

Curriculum Vitae

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Educational Background

Ph.D. (Comp. Sci.)	Purdue University, West Lafayette, IN. Dissertation: "On the Relationship between Parallel Computation & Graph Embeddings" Advisor: Prof. Susanne E. Hambrusch	Aug 1989
M.S. (Comp. Sci.)	Purdue University, West Lafayette, IN.	Dec 1986
M.S. (Math & Stat)	University of Cincinnati, Cincinnati, OH.	June 1984
B.E.(Hons.) EE	B.I.T.S., Pilani, India.	May 1982

Job Experience

Professor	Western Michigan University	9/98 –
IEEE-CS TAC Vice Chair Elected Position	IEEE Computer Society, Technical Activities Committee	2015 -
IEEE-CS TCPP Chair Elected Position	IEEE Computer Society, Technical Comm. on Parallel Processing, Elected Position (two-times)	2011-2015
Chairman	CS Dept., Western Michigan University	7/98 - 1/02
Associate Professor	Western Michigan University	6/94 - 8/98
Assistant Professor	Western Michigan University	8/89 - 5/94
Research Assistant	Purdue University. Network Simulations. Layout and Placement strategies for VLSI.	6/88 - 7/89 1/86 - 7/87
Teaching Assistant	Purdue University. Taught senior level courses in Numerical Analysis.	8/87 - 5/88 8/85 - 12/85
Research Assistant	ELLPACK project, Purdue University	8/84 - 7/85
Teaching Assistant	University of Cincinnati	9/82 - 6/84
System Analyst	S.R.G. Data Center, Jaipur. Developed an Inventory Control System.	5/82 - 8/82
Electronics Engineer	N. T. P. C., New Delhi. Designed a microprocessor based testing system.	6/81 - 12/81

Professional Objectives

Be an excellent researcher and educator. Lead initiatives in furthering educational outreach. Lead teams of software and hardware professionals to design and develop cutting edge technology products.

Research and Development Interests

Data Analytics, Machine Learning, Cloud Computing, Opportunistic Networks, Mobile Computing, Sensor Systems and Networks, Distributed Computing, Web Technologies, Client/Server Computations, Distributed Databases, Evolutionary Computation, Scientific Computing, Parallel Computations, Embedded Systems, and Formal Specifications, Sensor interface electronics.

Professional and Administrative Experience

- In academia and in industry, taught a number of graduate and undergraduate courses in computer science, which include cloud computing, networks, distributed systems, operating systems, compilers, parallel and distributed computing, and programming languages. Integration of innovative teaching methods in classrooms. Excellent teaching evaluations.
- IEEE-Computer Society Technical Activities Committee Vice-Chair 2015-2016
- IEEE-CS Technical Committee on Parallel Processing Chair, 2011-2013 and 2013-2015. Strong leadership, initiated a number of activities for the parallel processing community.
- IEEE-CS TMRC Member, 2013-present.
- Department Chair, Computer Science, 1998-2002.
- Consultant for a number of companies. Founder & Board member, BIPS Infotech, LLC, 1996-2004.
- Actively involved in the NSF/TCPP curricular efforts to revise undergraduate and graduate computer science and engineering curriculums globally.
- Instrumental in creating a variety of educational programs including accelerated bachelors & masters, and Ph.D.
- Organized various international computer science conferences.
- Steering Committee member, Advisory Board member, Program Chair, and Program committee member of numerous national and international conferences.

Publications

Over one hundred and thirty articles published in premier computer science conferences and journals in the past thirty years. Articles are mainly in the areas of parallel and distributed computing, network security, sensor networks, mobile computing, databases, scientific computing, network based computing, and evolutionary strategies. List is attached.

Keynote Presentations

Keynotes at various international conferences, including IEEE/ACIS Conference on Software Engineering, Artificial Intelligence, Networking and Parallel/Distributed Computing (Honolulu, 2013), IEEE 6th International Symposium on Parallel Architectures, Algorithms and Programming (Beijing, 2014), IEEE 7th International Symposium on Parallel Architectures, Algorithms and Programming (Nanjing, 2015), Confluence – 6th International Conf. on Cloud and Big Data Engineering (Delhi, 2016), 11th European Workshop on Microelectronics Education (Southampton, 2016). IEEE 8th

International Advance Computing Conference, IACC, (Delhi, 2018), 4th IEEE International Conference on Computing Communication and Automation, ICCCA, (Delhi, 2018), Second International Conference on Intelligent Communication and Computational Techniques, ICCT, (Jaipur, 2019), Workshop on Advance Computing and Networks, WACN, (Guangzhou, 2019), IEEE 10th International Symposium on Parallel Architectures, Algorithms and Programming, PAAP, (Guangzhou, 2019).

Grants and Awards

Led and initiated a number of research projects. Recipient of a number of grants for research and development from major government agencies and industry which include National Institutes of Health, National Science Foundation, TARDEC, IBM, Intel, and the State of Michigan. Principle investigator on a number of funded projects for design and development of software products and for advancement and fundamental contributions to computer science. List is attached.

2019 IEEE Computer Society T&C Distinguished Service Award

Best Paper Award nomination for the paper entitled "A Parallel Peptide Indexer and Decoy Generator for Crux Tide using OpenMP" (with M. Maabreh and F. Saeed), in the 14th International Conference on High Performance Computing and Simulation, July 2016.

Wireless Monitoring System and Communication Device for Blood Glucose Monitoring, provisional patent filed, January 2009.

Best Paper Award for the paper entitled "Adaptive Integration Using Evolutionary Strategies" (with E. de Doncker and G. Greenwood), in the 3rd International Conference on High Performance Computing, December 1996.

Honorable Mention Award for the poster paper entitled "Lightweight Intrusion Detection for Sensor Networks" (with V. Bhuse and L. Lilien), 7th Annual CERIAS Information Security Symposium, March 2006.

ParInt 1.1 Release. Copyright (with E. deDoncker, A. Genz and R. Zanny), Unites States Copyright Office, The Library of Congress, 1999.

