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### SPECIALIZATION

Parallel/ Distributing Computing, Software Engineering

**Course Offered:** Fault Tolerant Systems, Parallel Algorithms, Graph Theory

**Teaching and Research:** since Feb, 1985

### PhD SUPERVISION

Ph D Guidance: 5 in progress + 13 awarded

- (a) Dr. Rajnath Singh, "Software Reliability and Maintainability", 1998.
- (b) Dr. Meeta Prakash, "Some Observations on Software Testability", 2001.
- (c) Dr. Biplab Kumar Sarkar, "Some Observations on Load Balancing Allocation of Multiple Task in Distributed Computing System", 2003.
- (d) Dr. Alok Mishra, "Observations on Estimation Models for Object Oriented Software Engineering". As external supervisor (Degree awarded by R. D. University, Jabalpur), 2002.
- (e) Dr. Dev Prakash Vidyarthi, "Studies on Task Scheduling Aspects of Distributed Computing Systems". As external supervisor (Degree awarded by R. D. University, Jabalpur), 2002.

- (f) Dr. Deepti Mishra, "Client Server Software Engineering". As external supervisor (Degree awarded by R. D. University, Jabalpur), 2004.
- (g) Mr. Sanjay Kumar Gupta, "Improving testability and maintainability of object-oriented software". (Degree awarded by Jiwaji University, Gwalior), 2008
- (h) Dr. Vinayak Srivastava, "Software Re-engineering".
- (i) Dr. Manjari Gupta, "Software Reuse by Frameworks".
- (j) Dr (Mrs.) Divya Ranjan Sinha, "Reuse in Software Testing".
- (k) Dr. Ratneshwer, "Component Based Software Engineering".
- (l) Dr. S. S. Pandeya, "Software Testing".
- (m) Dr R. S. Singh, "Distributed Computing".
- (n) Dr. Abhishek Mishra, "Distributed Computing".
- (o) Dr. Karmveer Singh, "Information Retrieval".
- (p) Mr. Lalit Kumar Singh, "Software Reliability". [Thesis Pre-Submission Seminar held, 2014]
- (q) Ms. Pratima Singh, "Software Testing". [Final Viva-Voce Exam. held, June-2014]
- (r) Mr. Kamal Sheel Mishra, "Testing Distributed Software". [In Progress]
- (s) Mr. Vinay Kumar [In Progress]

## **PUBLICATIONS**

### **(a) Book : (2000 onwards)**

1. Scheduling in Distributed Computing Systems- Analysis, Design and Models, By Deo Prakash Vidyarthi, Biplab K. Sarker, Anil Kumar Tripathi and LT Yang (Published by Springer in 2009)

### **(b) Book Chapter: (2000 onwards)**

1. Vidyarthi, D. P., Tripathi, A. K., Sarkar, B. K., Kirti, R. and Yang, L. T. (2006), Performance Study of Reliability Maximization and Turnaround Maximization with GA based Task Allocation in DCS, HIGH PERFORMANCE COMPUTING PARADISM and INFRASTRUCTURE, edited by L. T. Yang and M. Guo, John Wiley and Sons Inc, ISBN-100-471-64471-X, pp. 349-360.
2. Vidyarthi, D. P., Tripathi, D. P., Sarkar, B. K. and Yang, L. T. (2005), "Dynamic Clustering of Tasks and DCS for Multiple Task Allocation, NEW HORIZONS OF PARALLEL AND DISTRIBUTED COMPUTING, edited by L. T. Yang and M. Guo, Springer, U. S. A., ISBN- 10 0-387-24434-1, pp. 129-141.

**Technical Report:** Sarkar, B. K., Tripathi, A. K., Vidyarthi, D. P. and Wehara K., "Comparative Study of Task Allocation Algorithms based on A\* and GA in a Distributed Computing System", Department of Computer and System Engineering, No. CS- 24-2002-03, pp. 25-40, University of Kobe(Tsukube).

