

PROFILE

Name	Dr. J. Kavitha
Position & Affiliation	Associate Professor, Department of BS
Areas of Interest	DNA Computing, Graph Theory
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Professional Webpage (if any)	

Educational Qualifications:

Ph. D	Anna University	India	2008
M. Sc	Thiagarajar College of Engineering, Madurai Kamaraj University	India	1997
B. Sc	Madurai Kamaraj University	India	1995

Areas of Research:

DNA Computing, Graph Theory

Brief Profile: (write about yourself)

I am a dynamic academician with proven outstanding academic record in my educational process. My consistent research interest led to regular publications in Journals with good impact factors. Completed MSc in applied mathematics, PhD in Mathematics. I have over twenty three years of Academic and Teaching Experience. The areas of interest are DNA Computing and Graph Theory. Guiding a research student in the field of graph coloring. Worked as a Teaching Research Associate at MIT, Chennai and Associate Professor in NHCE, Bangalore.

Awards/Achievements/Others: Qualified NET

Courses Taught: Applied Mathematics, Discrete Mathematical Structures, Graph Theory and Linear Algebra

Publications/Patents:

Publications

1. Kavitha J, Sethuraman G. (2005), "Descriptive Complexity of h-Alternating Finite Automata", Lecture Notes Series, Research Level Group Discussion Meeting on Natural Computing, IIT Madras, Chennai, pp. 167-175.
2. Kavitha J, "State Complexity of Shuffle and Intersection Combined with Complement" International Journal of Computer Theory and Engineering, Vol.1 (5), 574-578, 2009.
3. Kavitha J, Sethuraman G. "Descriptive Complexity of Reversed Alternating Finite Automata", International Journal of Systemics, Cybernetics and Informatics, 18-22, 2009.
4. Kavitha J, "State Complexity of Combined Operations on Alternating Finite Automata", IJCSES International Journal of Computer Sciences and Engineering Systems, Vol. 5, No. 2, April 2011
5. Kavitha J, "Star Coloring Problem: The DNA Solution" International Journal of Algorithms and Computational Complexity, Vol.5, No.3, 423-436, 2010.
6. Kavitha J, "Fast Parallel DNA Algorithm based on Adleman-Lipton Model: the Independent Dominating Set Problem", International Journal of Computer Engineering & Technology (IJCET) Volume 6, Issue 11, Nov 2015, pp. 01-10.
7. Kavitha J, "A Review on Bio-Inspired Computing Models", International Journal of Information Technology & Management Information System (IJITMIS) Volume 7, Issue 2, May-August-2016, pp. 11-17. ISSN No. 0976 – 6405
8. Kavitha J, "Fast Parallel DNA Solution to Oriented Coloring Problem", International Journal of Advanced Research in Engineering and Technology, Volume 8, Issue 3, May-June-2017. 12-18, 0976-6480, WoS
9. Kavitha J DNA Computing towards the Solution of Minimum Vertex Cover Problem International Journal of Psychosocial Rehabilitation, Vol 24, Issue 5, ISSN: 1475-7192, page - 6807-6811, 12th May 2020 , WoS
10. Sudha J, Kavitha J, The role of dwell hold on the dislocation mechanisms of fatigue in a near alpha titanium alloy, International Journal of Plasticity, 131, 102743, 1-16, 27/03/2020. Q1 Journal
11. S. Perumal, Dr. Kavitha. J, Dr. J. Vijayarangam, A Study of Energy of Graphs Using Multiple Regression Technique, The International Conference on Research Perspectives: IoT in Hybrid Grid Integrated Renewable Energy Sources In association with International Journal of Scientific Research in Science, Engineering and Technology Print ISSN: 2395-1990 | Online ISSN : 2394-4099 pp:197-200, | Vol 9 , Issue