Senior member of the Institute of Electrical & Electronics Engineers (IEEE).

Senior member of the Association of Computing Machinery (ACM).

Project Experience (A list of selected projects)

1. **Proteogenomics:** is an area of systems biology research at the interface of proteomics and genomics. Thanks to the emergence of high-throughput next generation sequencing technologies such as RNA-Seq and dramatic improvements in the depths and throughput of mass spectrometry-based proteomics, the pace of proteogenomics computational research has greatly accelerated. Analyzing mass spectrometry-based proteomics data using customized protein sequence databases, for example, enables the discovery of novel peptides, provides peptide-level evidence of gene expression, and assists in refining gene models. Applications of this research have potential to discover causes and cures of diseases. R&D by a team of 2 researchers, 2 NIH researchers and 4 students, 2015-present.

2. **Analyzing Risky Decision Making Behaviors:** Conducting research in behavioral sciences and interrelated disciplines is collaborative in nature. Technological innovations are pushing towards new frontiers to study decision-making. Traditional methods are being transformed and repackaged to fit into the dynamics of the new era. There is an increasing need for tools and techniques that help researchers concentrate on core tasks rather than worrying about the associated logistics that may distract from the investigator's hypothesis. In this project, we are developing a RDMTk hw/sw toolkit developed specifically for studying risky decision making (RDM). RDMTk provides a free open-source environment within which to conduct experiments globally and foster collaboration. Designing the toolkit around a one-stop-shop philosophy gives the investigator access to tests and analytical features used in various contexts of RDM. Integration with external resources capitalizes on the best of all the worlds and ease of use. Incorporated high-performance computing (HPC) technologies in the proposed toolkit open up additional possibilities of advance machine- and deep-learning capabilities. Our expectation is that fostering collaboration through community support will make RDMTk the preferred toolkit for studying RDM. Using the toolkit, we may be able to answer questions such as: Why people tend to care less about saving money on big-ticket items in comparison to small-ticket items? R&D by a team of 3 researchers, 2 industry and 3 students, 2013-present.
3. **Internet of Things and Smart Buildings:** In the context of the future 'Internet of Things', Smart Buildings management systems will provide new automation possibilities to their occupants, increasing their comfort level. In this project, we are developing techniques that convert the raw data from individual's context behaviors within smart environments into usable knowledge. So that such knowledge can be used by IoT application services to make good decisions while providing services to the individuals in smart buildings. That makes the appliances and devices to automatically react to occupants' behaviors and enables the occupants to remotely control or program an array of automated building electronic devices and appliances by sending control commands from their Smartphones, Tablets or Laptops. The solutions focus primarily on environmental monitoring, energy management, assisted living, comfort and convenience, by using a network of smart sensors that monitor systems such as energy generation and metering; security and access control; fire detection and alarms; Heating, Ventilation and Air Conditioning (HVAC); lighting control; air quality and smoke detection; and environmental key performance indicators of building. The variety of computational methods and techniques proposed by data analytics, deep machine learning, AI, and data mining are expected to provide the creation of important knowledge from all this raw data. R&D by a team of 3 researchers and 2 students, 2015-present.
4. **Text Analytics:** The process of analyzing unstructured text data with a goal of deriving meaningful information is termed as text analytics or text mining in common parlance. To examine text data, we apply techniques from Data Mining, Machine Learning and Natural Language Processing. The diversity of the underlying text largely dictates the kind of insights we may seek, which make the exploration even more interesting and challenging. We narrow our focus into a specific type of information that we may seek from text data found in the research sphere. Scientific research papers published across multitudes of technical conferences, journals, patent-filings, funding-proposals, etc. document the research endeavors of numerous scientists around the world. Naturally, a question arises, whether one can put some structure to this plethora of knowledge and help automate the extraction of key interesting aspects of research. We propose to design, analyze and implement intelligent algorithms and automated tools to help answer various queries commonly occurring during a literature search. R&D by a team of 2 researchers and 3 students, 2013-present.
5. **Opportunistic Networks:** Towards advancing Internet of Things (IoT), we proposed a new paradigm and a new technology of opportunistic networks or oppnets to enable an integration of the diverse communication, computation, sensing, storage and other resources that surround us more and more. The goal for oppnets is to leverage the wealth of pervasive resources and

capabilities that are within our reach. This is often a treasure that remains useless due to “linguistic” barriers. Different devices and systems are either unable speak to each other, or do not even try to communicate. They remain on different wavelengths—sometimes literally, always at least metaphorically. The oppnets and their salient features can be characterized as follows. Typically, the nodes of a single network are all deployed together, with the size of the network and locations of its nodes pre-designed (either in a fully “deterministic” fashion, or with a certain degree of randomness, as is the case with ad hoc or mobile networks). In contrast, the size of an oppnet and locations of all but the initial set of its nodes —known as the seed nodes— can not be even approximately predicted. The initial seed oppnet grows into an expanded oppnet by integrating foreign nodes that become its helpers in realization of the oppnet’s goals. Helpers perform certain tasks they have been invited (or ordered) to participate in. We are addressing various challenges to make oppnets feasible, practical and commercially viable. Research and development by a team of 4 researchers and 6 students. 2005-present.

