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## Abstract

This paper presents a metaheuristic optimization algorithm for mobile robot path planning problem. A comparative study between particle swarm and ant colony optimization algorithm is conducted. The experimental study shows that the ant colony optimization algorithm outperforms over particle swarm optimization in terms of computational time.

## References

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- Beatriz A. Garro, Humberto Sossa and Roberto A. Vázquez. 2006, "Path Planning Optimization Using Bio-Inspired Algorithms", International Conference on Artificial Intelligence, 319 – 330.
- Abdullah Zawawi Mohamed, Sang Heon Lee , Mahfuz Aziz, Hung Yao Hsu, Wahid Md Ferdous. 2010, "A Proposal on Development of Intelligent PSO Based Path Planning and Image Based Obstacle Avoidance for Real Multi Agents Robotics System Application", International Conference on Electronic Computer Technology (ICECT), 128 – 132.
- X.-S. Yang. 2009, "Harmony Search as a Metaheuristic Algorithm", in: Music-Inspired Harmony Search Algorithm: Theory and Applications (Editor Z. W. Geem),

Studies in Computational Intelligence, Springer Berlin, Vol. 191, 1-14.

- M. Sabry Hassouna, Alaa E. Abdel-Hakim, and A. A. Farag. 2005 "Robust Robotic Path Planning Using Level Sets", IEEE International Conference on Image Processing, Vol. 3, pp. III - 473-6.
- Chia-Feng Juang, Senior Member, IEEE, and Chun-Ming Lu. 2009, "Ant Colony Optimization Incorporated With Fuzzy Q-Learning for Reinforcement Fuzzy Control", IEEE Transactions on Systems, Man, and Cybernetics —Part A: Systems and Humans, Vol. 39, No. 3.
- Alireza rezaee, Mohammad jafar pour jalali. 2009 "Multi-Resolution Ant Colony A New Approach to Use Swarm Intelligence in Continuous Problems", International Conference on Information and Multimedia Technology, pp: 529 – 532.
- Gireesh Kumar . T, Vinodh. P. Vijayan . 2007. "A Multi-agent Optimal Path Planning Approach to Robotics Environment", International Conference on Computational Intelligence and Multimedia Applications, Vol. 1, pp. 400 – 404.

Computer Science

### Index Terms

Algorithms

### Keywords

Path planning Ant colony optimization algorithm (ACO) and Particle swarm optimization (PSO).