

**UG SEMINAR ABSTRACT**

Academic Year: 2019-20

**DEPARTMENT: COMPUTER ENGINEERING**

**Seminar On:** Algorithms

**By:** Shubham Rajendra Chemate

**Roll No.** 31118

1. Name of The Topic: Performance Comparison of three Closely related pathfinding Algorithms
2. Topic wise contents:
  - i. Abstract
  - ii. Keywords
3. References Used:
  1. A. H. Eneh and U. C Arinze, “COMPARATIVE ANALYSIS AND IMPLEMENTATION OF DIJKSTRA'S SHORTEST PATH ALGORITHM FOR EMERGENCY RESPONSE AND LOGISTIC PLANNING”, Nigerian Journal Of Technology
  2. Benjamin Sach and Raphaël Clifford, “An Empirical Study of Cache-Oblivious Priority Queues and their Application to the Shortest Path Problem”, [link](#)
  3. Daniel Foead, Alifio Ghifari, Marchel Budi Kusuma, Novita Hanafiah, Eric Gunawan, “A systematic literature review of A\* pathfinding”, published in 5<sup>th</sup> international conference on computer science and computational intelligence 2020
  4. Xiao Cui and Hao shi, “A\*-based Pathfinding in Modern Computer Games”, IJCSNS International Journal of Computer Science and Network Security
  5. Ade Candra1, Mohammad Andri Budiman, Rahmat Irfan Pohan, “Application of A-Star Algorithm on Pathfinding Game”, 5th International Conference on Computing and Applied Informatics (ICCAI 2020)
  6. Adeel Javaid, “Understanding Dijkstra Algorithm”, SSRN Electronic Journal, January 2013
  7. Adi Botea, Martin Muller, Jonathan Schaeffer, “Near Optimal Hierarchical Path-Finding”
  8. Hang Ma, Sven Koenig, Nora Ayanian, Liron Cohen Wolfgang Honig, T. K. Satish Kumar, Tansel Uras, Hong Xu , “Generalizations of Multi-Agent Path Finding to Real-World Scenarios”, IJAC 2016
  9. Jose L Santos, “K shortest path algorithms”, [link](#)

10. Wang Shu Xi, "The Improved Dijkstra's Shortest Path Algorithm and Its Application", 2012 International Workshop on Information and Electronics Engineering (IWIEE)
11. Parth Mehta, "A Review on Algorithms for Pathfinding in Computer Games", IEEE Sponsored 2nd International Conference on Innovations in Information Embedded and Communication Systems ICIIECS'15

Date: 22/01/2019

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Student

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REMARKS BY UG SEMINAR CO-ORDINATOR:

Date:

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UG Seminar Coordinator

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**Abstract:** Pathfinding is one of the most classical problem in graph theory, which aims to find the path between two nodes in the network. Pathfinding problem has very wide range of application in field of computer games, network routing algorithms, artificial intelligence and so on. This seminar work represents comparative analysis of three closely related pathfinding algorithms which are slight modification over each other – Dijkstra, A\* and HPA\*. The theoretical analysis includes time and space tradeoffs whereas in practical performance analysis the algorithms are tested on road network of three states in US. Seminar work also includes graphical representation of analysis to give great depth of result to the audience.

**Keywords:** Pathfinding, Road Networks, Graphical Model, Comparative Analysis, Real-time data

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REMARKS BY UG SEMINAR GUIDE:

Date:

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(Prof.                      )