6. **Wireless Sensor Networks:** This project involves cutting-edge research in designing, developing and implementing smart wireless sensor networks for various pharmaceutical, military, environmental and commercial applications. Starting with energy-efficient smart sensors that are capable of sensing, computing and communicating from a microscopic single chip, our goal is to develop nanoscopic chemical and biological smart sensors. Our research revolves around networking issues (in-network processing, group communications and data management) which will allow a formation of sensor system consisting of tens to thousands of smart sensors chips. Research and development by a team of 4 researchers and 6 students. 2003-present.
7. **CBMnet:** Sensors and sensor network design and development for automotive applications. Real-time monitoring of oil condition and fatigue. 2008-2010.
8. **ParInt:** A software package for multivariate parallel and distributed integration. This package allows user-friendly ways to solve computationally difficult multi-dimensional integrations for use by scientists in various areas of science and engineering such as physicist, chemists, pharmacists, aero space engineers, etc. The goals of the ParInt Research Group are to develop new techniques in the distributed computing of multivariate integrals, and, to develop a user-friendly software interface for these techniques. Research areas include load balancing, distributed data structures, visualization of scientific computation and theoretical mathematical topics such as Quasi-Monte Carlo techniques and extrapolation. This was a National Science Foundation funded project and the development is continuing by a team of 4 researchers and approximately 10 students. 1994-2004.
9. **VideoConfer:** This is a software package for video conferencing. We were extending “nv” software originally developed by Xerox Research to further optimize transmitting of images over a network, optimize compression and decompression algorithms and to incorporate distributed processing to achieve better throughputs. This project was sponsored by Martin Marietta and Xerox Research and development by a team of 2 researchers and 3 students. 1996-1998.
10. **A Non-intrusive Tachometer:** Extensive consultation for the design and development of an acoustic based non-intrusive tachometer to measure firings of the cylinder in automobiles for Automotive Diagnostics, Inc. This involved programming and integration of Digital Signal Processing (DSP) chips. 1994-1996.
11. **PAMS:** A Personnel and Attendance Maintenance System. This database system was developed for American Fibrit, Inc. to keep track of their employee information and attendance

of employees. System was developed using Paradox and C/C++ languages on PC DOS and Windows environment. 1994-1995.

12. **PARGAL:** A Parallel Graph Algorithms Package. This software package consists a number of graph manipulation algorithms that run efficiently on nCUBE-2, PVM, MPI and RK/CE. Graph algorithms such as connectedness, chromatic number, shortest paths, and spanning trees had been implemented. The package allows easy manipulation of graphs via a Graphical User Interface (GUI). New algorithms can be added/deleted easily from this package. 1992-1994.
13. **HPCS:** A Heterogeneous Parallel Computing System. This software package provides a user friendly environment to develop efficient programs for parallel and distributed computing tasks on an existing cluster of networked workstations. It thus provides a low cost alternative to dedicated expensive parallel machines. Its main goal was to take a leap from existing systems in the area of fault-tolerance and idle resource utilization. It also incorporated visualization tools and graphical user interfaces making it ideal for introducing the power of parallel and distributed processing to beginners. Prototype of such an envisioned system had been developed on UNIX based workstations, Macintosh systems and PCs with DOS/Windows. Development of this package by a team of 10 students and me. 1993 - 1996.
14. **Communication Subsystem:** Developed and analyzed formal specifications for Ada Rendezvous mechanism along with its run-time communication subsystem. This was an IBM funded project and involved a team of 5 researchers and 3 students. 1991-1993.

Grants and Awards

1. National Institutes of Health (NIH) R15 grant: "Parallel Algorithms for Big Data from Mass Spectrometry based Proteomics" (with F. Saeed, A. Fong and A. Venter), 2018-2020 (\$228,000.)
2. NVidia GPU Education Center Grant (with S. Bae, E. de Doncker and J. Kapenga), 2016-2017.
3. National Science Foundation Grant: "Student Outreach Support Activities at TCPP Sponsored Conferences," with Trilce Estrada-Piedra, 2015-2017. (Amount \$49,251.)
4. National Science Foundation Grant: "IEEE IPDPS Conference Student Participation Support," with B. Hong, 2014. (Amount \$25,000.)
5. National Science Foundation Grant: IEEE-TCPP Travel Awards, 2012. (Amount \$20,000.)
6. The US Army Tank-Automotive Research, Development and Engineering Center (*TARDEC*) Grant: "CBM Analysis and Monitoring of Army Ground Vehicles using Real Time Sensor Network," with C. Fajardo, M. Ghantasala, D. Kujawski, and W. Liou, 2008-2012. (Amount approx. \$250,000.)
7. Michigan Universities Commercialization Initiative Grant: "Continuous monitoring Wireless and Communication Device for Blood Glucose," with M. Ghantasala and W. Liou, 2008-2009. (Amount \$20,000.)
8. Department of Education, Congressional Award: "Smart Wireless Sensor Networks," 2003. (Amount: \$50,000.)
9. National Science Foundation Grant: "Algorithms: Distributed Multivariate Integration in a Problem Solving Environment," with E. deDoncker, K. Kaugars and A. Genz, 2002-2005. (Amount: \$348,495.)

10. Western Michigan University Grant: “Enhancing the WMU-CS Cluster: Computational Science Center,” with E. deDoncker, K. Kaugars, 2001. (Amount \$50,000.)
11. Intel grant for HiPC2000, \$5,000
12. Microsoft grant for HiPC2000, \$6,000
13. National Science Foundation Grant: “Distributed Integration Algorithms and Applications,” with E. deDoncker and A. Genz, 2000-2002. (Amount: \$324,000.)
14. National Science Foundation Grant: “Parallel and Distributed Integration Algorithms,” with E. deDoncker and A. Genz, 1994-1997. (Amount: \$150,000.)
15. Automotive Diagnostics Grant to develop software for analysis of automobile ignition signals, jointly with R. Trenary, 1995. (Amount: \$100,000.)
16. Technical Training Grant from the Indian Agricultural Statistics Research Institute, 1995. (Amount: \$24,000.)
17. IBM, Rochester Grant: for Development of Simulators for Formal Specification Languages, with T. Piatkowski and F. Severence, 1991. (Amount \$70,000.)
18. IBM, Owego Grant: for Development of Formal Specifications for the Ada Rendezvous, with T. Piatkowski and L. Lander, 1991. (Amount: \$50,000.)
19. INTEL University Partner Program, with A. Boals, N. Sherwani, and K. Williams, 1990. (Amount: \$99,970.)
20. National Science Foundation Grant: for undergraduate research, with J. Kapenga and N. Sherwani, 1990. (Amount: \$81,841.)
21. Grant to assess the feasibility of an Engineering Design Institute from the State of Michigan, with T. Piatkowski, M. Kerstetter, et. al., 1993. (Amount \$60,000.)
22. A number of grants from Western Michigan University and the State of Michigan for conducting research in various areas of computer science.