### (c) Papers

#### International Journals (2000 onwards)

1. A.K. Tripathi and A. K. Malaviya, "Some Observations on Maintainability Metrics for Object Oriented Software", International Journal of Information and Computing Science, Vol. 3, No. 2, December 2000, pp. 52-56.
2. A. K. Tripathi and Alok Mishra, "Some Observations on Estimation Metrics for Object Oriented Software Engineering, International Journal of Information and Computing Science, Vol. 4, No. 2, December 2001, pp. 32-36.
3. A. K. Tripathi and M. Gupta, "Some Observations on Reuse Types, Technologies, Practices and Problems", International Journal of Information and Computing Science, Vol. 7, No. 1, June 2004.
4. A. K. Tripathi et al, "Multiple Task Allocation with Load Considerations in a Distributed Computing System", International Journal of Information and Computing Science(ITICS), vol. 3, No. 1, June 2000, pp. 36-44.
5. A. K. Tripathi, B. K. Sarkar, N. Kumar, D.P. Vidyarthi, "A GA Based Multiple Task Allocation Considering Load", International Journal of High Speed Computing, Vol 11, No. 4, 2000.
6. A. K. Tripathi, B. K. Sarkar, N. Kumar, D.P. Vidyarthi, "Multiple Task Allocation in Distributed Computing System Considering Load", International Journal of Information and Computing Science (IJICS), Vol 3, NO. 1, 2000.
7. B. K. Sarkar, A. K. Tripathi, D. P. Tripathi, Kuniaki Uehara, "A Performance Study of Task Allocation Algorithms in a Distributed Computing System", IEICE Transaction on Information and Systems, Vol. E86-D, No. 9; Sept 2003.
8. B. K. Sarkar, A. K. Tripathi, D. P. Vidyarthi, L. T. Yang, Kuniaki Uehara, "A Different Approach for Allocating Task in a Distributed Computing System Using A\*", Special issue in Hardware/ Software Support for High Performance Scientific and Engineering Computing, IEICE Transaction on Information and Systems, Vol. E87-D, No. 7, 1859, 2004.
9. D. P. Vidyarthi, A. K. tripathi, "Exploiting Parallelism in Genetic Task Allocation Algorithm", International Journal of Information and Computing Science (IJICS), Vol. 4, No. 1, June 2001, pp. 22-26.
10. D. P. Vidyarthi, A. K. Tripathi, B. K. Sarkar, K. Rani, "Object Allocation in Distributed Computing System", International Journal of Information and Computing Science (IJICS), Vol. 5, No. 2, Dec 2002.
11. D. P. Vidyarthi, A. K. tripathi, B. K. Sarkar, K. Rani, "Object Allocation in Distributed Computing System", International Journal of Information and Computing Science (IJICS), Vol. 5, No. 2, Dec 2002.
12. D. P. Vidyarthi, A. K. Tripathi, "Maximizing Reliability of Distributed Computing System with Task Allocation Using Simple Genetic Algorithm", Journal of SYSTEM ARCHITECTURE (The EUROMICRO JOURNAL), (Accepted), November 2000.

13. Meeta Prakash, A. K. Tripathi, "Testability Models for Structured Programs", International Journal of Information and Computing Science (IJICS), Vol. 4, No. 1, pp. 13-21, June 2001.
14. A. K. Tripathi and Manjari Gupta, "Risk Analysis in Reuse Oriented Software Development", International Journal of Information and Technology Management, vol 5, No. 1, 2006, pp. 52-65.
15. Manjari Gupta, Ratneshwer and A.K. Tripathi, An Exploratory Case Study in Designing and Implementing Tight versus Loose Frameworks, Journal of Software Engineering and Applications, Accepted, 2009.
16. Manjari Gupta and A.K. Tripathi, "Reusable Framework for Unit Testing", International Journal of Software Engineering, Vol.2, No.1, 2009, ISSN: 1687-6954, pp 81-104.
17. Anil K. Tripathi, Ratneshwer and Manjari Gupta, "Some Observations on Software Process for CBSE", *Software Process: Improvement and Practice*, Pub: John Wiley InterScience, Vol. 13, No. 5. (2008), pp. 411-419.
18. Anil K. Tripathi, Ratneshwer and Manjari Gupta, "*International Journal of Information and Computing Science*", Vol 10, No.1, 2007, ISSN: 0972-1347, pp 52-63.
19. A.K. Tripathi, Sanjay K. Gupta and Manjari Gupta, "Some Observations on Relationship between Maintainability and Object-Oriented Analysis", *International Journal of Information and Computing Science*, Vol.10, No.2, 2007, ISSN: 0972-1347, pp 1-7.
20. A.K. Tripathi and Manjari Gupta, "*Some Observations on Reuse Types, Technologies, Practices, and Problems*" in *International Journal of Information and Computing Science*, Vol.7, No.1, 2004, ISSN 0972-1347, pp 1-13.
21. Tripathi, A. K., Ratneshwer, Gupta, M. Need to Redefine the Testing Process for Component Based Software. International Journal of Information and Computing Science (IJICS), Volume 10, Number 1, June 2007.
22. Ratneshwer and A K Tripathi, "Interdependence Analysis in Component Based Software", Journal of Information Science and Technology", volume 6, issue 2, 2009.
23. A. K. Tripathi and Ratneshwer, "Some Observations on Interdependencies in Component Based Software", International Journal of Software Engineering, Vol. 1, No. 2, pp. 49-80. July 2008.
24. Ratneshwer and A K Tripathi, "Some Component Generation Approaches for E-Governance Systems", International Journal of Public Information Systems, Mid Sweden University, Sweden- Accepted.
25. R.S.Singh and A.K.Tripathi. Deadline Meeting Static Scheduling in Heterogeneous Distributed Computing, International Journal of Advanced Computer Engineering, (Accepted)

