

Nambiar Manoj

Principal Scientist & Head Computing Systems Research Area

TCS Research & Innovation

Education

- B.E. Computer Engineering – University of Bombay
- PG Diploma in VLSI design – CDAC

Research Interests

- Automatic Performance Tuning,
 - High Performance Computing,
 - Performance Modeling,
 - Quantum Computing,
 - Computing Hardware
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- Manoj is one of the developers of WANem - a popular open source wide area network emulator.

Patent Details

- Systems and methods for performance evaluation of input/output (i/o) intensive enterprise applications, D Chahal, MK Nambiar, US Patent App. 15/882,568, 2018
- Predicting performance of a software application over a target system, D Chahal, S Duttgupta, MK Nambiar, US Patent 9,971,669, 2018
- SYSTEMS AND METHODS FOR PREDICTING PERFORMANCE OF APPLICATIONS ON AN INTERNET OF THINGS (IoT) PLATFORM, S Duttgupta, M Kumar, MK Nambiar, US Patent App. 15/410,178, 2018
- System and method for parallelizing grid search method facilitating determination of PK-PD parameters, NK Agrawal, R Narayanan, MK Nambiar, R Abdulrazak, A Pandey, US Patent 9,891,958, 2018

- Non-uniform intensity mapping using high performance enterprise computing system, S Prakash, S Arosh, SK Nayak, SP Duttgupta, S Duttgupta, Patent App. 10/054,994, 2018
- Systems and methods for benchmark based cross platform service demand prediction, S Duttgupta, M Kumar, D Shah, MK Nambiar, US Patent App. 15/227,542, 2017
- Service demand based performance prediction using a single workload, A Kattepur, MK Nambiar, US Patent App. 15/433,580, 2017
- Method and System for Pre-Deployment Performance Estimation of Input-Output Intensive Workloads, D Chahal, RS Virk, MK Nambiar, US Patent App. 15/361,129, 2017
- Systems and methods for service demand based performance prediction with varying workloads, A Kattepur, MK Nambiar, US Patent App. 15/040,155, 2017
- Non-uniform intensity mapping using high performance enterprise computing system, S Prakash, S Arosh, SK Nayak, SP Duttgupta, S Duttgupta, US Patent App. 15/090,107, 2016
- System and method for managing message queues in a peer-to-peer communication network, NK Agrawal, H Kumar, MK Nambiar, US Patent 9,438,668, 2016
- System and method facilitating performance prediction of multi-threaded application in presence of resource bottlenecks, S Duttgupta, RS Virk, MK Nambiar, US Patent 9,317,330, 2016

Publications:

Conference & Journal Publications

1. Cracking the monolith: challenges in data transitioning to cloud native architectures, M Mishra, S Kunde, M Nambiar, Proceedings of the 12th European Conference on Software Architecture, 2018
2. QMLE: A Methodology for Statistical Inference of Service Demands from Queueing Data, W Wang, G Casale, A Kattepur, MK Nambiar, ACM Transactions on Modeling and Performance Evaluation of Computing Systems, 2018
3. Predicting the Runtime of Memory Intensive Batch Workloads, D Chahal, B Mathew, M Nambiar, Proceedings of the 47th International Conference on Parallel Processing, 2018
4. High Performance Distributed In-Memory Architectures for Trade Surveillance System, R Bansod, S Kadarkar, R Virk, M Raval, R Rashinkar, M Nambiar, 2018 17th International Symposium on Parallel and Distributed Computing, 2018