List of Publications

1. “RDMTk: A toolkit for Risky Decision Making” (with V. Gavirangaswamy, A. Gupta and M. Terwilliger). *International Journal of Cognitive Informatics and Natural Intelligence (IJCINI)*, Vol 13, Issue 4, pp. 1-38, October 2019.
2. “Fog-based local and remote policy enforcement for preserving data privacy in the Internet of Thing” (with A. Al-Hasnawi and S. Carr). *Journal of Internet of Things; Engineering Cyber Physical Human Systems*, Elsevier, Volume 7, September 2019, 100069.
3. “Leveraging Machine Learning and Big Data for Smart Buildings: A Comprehensive Survey” (with B. Qolomany, A. Al-Fuqaha, D. Benhaddou, S. Alwajidi, J. Qadir and A. Fong). *IEEE Access*, Vol. 7, pp 90316-90356, July 2019.

4. "A Multithreading and Hashing technique for Indexing Target-Decoy Peptides Databases" (with M. Maabreh, H. Irshid and I. Alsmadi). Journal of Concurrency and Computation: Practice and Experience, Wiley, Vol. 30, Issue 9, May 2018.
5. "A Performance Comparison of Machine Learning Algorithms in the Diagnosis of Heart Disease" (with H. Prudhomme and O. Langejans and R. Agrawal). Poster, Southwest MI Science and Engineering Fair, March 2018
6. "Role of Deep LSTM Neural Networks And Wi-Fi Networks in Support of Occupancy Prediction in Smart Buildings" (with B. Qolomany, A. Al-Fuqaha, and D. Benhaddou). In the proceedings of the 15th IEEE International Conference on Smart City (SmartCity 2017), December 2017.
7. "CPU-GPU Implementation of Ensemble Clustering Algorithm for Increased Performance" (with V. Gavirangaswamy), In the proceedings of the 2017 International Conference on Intelligent Communications and Computational Techniques, December 2017.
8. "Deep vs. Shallow Learning-based Filters of MSMS Spectra in Support of Protein Search Engines" (with M. Maabreh, B. Qolomany, J. Springstead and I. Alsamdi). In the Proceedings of the International Workshop on Deep Learning in Bioinformatics, Biomedicine, and Healthcare Informatics, IEEE International Conference on Bioinformatics and Biomedicine (BIBM), November 2017.
9. "Deep Learning-based MSMS Spectra Reduction in Support of Running Multiple Protein Search Engines on Cloud" (with M. Maabreh, B. Qolomany and I. Alsmadi), In the Proceedings of the 4th International Workshop on High Performance Computing on Bioinformatics (HPCB 2017), IEEE International Conference on Bioinformatics and Biomedicine (BIBM), November 2017.
10. "Mining Domain Similarity to Enhance Digital Indexing" (with S. Lakhanpal and R. Agrawal), In the proceedings of the 9th International Conference on Management of Digital EcoSystems (MEDES'17), November 2017.
11. "Towards Centralized MS/MS Spectra Preprocessing: An Empirical Evaluation of Peptides Search Engines using Ground Truth Datasets" (with M. Maabreh and I. Alsmadi), In the proceedings of the 17th annual IEEE International Conference on Bioinformatics and Bioengineering, October 2017.
12. "Optimizing Protein Search Engines using Particle Swarm Optimization" (with M. Maabreh, B. Qolomany and J. Springstead), In the proceedings of the 17th annual IEEE International Conference on Bioinformatics and Bioengineering, October 2017.
13. "Parameters Optimization of Deep Learning Models using Particle Swarm Optimization" (with B. Qolomany, M. Maabreh, A. Al-Fuqaha and D. Benhaddou),

In the proceedings of the 13th International Wireless Communications and Mobile Computing Conference (IWCMC), Valencia, Spain, June 2017.

14. “Optimizing an Artificial Immune System Internet Flow Classification Algorithm,” (with B. Schmidt, A. Al-Fuqaha and D. Kountanis). Elsevier Journal - Applied Soft Computing, Volume 54, pp. 1-22, May 2017.
15. “Topic Modelling – A Big Data Challenge” (with S. Lakhanpal). In the 2016 International Conference on Advances in Interdisciplinary Statistics and Combinatorics, Greensboro, NC, September-October, 2016
16. “A Parallel Peptide Indexer and Decoy Generator for Crux Tide using OpenMP” (with M. Maabreh and F. Saeed). In the proceedings of 2016 International Conference on High Performance Computing & Simulation -- HPC Systems for Biomedical, Bioinformatics and Life Sciences, Innsbruck, Austria, July 2016. *Best paper award nominee.*
17. “A Parallel Implementation of Reinforced Learning Model used in Analyzing Risky Decision Making” (with V. Gavirangaswamy and A. Gupta). In the proceedings of 2016 International Conference on High Performance Computing & Simulation, Innsbruck, Austria, July 2016.
18. “A Novel Approach to Detect Localized Muscle Fatigue during Isometric Exercises” (with P. Bhat). Poster, in the proceedings of the IEEE EMBS 13th Annual International Body Sensor Networks Conference, June 2016.
19. “Security Issues in Solar-Powered Wireless Sensors” (with V. Bhuse). In the proceedings of the 2016 International Conference on Informatics, Management and Technology of Solar Energy – Issues and Opportunities (ICIMTSE ‘16), March 2016.
20. “A Model for Scheduling Service Migration for Energy Harvesting RSU Clouds in VANETs” (with Z. Kamal, M. Salahuddin and H. Elbiaze). In the proceedings of the 2016 International Conference on Informatics, Management and Technology of Solar Energy – Issues and Opportunities (ICIMTSE ‘16), March 2016.
21. “On Internet of Things-Based Solar Energy Management Systems” (with B. Qolomany). ^[1]_{SEP} In the proceedings of the 2016 International Conference on Informatics, Management and Technology of Solar Energy – Issues and Opportunities (ICIMTSE ‘16), March 2016.
22. “Discover Trending Domains using Fusion of Supervised Machine Learning with Natural Language Processing” (with S. Lakhanpal and R. Agrawal). In the proceedings of the International Conference on Information Fusion, July 2015.
23. “Towards Extracting Domains from Research Publications,” (with Shilpa Lakhanpal, and Rajeev Agrawal,). The 26th Modern Artificial Intelligence and Cognitive Science

conference, Apr 25-26, 2015, Greensboro, USA. http://ceur-ws.org/Vol-1353/paper_32.pdf