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12. Aravind H.R , Kavitha J Vishalakshi T.N and B.Mallikarjuna, Heat Transfer Enhancement of Hybrid Nanofluid Between Rotating Stretchable Disks With Slip Effects, Journal of Xidian University Vol 15, Issue 9, 2021 ISSN No:1001-2400, pp. 365-380. Scopus. Q4 Journal
13. Aravind H.R Kavitha J Vishalakshi T.N and B. Mallikarjuna, Heat Transfer Flow of Water-AA7075-AA7072 Based Hybrid Nanofluid Between Rotating Stretchable Disks, Vol 15, Issue 9, Sep 2021 ISSN No:1001-2400 pp. 351-364, Journal of Xidian University
14. Sangeetha G and Kavitha J, Results on Graph Energy, Journal of Physics: Conference Series, Vol. 2332, 012008, pp. 01-06, 2022. DOI: 10.9790/5728-1901010103
15. Suma T , Praveena Kumara K.M , Kavitha J , Meenakshi K, Meta-heuristic Algorithms for Multi-Objective Subtask Scheduling Problems: overview, European Chemical Bulletin, 12(5), 2856-2865, May 2023, ISSN 2063-5346, Scopus, Q3 Journal.
16. Kavitha J, An Efficient DNA Computing Model for Harmonious Coloring Problem, accepted for publication in IOP Science: Journal of Physics.
17. BV SubbaRao, K. Meenakshi, K. Kalaiarasi, RameshBabu P. J. Kavitha, V. Saravanan, Image Caption Generation Using Recurrent Convolutional Neural Network, International Journal of Intelligent System and Applications in Engineering, Jan2024, 12(7s), 76-80. ISSN: 2147-6799. Q3 Journal, Elsevier.
18. Sudha Joseph, S. Yallappa, Kavitha Joseph, K. Meenakshi, Biodegradable Plastics from Mango Seed Starch for Sustainable Food Packaging-Effect of Citric Acid and Fillers, doi.org/10.1002/slct.202, Chemistry Select 2024, 9, 1-11, June 2024. Q3 Journal, Online ISSN:2365-6549. Print ISSN:2365-6549
19. Decision Support model for Crop selection through Analytical Hierarchy Process (AHP), Suma T, Praveena Kumara K.M, Kavitha J, Sudha Joseph, Anil Kumar K T, Journal of Computational Analysis and Applications VOL. 33, NO. 7, 2024, 29-37. ISSN : 1572-9206, Scopus, Q4 Journal.

Patents	<i>Novel Design and Method of Predicting the Mechanical Properties of β- Titanium Alloys Using Machine Learning Approaches</i>	India E-2/4334/2022-CHE, Application no. 202241057770, Applied Date: 10/10/2022.	Dr. Sudha Joseph, Dr. Kavitha Joseph
	<i>Novel System, Design, Method of Finite Element Analysis of Stress Evolution in Al-Si Alloy</i>	Jan 2023 Application no.202341001857 06-01-2023	Dr. Sudha Joseph, Dr. Kavitha Joseph
	<i>Novel System, Design, Method of Using Multiple Regression Technique to Analyse Energy of Graphs</i>	Jan 2023 Application no.202341001858 06-01-2023	Dr. Kavitha Joseph Dr. Sudha Joseph
	<i>Novel System, Design and Development of Hybrid Career Trilogy for Career Design Studio</i>	Dec 2023 Application no.202341081281 A 22-12-2023	Dr. K. Gopalakrishnan Dr. Sudha Joseph Dr. Kavitha Joseph
Book/Book Chapters			

Research:

My broad area of research is Theoretical Computer Science. In my research work, I studied a new model for computation using bio molecules (DNA strands) called as DNA Computing. My specific problem which I have solved is a Star coloring problem which is one of the famous NP- Complete problems. NP-complete problems are problems for which the time-complexity of the problem increases as the problem size increases. Using DNA based parallel algorithm I solved the Star Coloring Problem in polynomial time and discussed the time complexity and correctness of the algorithm. This algorithm solves the Star Coloring Problem with 3 colors for any undirected graph G with $O(n^2)$ biological operations in the Adleman- Lipton Model. Presently, I am investigating the topological indices of anticancer drugs.