7. ATA: Architecture-based technology advisor for functional application domains, S Kunde, C Phalak, R Singhal, M Nambiar, Systems Conference (SysCon), 2018 Annual IEEE International, 1-8, 2018
10. Performance Optimization of OpenFOAM* on Clusters of Intel® Xeon Phi (TM) Processors, R Ojha, P Pawar, S Gupta, M Klemm, M Nambiar, High Performance Computing Workshops (HiPCW), 2017 IEEE 24th International , 2017
11. Workload Dependent Fault Analysis, MN Vora, MK Nambiar, Software Reliability Engineering Workshops (ISSREW), 2017 IEEE International ,2017
12. Cloning IO Intensive Workloads Using Synthetic Benchmark, D Chahal, M Nambiar, Proceedings of the 8th ACM/SPEC on International Conference on Performance 2017
13. PerfExt++: Performance Extrapolation of IO Intensive Workloads, D Chahal, M Kumar, MK Nambiar, Proceedings of the 8th ACM/SPEC on International Conference on Performance 2017
14. Service demand modeling and performance prediction with single-user tests, A Kattepur, M Nambiar, Performance evaluation 110, 1-21, 2017
15. B Gallina, R Natella, S Winter, D Cotroneo, N Suri, L De Simone, Reliability Engineering & System Safety (Elsevier) 158, 152-253, 2017
16. Performance prediction of iot application: An experimental analysis, S Duttagupta, M Kumar, R Ranjan, M Nambiar, Proceedings of the 6th International Conference on the Internet of Things, 43-51, 2016
17. Service Demand Modeling and Prediction with Single-user Performance Tests, A Kattepur, M Nambiar, Proceedings of the 9th Annual ACM India Conference, 31-41, 2016
18. Predicting SQL query execution time for large data volume, R Singhal, M Nambiar, Proceedings of the 20th International Database Engineering & Applications, 2016
19. Performance extrapolation of io intensive workloads: Work in progress, D Chahal, R Virk, M Nambiar, Proceedings of the 7th ACM/SPEC on International Conference on Performance ,2016
20. Maximum likelihood estimation of closed queueing network demands from queue length data, W Wang, G Casale, A Kattepur, M Nambiar, Proceedings of the 7th ACM/SPEC on International Conference on erformance, 2016
21. Recovery from software failures caused by mandelbugs, M Grottke, DS Kim, R Mansharamani, M Nambiar, R Natella, KS Trivedi, IEEE Transactions on Reliability 65 (1), 70-87, 2016
22. Model Driven Software Performance Engineering: Current Challenges and Way Ahead, M Nambiar, A Kattepur, G Bhaskaran, R Singhal, S Duttagupta, ACM SIGMETRICS Performance Evaluation Review 43 (4), 53-62, 2016
23. Performance modeling of multi-tiered web applications with varying service demands, A Kattepur, M Nambiar, International Journal of Networking and Computing 6 (1), 64-86, 2016
24. Software bottleneck analysis during performance testing, S Duttagupta, R Virk, M Nambiar, Computing and Communication (IEMCON), 2015 International Conference and ... 2015
25. Connection management in a computer networking environment, H Kumar, NK Agrawal, MK Nambiar, US Patent 9,154,580, 2015
26. System and method to predict elapsed response time for a query during application development stage, R Singhal, MK Nambiar, US Patent 9,117,030 , 2015

27. Program Committee for International Workshop on High-Performance Big Data Computing (HPBDC 2015), DKDK Panda, J Zhan, X Lu, C Baru, R Bordawekar, Y Chen, B He, L John, 2015
28. Recovery from failures caused by Mandelbugs in IT systems, Michael Grottke, Dong Seong Kim, Rajesh Mansharamani, Manoj Nambiar, Roberto Natella, Kishor S. Trivedi, IEEE Transactions on Reliability 01/2015
29. Performance Modeling of Multi-tiered Web Applications with Varying Service Demands, Ajay Kattepur, Manoj Nambiar, APDCM 2015 (in conjunction with IEEE IPDPS 2015)
30. Incremental Risk Charge calculations: A case study of performance optimization on many/multi core platforms, CMG India 2014 Annual conference, Amit Kalele, Mahesh Barve, Manoj Nambiar, Pune, India
31. Performance Prediction in the presence of Software Bottlenecks, Rupinder Singh Virk, Subhasri Duttagupta, Manoj Nambiar, SPECTS 2014
32. Evaluation of a trading application using a high performance messaging framework, IEEE ICCNT, Payal, Nishant Agrawal, Manoj Nambiar, Hefei, China
33. Performability Comparison of Lustre and HDFS for MR application, Rekha Singhal, Harish Sukhwani, Manoj Nambiar, Kishor Trivedi, IEEE ISSRE 2014, Naples Italy
34. Benny Mathew, Manoj Nambiar, "A Tutorial on Modelling Call Centres Using Discrete Event Simulation", European Conference on Modelling and Simulation, Norway (ECMS 2013)
35. Manoj Nambiar, "Virtual Memory Subsystem Performance: Benchmarking and a Case Study", CMG International Conference 2012, Computers Measurements Group, USA, 3-7 Dec 2012
36. Rekha Singhal, Manoj Karunakaran Nambiar, "Extrapolation of Query Response Time at Application Development Stage", Indicon2012
37. Rekha Singhal, Manoj Karunakaran Nambiar, "IO based Model for Predicting Query Response Time for Varying Sized Database", Tactics 2013
38. Subhasri Duttagupta, Manoj Nambiar, "Maximum Throughput Computation of an Application in a Multi-tier Environment", 2012 IEEE International Symposium on Performance Evaluation of Computer and Telecommunication Systems, July 8-11, Genoa, Italy.
39. Benny Mathew, Manoj K. Nambiar, "Cross Training - Is it a Panacea for all Call Center ills?", ICOR'12 : The 2012 IAENG International Conference on Operations Research, Hong Kong, 14-16 March, 2012