24. “On Discovering Most Frequent Research Trends in a Scientific Discipline using a Text Mining Technique” (with S. Lakhapal and R. Agrawal). In the proceedings of the 52nd Annual ACM Southeast Conference, March 2014.
<http://dl.acm.org/citation.cfm?id=2638528>
25. “Towards a 5-phase Adaptive and Scalable Performance Modeling for Cloud Enabled VANET Applications” (with N. Gupta). In the proceedings of the 20th Annual IEEE Conference on High Performance Computing: Student Research Symposium, December 2013.
26. “Assessment of ARIMA-based Prediction Techniques for Road-Traffic Volume” (with V. Gavirangaswamy, G. Gupta and R. Agrawal). In the proceedings of the 2013 International ACM Conference on Management of Emergent Digital EcoSystems (MEDES’13), October 2013.
27. “On Providing User-Level Data Privacy in Cloud” (with M. Revalla and V. Bhuse). In the proceedings of the 2013 International Conference on Cloud Security Management (ICCSM’13), October 2013.
28. “Role of Traffic Prediction in Intelligent Transportation Systems” (with V. Gavirangaswamy and R. Agrawal), Seventh Annual Research and Creative Activities Poster Day, Western Michigan University, April 2013.
29. “An Overview of Cloud Computing Security” (with M. Revalla). Seventh Annual Research and Creative Activities Poster Day, Western Michigan University, April 2013.
30. “Survey: Using ICT Best Practices to Reach Stakeholders in Developing Countries” (with R. Agrawal and Y. Baker). 66th Annual Conference of the Indian Society of Agricultural Statistics, December 2012.
31. “Structural Health Monitoring using Fatigue Sensor,” (with S. Gaokanakonda, M. Ghatnasala and D. Kujawski). Sixth Annual Research and Creative Activities Poster Day, Western Michigan University, April 2012.
32. “On Cloud Computing Performance Evaluation Tools,” (with N. Gupta). In the 18th Annual International Conference on High Performance Computing: Student Research Symposium 2011, December 2011.
33. “Dual-Use Ground Vehicle Condition-Based Maintenance,” (with W. Liou, J. Grantner, M. Ghantasala, et.al.). Report to the U.S. Army Tank Automotive, Research, Development and Engineering Center (TARDEC). Classified. August 2011.
34. “BANBAD: A Centralized Anomaly Detection Technique for Ad Hoc Networks,” (with R. Agrawal, C. Cai, R. Paul and R. Salih). Book chapter in: Network Security, Administration, and Management: Advancing Technologies and Practices, ed. Dulal C. Kar and Mahbubur R. Syed, IGI Global, DOI: 10.4018/978-1-60960-777-7.ch013, 2011.

35. "Quality Of Service In An Opportunistic Capability Utilization Network," (with L.Lilien, Z. Kamal, I. Woungang and E. Tamez). Book chapter in: *Mobile Opportunistic Networks: Architectures, Protocols and Applications*, ed. M. Denko, Auerbach Publications, Taylor and Francis Group, ISBN 978-1-4200-8812-0, May 2011.
36. "Opportunistic Resource Utilization Networks - A New Paradigm for Specialized Ad hoc Networks," (with L.Lilien, Z.Kamal and Z. Yang). *Computers and Electrical Engineering* 36 (2010), pages 328-340. (Also available online, doi:10.1016/j.compeleceng.2009.03.010.)
37. "A Centralized Belief-Networks-Based Anomaly Detection Algorithm for MANETs" (with C. Cai and R. Paul). IEEE Globecom, December 2009. Also appeared as Department of Computer Science Technical report, CS TR09-01, March 2009. A poster related to this work was presented at WMU Research Day 2009.
38. "A Centralized Anomaly Detection Technique for Ad Hoc Networks Using Belief Networks" (with C. Cai, and R. Paul). Submitted for journal publication, September 2009.
39. "Lagrangean Relaxation for Service Location in Large-scale Networks with QoS Constraints," (with Z. Kamal and A. Al-Fuqaha). *Journal of Wireless Communications and Mobile Computing*, Vol 9, 2009, pages 1-15.
40. "Localization in Ad Hoc and Sensor Wireless Networks with Bounded Errors" (with M. Terwilliger and C. Coullard). 15th Annual IEEE International Conference on High Performance Computing, December 2008.
41. "Power Consumption Analysis of Maximum A Posterior Classification using LU Decomposition and Jacobi Iterations" (with Z. Kamal, A. Khokhar and L. Lilien). *IEEE Transactions on Parallel and Distributed Systems*, Vol. 19 (11), November 2008, pages 1473-1483.
42. "A New UMA Paradigm: Class 2 Opportunistic Networks," (with Z.H. Kamal, L. Lilien, Z. Yang, and M. Batsa). Chapter 17 in: Y. Zhang, L.T. Yang, and J. Ma (Eds.), *Unlicensed Mobile Access Technology: Protocols, Architectures, Security, Standards and Applications*, Auerbach Publications, Taylor & Francis Group, Boca Raton, Florida, pages 349-392, 2008.
43. "The Concept of Opportunistic Networks and Their Research Challenges in Privacy and Security," (with L. Lilien, Z. H. Kamal, and V. Bhuse.) Chapter 5 in: S.K. Makki, P. Reiher, K. Makki, N. Pissinou, and S. Makki (Eds.), *Mobile and Wireless Network Security and Privacy*, Springer Science+Business Media, Norwell, Massachusetts, 2008, pp 85-113.
44. "Mobility-Pattern-Based Anomaly Detection Algorithm in Mobile Networks" (with C. Cai). International Conference on Communications, May 2008.
45. "Using Lagrangean Relaxation for Service Location Planning with QoS constraints in Large-Scale Networks" (with Z. Kamal and A. Al-Fuqaha), International Conference on Communications, May 2008, pages 424-428.