26. R.S.Singh, A.K.Tripathi and Shivasheesh, A Novel Genetic Algorithm for Static Scheduling in Heterogeneous Distributed Computing, WSEAS Transaction on Computers, (Accepted)
27. R.S.Singh, S.K.Sah and A.K.Tripathi. HEFT Algorithm for Scheduling Multiple DAGS, IETECH Journal of Advanced Computations, Vol 2, No 2, 2008
28. S.K.Sah, R.S.Singh and A.K.Tripathi. Static Scheduling Based on Availability of Resources in Heterogeneous Distributed Computing System, International Journal of Information and Computing Science, Vol 11, No 2, 2008.
29. A. Mishra, A. K. Tripathi, Energy efficient voltage scheduling for multi-core processors with software controlled dynamic voltage scaling, Applied Mathematical Modelling, (2014), pp. 3456-3462.
30. A. Mishra, A.K. Tripathi, A Monte Carlo algorithm for real time task scheduling on multi-core processors with software controlled dynamic voltage scaling, Applied Mathematical Modelling, Vol 38, No. 7-8, pp 1929-1947, 2014.
31. Lalit Kumar Singh, Gopika Vinod, Anil Kumar Tripathi, Reliability prediction through system modeling, ACM SIGSOFT Software Engineering Notes, volume 38, number 6, Nov 2013, pp. 1-10
32. K. S. Mishra, A. K. Tripathi, Task Scheduling of a Distributed Computing Software in the Presence of Faults, International Journal of Computer Applications, Vol. 72, No. 13, Jun 2013, pp. 1-9.
- 33.. Ratneshwer, A. K. Tripathi, IMM-CBSE: An Integrated Maturity Model for CBSE, International Journal of Computer Applications in Technology, Vol. 46, No. 4, April 2013, pp. 323-336.

#### **National Journals (2000 onwards)**

1. M. Prakash, A. K. Tripathi, "Some Observations on Testability Models for Object Oriented Software", CSI Journal, Vol. 31, No. 4, Dec 2001, pp. 1-7.
2. D. P. Vidyarthi, A. K. Tripathi, B. K. Sarkar, "Allocation Aspects in Distributed Computing System", IETE, Technical Review, Vol. 18, No. 6, Nov.-Dec. 2001, pp. 449-454.
3. D. P. Vidyarthi, A. K. tripathi, B. K. Sarkar, "Multiple Task Management in Distributed Computing System", CSI Journal, Vol. 31, No. 1, March 2001, pp. 19-25.

#### **( d ) Conferences**

##### **International (2000 onwards)**

1. B. K Sarkar, A. K. Tripathi, D. P. Vidyarthi, K. Rani, K. Uehara, "Comparative Study of Task Allocation Algorithm Using A\* and GA in a Distributed Computing System", Third

International Conference on Parallel and Distributed Computing, Application and Technologies, Sept, 3-6, 2002, Kanazawa, Japan, pp. 116-121.

