1-13, 2010.

[5] A. Tajdin and N. Mahdavi, "A novel approach for finding a shortest path in a mixed fuzzy network" , *Wirless Sensor Network*, vol. 2, pp: 148-160, 2010.

[6] A. Golankar, A. A Alesheikh and M. R. Malek, "Solving Best Path problem on multimodal transportation networks with fuzzy costs, Iranian Journal of Fuzzy Systems,vol. 7, pp:1-13,2010.

[7] E. Keshavarz and E. Khorram, "Tree of fuzzy shortest paths with the highest quality", *Mathematical* vol. 4, pp:67-86, 2010. *Sciences*,

[8] F.T. Lin and T. S. Shih,"Solving the shortest path problem with imprecise arc lengths using a two stage two population genetic algorithm", International Journal of Innovative Computing and Control, vol. 7, pp:6889-6903, 2011.

[9] G. Nirmala and K. Uma, Shortest route algorithm using fuzzy graph, "International Journal of Scientific and Research Publications", vol.3,pp:1-5,2013.

[10] O. E Yamani and H. Mouncif, "A fuzzy TOPSIS approach for finding shortest path in multimodal transportation networks", *International Journal of Computing and Optimization*, vol. 1, No. 2 pp: 95-111, 2014.

[11] X. Zhang, Y. Zhang, "An improved bio-inspired algorithm for the directed shortest path problem", *Bioinspiration and Biomimetics*, vol.9, pp. ,2014.

[12]H. Wang, X. Lu, A bio- inspired method for the constrained shortest path problem, The Scientific World Journal Vol . 2014.

[13] L. Wang, Z. Gao and L. Yang, "A priori least expected time paths in fuzzy, time-variant transportation networks, *Engineering Optimization*, vol.48, pp:,272-298,2014.

[14] V. Anusuya and R. Kavitha, "Roulette ant wheel selection for genetic algorithm-fuzzy shortest path problem",*International Journal of Mathematics and Computer Applications Research*, vol.5, pp:1-14, 2015.

[15] A. Dey and A. Pal, "Interval Type 2 Fuzzy set in fuzzy shortest path problem, *Summation Mathematics*", vol. 4, pp:8-19, 2016.

[16] E. E Ogheneovo and E. Seetam, "A Heuristic Graph- Based shortest path algorithm for optimizing routing problems", *American Journal of Engineering Research*, vol. 5, pp:239-246,2016.

[17] H. Rezapour and G. Shirdel, "The time-varying shortest path problem with fuzzy transit costs and sppedup", *Acta Univ.Sapientiae, mathematica*,vol.8, pp. 166-173, 2016.

[18] T. M Thoung, T. M Duong, and P.H Nguyen, "Application of fuzzy optimal path algorithm for bus route expansion in thai nguyen city, *International Journal of Applied and Engineering Sciences*, vol.3,pp:1-4,2016.

[19] S. Biswas, "Network routing problem in multigraph, IJCRT, 2016.

[20] S. Kukadapwar and D. Parbat, "Estimation of optimal path on urban road networks using AHP algorithm", *International Journal for Traffic and Transport Engineering*, vol. 6, pp:13-24, 2016.

[21] S. Chakkapalli and S. Parvez, "Shortest path: Dynamic and extensible indicator for geographical search on road networks", International Journal of Latest Trends in Engineering and Technology, vol. 6, pp:520-526,2016.

[22] Dr. Barraq Subhi Kaml, "Fuzzy type-2 in shortest path and maximal flow problems", *Global Journal of Pure and Applied Mathematics*, vol. 13, pp: 6595-6607, 2017.

[23] J.G. Patel and J.M. Dhodiya, "Solving multi-objective interval transportation problem using grey situation decision making theory based on grey numbers", *International Journal of Pure and Applied Mathematics*, vol.113, pp: 219-234, 2017.

[24] P. Rajendran, P. Pandian and K. Banu Priya, "An optimization path problem on a network: A Review", International Journal of Pure and Applied Mathematics, vol. 113, pp:28-36,2017.

[25] G.Rani and B. Reddy, "Multi-objective fuzzy shortest path selection for green routing and scheduling problems", *International Journal of Advanced Research in Computer Science*, vol.8,2017.

[26] S. Biswas, "Z- Dijkstra's algorithm to solve shortest path problem in a Z- graph", *Oriental Journal of Computer Science and Technology*,vol.10,pp:180-186,2017.

[27] I. Abdelfattah, OM.Boulmakaoul,"A new time-dependent shortest path algorithm for multimodal transportation network", International Conference on Ambient Systems, Networks and Technologies, vol.109, pp: 692-697, 2017.

[28] S. Pallottino and M.Scutella, "Shortest path algorithms in transportation models: Classical and innovative aspects", Equilibrium and Advanced Transportation Modelling, pp:245-281.

[29] N. Xiayogi, "Optimal mathematical model of delivery routing and processing time of logistic" Italian, Journal of Pure and Applied Mathematics,vol.38,pp:787-796,2017.

[30] N.Akpofure and N. Paul, "An application of dijkstra's algorithm to shortest route problem", IOSR Journal of Mathematics, vol.13,pp:20-32,2017.

[31] R. Chen. Dijkstras shortest path algorithm and its application on bus routing, Advances in economics, business and Management Research, vol.217,pp:321325,2022.