46. "The MicroOppnet Testbed for Trust, Security, and Privacy Experiments in Heterogeneous Environments" (with V. Kundoor, V. Achutaramaiah, L. Lilien and Z. Kamal). CERIAS Symposium, March 2008.
47. "The MicroOppnet Tool for Collaborative Computing Experiments with Class 2 Opportunistic Networks," (with Z. H. Kamal, L. Lilien, and Z. Yang). Proc. of The 3rd International Conference on Collaborative Computing: Networking, Applications and Worksharing (CollaborateCom 2007), White Plains, New York, November 12-15, 2007, pages 150-159.
48. "Opportunistic Networks: Finding and Using Helpers Dynamically", (with L. Lilien, B. Bhargava, I. Woungang, and Z. Yang), Poster, NSF NeTS Wireless Networks PI Meeting, Illinois Institute of Technology, Chicago, July 12, 2007.
49. "PANSY: A Portable Autonomous Irrigation System" (with B. Beckmann.) Journal of Indian Society of Agricultural Statistics, Vol. 61 (2), August, 2007, pp 156-163.
50. "A Service Location Problem with QoS Constraints," (with Z. Kamal and A. Al-Fuqaha). The International Wireless Communications and Mobile Computing Conference, August 2007, pages 641-646.
51. "Detection of masquerade attacks on Wireless Sensor Networks" (with V. Bhuse and A. Al-Fuqaha). 2007 IEEE International Conference on Communications (ICC), June 2007.
52. "Opportunistic Networks for Emergency Applications and Their Standard Implementation Framework" (with L.Lilien and Z. Yang.) To appear in the First International Workshop on Research Challenges in Next Generation Networks for First Responders and Critical Infrastructures (*NetCri07*), IEEE IPCCC, April 2007, pages 588-593.
53. "BANBAD: Bayesian-Network-Based Anomaly Detection for MANETs" (with C. Chaoli and L. Lilien). Poster at WMU Research Day and at CERIAS Symposium, March 2007.
54. "MicroOppnet: Small-Scale Testbed for Class II Opportunistic Networks" (with Z. Kamal and L. Lilien). Poster at WMU-IT Forum, March 2007 and at WMU Research Day, April 2007.
55. "An Efficient MAP Classifier for Sensornets" (with Z. Kamal, L. Lilien and A. Khokhar). In the Proceedings of the 13th International IEEE/ACM Conference on High Performance Computing (HiPC), LNCS 4297, pp. 560 – 571, December 2006.
56. "PANSY: A Portable Autonomous Irrigation System" (with B. Beckmann.) In the International Conference on Statistics and Informatics in Agricultural Research, December 2006
57. "Research Challenges in Intrusion Detection for Wireless Sensor Networks" (with V. Bhuse and L. Lilien.) In the 8th International Symposium on System and Information Security, CD Proceedings, ISBN 85-8797813-6, November 2006.

58. "Opportunistic Networks: Challenges in Specializing the P2P Paradigm" (with L. Lilien and Z. Kamal). In the 3rd International Workshop on P2P Data Management, Security and Trust (PDMST06), pp. 722-726, September 2006.
59. "Classification using Efficient LU-decomposition in Sensornets" (with Z. Kamal, L. Lilien and A. Khokhar). In the IASTED Conference on Wireless Sensor Networks, paper 538-026, July 2006.
60. "Opportunistic Networks" (with L. Lilien, Z. Kamal, V. Bhuse and Z. Yang). Poster paper in the 3rd International Conference on Networked Sensing Systems (INSS), June 2006.
61. "Power Efficient Algorithms for Computing Fast Fourier Transforms over Wireless Sensor Networks" (with T. Canli and A. Khokhar). In the 4th ACS/IEEE International Conference on Computer Systems and Applications (AICCSA-06), March 2006.
62. "Opportunistic Networks: The Concept and Research Challenges in Privacy and Security" (with L. Lilien, Z. Kamal and V. Bhuse). In the International Workshop on Research Challenges in Security and Privacy for Mobile and Wireless Networks (WSPWN06), pp. 134-147, March 2006.
63. "Opportunistic Networks for Emergency Preparedness and Response" (with L. Lilien). Poster paper, in the E-enterprise Conference, Purdue Homeland Security Institute (PHSI06), March 2006.
64. "Lightweight Intrusion Detection for Sensor Networks" (with V. Bhuse and L. Lilien), Poster paper, 7th Annual CERIAS Information Security Symposium, March 2006. *Honorable Mention award.*
65. "Opportunistic Networks and Their Privacy and Security Challenges" (with L. Lilien, Z. Kamal, and V. Bhuse). Poster paper, 7th Annual CERIAS Information Security Symposium, March 2006.
66. "Anomaly Intrusion Detection in Wireless Sensor Networks" (with V. Bhuse). Journal of High Speed Networks, 15(1):33-52, 2006.
67. "DPDSN: Detection of packet-dropping attacks for wireless sensor networks" (with V. Bhuse and L. Lilien), In the Trusted Internet Workshop, International Conference on High Performance Computing, December 2005.
68. "Localization using Evolution Strategies in Sensornets" (with M. Terwilliger, A. Khokhar and G. Greenwood). In the Proceedings of the IEEE Congress on Evolutionary Computation, September 2005.
69. "Using Routing Data for Information Authentication in Sensor Networks" (with V. Bhuse, M. Terwilliger, Z. Yang and Z. Kamal). In the Proceedings of the 3rd International Trusted Internet Workshop (TIW), International Conference on High Performance Computing, December 2004.
70. "Power-Time Efficient Algorithm for Computing FFT in Sensor Networks" (with T. Canli, M. Terwilliger and A. Khokhar), Extended Abstract. In the Proceedings of the Second ACM Conference on Embedded Networked Sensor Systems (SenSys), November 2004.