2. B. K. Sarkar, A. K. Tripathi, D. P. Vidyarthi and K. Rani, "Comparative Study of Two GA Based Task Allocation Models". Proceedings of the 4<sup>th</sup> International Conference on Parallel and Distributed Computing, Applications and Technologies (PDCAT)' 2003, IEEE, China, pp. 116-121.
3. B. K. Sarkar, A. K. Tripathi, D. P. Vidyarthi and K. Uehara, "A Different Approach for Allocating Tasks in DCS". Proceedings of the 4<sup>th</sup> International Conference on Parallel and Distributed Computing , Applications and Technologies, (PDCAT )' 2003, IEEE, pp. 577-581.
4. Akshara Pande, Manjari Gupta & A.K. Tripathi, DNIT A New Approach for Design Pattern Detection, International Conference on Computer and Communication Technology (ICCCT-2010), proceedings to be published by the IEEE (Accepted).
5. Akshara Pande, Manjari Gupta & A.K. Tripathi, A Decision Tree Approach for Design Patterns Detection by Subgraph Isomorphism, International Conference on Advances in Information and Communication Technologies, ICT 2010, Kochi, Kerala, Proceeding to be published by Springer (Accepted).
6. Akshara Pande, Manjari Gupta & A.K. Tripathi, A New Approach for Detecting Design Patterns by Graph Decomposition and Graph Isomorphism, International Conference on Contemporary Computing - Systems (Hardware & Software), Jaypee Noida , Proceeding to be published by Springer (Accepted)
7. Akshara Pande, Manjari Gupta & A.K. Tripathi. Design Pattern Mining for GIS Application using Graph Matching Techniques. 3rd IEEE International Conference on Computer Science and Information Technology. 09-11 July, 2010, Chengdu, China.
8. A. K. Tripathi, Ratneshwer, "Some Observations on a Maturity Model for CBSE," ICECCS, pp.273-281, 2009 14th IEEE International Conference on Engineering of Complex Computer Systems, 2009, Potsdam, Germany.
9. R.S.Singh and A.K.Tripathi. On Optimizing Running Time of a Time Critical Application in Heterogeneous Distributed Computing, International Conference on Optimization and its Applications(ICOIA-BHU), 2010

#### **National (2000 onwards)**

1. A. K. Tripathi and Vinayak Srivastava, "Some Observations on Effort Estimation in Software Re-engineering", National Seminar on Applied System Engineering and Soft Computing SASESC 2000, March 4-5, 2000, Agra, pp. 156-158.
2. A. K. Tripathi and Meeta Prakash, "Some Observations on Testing of Structured Software Systems", National Seminar on Allied Systems Engineering and Soft Computing SASESC 2000, March 4-5, 2000 Agra, pp. 151-155.
3. B. K. Sarkar, A. K. Tripathi and N. Kumar, "Some Observations on Load Balancing in Distributed Computing Systems", National Seminar on Applied System Engineering and Soft Computing SASECS 2000, March 4-5, 2000, Agra, pp. 167-171.
4. D. P. Vidyarthi and A. K. Tripathi, "Performability of Distributed Computing Systems with respect to Task allocation", National Seminar on Applied System Engineering and Soft Computing SASECS 2000, March 4-5, 2000, Agra, pp. 164-166.

5. D. P. Vidyarthi and A. K. Tripathi, "Performability of Distributed Computing Systems with Task Allocation", SASESC-2000, DayalBagh Educational Institute, Agra, 5-6 March 2000.
6. Meeta Prakash, A. K. Tripathi, "Some Observations on the Role of Formal Methods in Software Engineering", Proceedings of the National Seminar on "Intelligent Computing and Software Engineering" (ICSE 2000) BHU 2000, pp. 160-164.
7. Rajnath Singh and A. K. Tripathi, "Software Maintainability: A Few Models" Proceedings of the National Seminar on "Intelligent Computing and Software Engineering" (ICSE 2000) BHU 2000, pp. 134-138.
8. A.K. Tripathi and Manjari Gupta, "*Software Reuse: Benefits and Issues*" abstract published in proceedings of National Seminar on "New Challenges in Changing Business Environment" organized by United Institute of Management United College of Engineering & Research, Naini, Allahabad, 7-8 April 2003, pp 1.
9. Ratneshwer, A K Tripathi, "Towards Modeling Component's Dependencies", 1st India Workshop on Advances in Model based Software Engineering (WAMBSE 2010) co-located at 3rd ISEC2010, Mysuru, 25 -27, February 2010.

**Sponsored Research Activities:**

**Project:** Advance Computer Architecture and Networking (1998 -2000)

**Sponsoring Agency:** AICTE (MODROB) (Rs. 9 lacs)