40. Manoj Nambiar, "Performance Evaluation of FIFO Implementation on Infiniband RDMA", CMG 2011, National Harbor, Maryland, December 5 - 9, 2011
41. Subhasri Duttgupta and Manoj Nambiar, "Performance Extrapolation for Load Testing Results of Mixture of Applications", 5th European Modeling Symposium on Mathematical Modeling and Computer Simulation, IEEE EMS 2011. Madrid 16-18 Nov, 2011
42. Hemanta Kumar Kalita, Manoj K. Nambiar and Amol Khanapurkar, "Non-Intrusive Remote Monitoring of Services in a Data Centre", CCSEA 2011, CS and IT 02, 2011, 10-16, DOI 10.5121/csit.2011.1202
43. Himanshu Kumar, Nishant Kumar Agrawal & Manoj Nambiar, "A Performance Analysis and Tuning Case Study", CMG International Conference 2011, Computers Measurements Group, Washington, 5-9 Dec 2011
44. Manoj Nambiar, Shweta Taishete and Rajesh Mansharamani, "Network Performance Evaluation of Low Latency Messaging Systems", Journal of Computer Resource Management, CMG Inc, Issue 128, Winter 2011
45. H. K. Kalita, M. Nambiar, "Design of a new algorithm for WAN Disconnection Emulation and Implementing it in WANem". International Conference and Workshop on Emerging Trends in Technology (ICWET), Mumbai, Feb 2011.
46. H.K.Kalita, M. Nambiar, "Designing WANem: A Wide Area Network Emulator Tool", The Third International Conference on COMMunication Systems and NETWORKS (COMSNETS'11), Bangalore 04-08 Jan, 2011.
47. Data Synchronization Speed Up Under High Concurrency. Manoj Nambiar, Mehul Raval, Rajesh Mansharamani. CMG 2010.
48. Experiences with UNIX IPC for low latency Messaging, Manoj Nambiar, Sricharan Samudrala, Sundar Narayanan - CMG Dec 2009
49. DCPE Rollout: Scaling Performance Engineering Training and Certification Across a Very Large Enterprise. Rajesh Mansharamani, Arunava Bag, Kishor Gujarathi, Kunal Gupta, Amol Khanapurkar, Manoj Nambiar and Mehul Raval. Proc IEEE 22nd Conf Software Engineering Education and Training, Hyderabad, 2009.
50. A Simple, Efficient ICMP Based Method of Network Characterization. Hemanta Kalita and Manoj Nambiar – CMG Dec 2008

51. Analysis and Application of Conditional Software Rejuvenation – A New Approach. Hitesh Shetty, Manoj Nambiar and Hemanta Kalita – WoSAR 2008
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64. A Framework for Automated System Performance Testing. Amol Khanapurkar, Suresh Malan, Manoj Nambiar. Computer Measurement Group(CMG) 2010.
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71. International Symposium on Performance Evaluation of Computer and Telecommunication Systems (SPECTS), S Duttgupta, R Virk, M Nambiar, PRDC 2013 Referees and Reviewers, J Alonso, M Arai, S Bagchi, J Cao, D Cotroneo, T Dohi, S Fukumoto, ...
72. Performance Engineering of a Trading Exchange's Risk Management System, R Mansharamani, M Nambiar,
73. Incremental Risk Charge Calculation: A case study of performance optimization on many/multi core platforms, A Kalele, M Nambiar, M Barve, Articles 1–64

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