71. "Analytical Analysis of Data and Decision Fusion in Sensor Networks" (with Z. Kamal, M. Salahuddin, M. Terwilliger, V. Bhuse and B. Beckmann). In the 2004 International Conference on Embedded Systems and Applications. Las Vegas, June 2004.
72. "A Localization System using Wireless Sensor Networks: A Comparison of Two Techniques" (with M. Terwilliger, V. Bhuse, Z. Kamal, and M. Salahuddin,). In the Proceedings of the 2004 Workshop on Positioning, Navigation and Communication, Hanover, Germany, pages 95-100, March 2004.
73. "Should one Incorporate Mobile-ware in Parallel and Distributed Computation?" (with M. Sanver and S. Durairaju). International Conference on High Performance Computing, December 2003.
74. "DSPTS: A Distributed Security Protocol for Sensornets" (with V. Bhuse and R. Pidva), In the Proceedings of the IEEE Semiannual Vehicular Technology Conference – Wireless Ad hoc, Sensor, and Wearable Networks: Energy Efficient and Context-Aware Designs, October 2003
75. "On the Scalable Computation of Large Sets of Integrals" (with E. de Doncker and L. Cucos). In the Proceedings of the 16th International Conference on Parallel and Distributed Computing Systems, pages 144-150, August 2003.
76. "Efficient Embeddings of Ternary Trees into Hypercubes" (with J. Nelson and H. Wang). Journal of Parallel and Distributed Computing, 63(6):619-629, 2003.
77. "Workforce-Constrained Preventive Maintenance Scheduling using Evolution Strategies" (with S. Ahire, G. Greenwood and M. Terwilliger). Decision Sciences, 31(4):1-27, 2001.
78. "Cache Consistency in Concurrent Database Applications - IRCTP Design" (with S. Pathak). In the Proceedings of the International Conference on Communications and Devices, pp. 67-71, December 14-16, 2000.
79. "A Flexible Frame Time Division Multiple Access (TDMA/FF) Technique for Mobile Computer Networks" (with S. Pathak). In the Proceedings of the Fifth International Conference on Computer Science and Informatics, (CS&I 2000), pages 341 - 344, February 27 - March 03, 2000.
80. "Credibility of Data in World Wide Web" (with C. Prasad, Haripriya, M. Mohania and Y. Kambayashi). Advanced Database Research and Development Series, Advances in Multimedia and Databases for the new Century 10:199-205, 1999.
81. "Large Scale Parallel Numerical Integration" (with E. de Doncker and R. Zanny). Journal of Computational and Applied Mathematics, 112:29-44, 1999.
82. "Experiences With a Distributed Priority Queue on a Network of Workstations" (with R. Zanny). In the Proceedings of the 6th International Conference on High Performance Computing, 1999.
83. "Tools for Distributed Adaptive Multivariate Integration on NOWs" (with E. dedoncker, A. Genz and R. Zanny). Abstract/poster. Supercomputing 98, 1998.
84. "Multivariate Integration on Hypercubic and Mesh Networks" (with E. de Doncker) Parallel Computing, 24:1223–1244, 1998.
85. "Extrapolation in Distributed Adaptive Integration" (with E. de Doncker, R. Zanny and J. Maile). In the Proceedings of the 5th International Conference on High Performance Computing, 1998.

86. "Adaptive Multivariate Integration using MPI" (with E. de Doncker and M. Guo). In the Proceedings of the 4th International Conference on High Performance Computing, pages 152 - 158, 1997.
87. "A Parallel Stochastic Algorithm for the Numerical Computation of High Dimensional Integrals over Infinite Integration Regions" (with E. de Doncker and A. Genz). In the SIAM conference on High Performance Computing, 1997.
88. "Construction of a Parallel GMRES(k) Solver" (with E. deDoncker). In the Eighth SIAM Conference on Parallel Processing for Scientific Computing, 1997.
89. "Adaptive Integration Using Evolutionary Strategies" (with E. de Doncker and G. Greenwood). In the Proceedings of the 3rd International Conference on High Performance Computing, pages 94 - 99, 1996. This paper received the *best paper award* in the Algorithms and Applications area.
90. "Finite Element Applications of Parallel Adaptive Integration Strategies" (with E. de Doncker and P. Ealy). In the Proceedings of the 3rd International Conference on High Performance Computing, pages 100 - 105, 1996.
91. "Experience with the Yerebin Algorithm on IBM-SPx" (with E. de Doncker). In the proceedings of the Conference SUP'EUR 96, 1996.
92. "Applications of Evolutionary Strategies to Fine-Grained Task Scheduling" (with G. Greenwood). Parallel Processing Letters, vol. 6, no. 4, pages 551 - 561, 1996.
93. "Preconditioned Conjugate Gradient Solver for Large Sparse Systems on MPI" (with E. de Doncker, P. Ealy and J. Ball). To appear in the Proceedings of the International Conference Parallel and Distributed Processing Techniques and Applications (PDPTA '96), August 1996.
94. "Two methods for Load Balanced Distributed Integration" (with E. de Doncker, P. Ealy). Lecture Notes in Computer Science, Springer-Verlag, 1067:562-570, 1996.
95. "Static Task Allocation Using (μ , $_$) Evolutionary Strategy" (with G. Greenwood). InfoScience (Applications), Vol 94, No. 1-4, pages 141-150, October 1996.
96. "ParInt: A Software Package for Parallel Integration" (with E. de Doncker, J. Ball, P. Ealy and A. Genz). In the Proceedings of the 10th International Conference on Supercomputing, pages 149 - 156, May 1996.
97. "Parallel Adaptive Integration for Finite Element Type and Other Problems" (with E. de Doncker). In A. Tentner, editor, High Performance Computing 1996, Grand Challenges in Computer Simulation, pages 238-243, 1996.
98. "Use of ParInt for Parallel Computation of Statistics Integrals" (with E. de Doncker, A. Genz, P. Ealy, J. Liu and A. Sureka). Computing Science and Statistics, 27, 1996.
99. "Singular Integral Computation with ParInt" (with E. de Doncker, K. Rathbun and J. Ball). In the Proceedings of the International Conference Parallel and Distributed Processing Techniques and Applications (PDPTA '95), pages 23-30, November 1995.
100. "Coarse Grain Preconditioned Conjugate Gradient Solver for Large Sparse Systems" (with E. de Doncker). In the Proceedings of the Seventh SIAM Conference on Parallel Processing for Scientific Computing, Ed. R. Schreiber, pp. 472-477, February 1995.
101. "Parallel Implementations of Evolutionary Strategies" (with G. Greenwood, R. Munnangi, and S. Ahire). In the Proceedings of the Int'l Conf. on High Performance Computing, pages 469 - 474, December 1995.

