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# A Fuzzy Shortest Path Model Considering Path Safety

Lena Mizukami[*1], Takeshi Itoh[*2], Ken-ichi Suzuki[*3]

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Abstract. The traditional shortest path problem is based on a network comprising an arc with distances provided as constants. However, in reality, such situations are rare, and travel times between cities are not fixed. T herefore, i n t his s tudy, we conceptualized the shortest path problem using fuzzy logic and formulated it as a bi-criteria programming model in a more realistic manner. Furthermore, a path safety indicator is introduced, and by considering these values, an optimal solution for the decision-maker is defined. By comprehensively utilizing the properties of networks and linear programming, we propose an algorithm that efficiently finds the optimal solution without enumerating the non-inferior solutions.