102. "Scheduling Replicated Critical Tasks in Faulty Networks Using Evolutionary Strategies" (with G. Greenwood and M. Terwilliger). In the Proceedings of the 1995 IEEE Int'l Conf. on Evolutionary Computing, pages 152 - 156, 1995.
103. "Weighted Selection on Coarse Grain Hypercubes" (with D. Chen). In the Proceedings of the Sixth Annual ACM-IEEE Symposium on Parallel and Distributed Processing, pages 544 - 552, 1995.
104. "On Improving the Performance of Tree Machines" (with H. Wang). International Journal of High Speed Computing, vol. 7, no. 2, pages 251 - 263, June 1995.
105. "Scalability of Parallel Battlefield Management Simulators on Local Memory Computers" (with S. Prasad, S. Danda, N. Deo and T. Tripuraneni). In the Proceedings of the IASTED International Conference on Modeling and Simulation, April 1995.
106. "Development of a Parallel and Distributed Integration Package: Part I" (with E. de Doncker, P. Ealy and K. Rathbun). Lecture Notes in Computer Science, Springer Verlag, vol. 919, pages 229 - 234, 1995.
107. "Task Redistribution in Faulty Networks using Evolutionary Strategies" (with G. Greenwood and M. Terwilliger). In the Proceedings of the International Workshop on Parallel Processing, Bangalore, India, pages 249 - 254, December 1994.
108. "Distributed Adaptive Integration: Algorithms and Analysis" (with E. deDoncker). Transputers'94, pages 266 - 277, September 1994.
109. "Incomplete Hypercubes: Algorithms and Embeddings" (with A. Boals and N. Sherwani). In The Journal of Supercomputing, volume 8, pages 263 - 294, 1994.
110. "Load Balanced Priority Queues on Distributed Memory Machines" (with A. Photiou). In the Proceedings of the Parallel Architectures and Languages Europe - PARLE, Lecture Notes in Computer Science, volume 817, pages 689 - 700, July 1994.
111. "Scheduling Tasks in Multiprocessor Systems using Evolutionary Strategies" (with G. Greenwood and K. McSweeney). In the Proceedings of the IEEE International Conference on Evolutionary Computation, pages 345 - 349, 1994.
112. "Multiprocessor Scheduling of High Concurrency Algorithms" (with G. Greenwood and V. Mahadik). In the Proceedings of the Seventh Annual Florida Artificial Intelligence Research Symposium: Session on Genetic Algorithms in Artificial Intelligence, pages 265 - 269, 1994.
113. "Latin Cubes and Parallel Array Access" (with C. Fan and J. Liu). In the Proceedings of the 1994 International Parallel Processing Symposium, pages 128 - 132, April 1994.
114. "Parallel Organization and Performance of an Information System" (with D. Motzkin). To appear in the Proceedings of the 1994 Symposium on Applied Computing.
115. "Multiple Network Embeddings into Hypercubes" (with S. E. Hambruch). Journal of Parallel and Distributed Computing, vol. 19, pages 73 - 82, 1993.
116. "On Parallel Retrievals using Distributed Memory Computers" (with D. Motzkin). In the Proceedings of the IEEE Workshop on Advances in Parallel and Distributed Systems (PADS), Princeton, New Jersey, pages 96 - 101, October 1993.
117. "A Simple Hypercube Algorithm for k-selection" (with A. Photiou). InfoScience, Seoul, Korea, pages 731 - 738, October 1993.

118. "An Efficient Directory System for Document Retrieval using Parallel Processing" (with D. Motzkin). In the proceedings of the Second Annual Symposium on Document Analysis and Information Retrieval, pages 349 - 365, April 1993.
119. "Models for Scheduling Task Graphs onto Hypercube Systems" (with A. Boals, J. Hashmi, and N. Sherwani). In the Proceedings of the Eighth International Conference on Mathematical Modeling and Scientific Computing, vol 2, pages 209 - 214, 1993.
120. "Load Balanced Tree Embeddings" (with S. E. Hambrusch). Parallel Computing, vol 18, pages 595 - 614, 1992.
121. "On Embedding Ternary Trees into Boolean Hypercubes" (with H. Wang). In the Proceedings of the Fourth IEEE Symposium on Parallel and Distributed Processing, pages 230 - 235, December 1992.
122. "Generalized Compressed Tree Machines" (with H. Wang). In the Proceedings of the Sixth International Parallel Processing Symposium, pages 95 - 102, March 1992.
123. "Minimum Average Dilation Embeddings for Hypercubes" (with N. Sherwani and A. Winston) Congressus Numerentium, vol 85, pages 161 - 176, December 1991.
124. "Embedding Complete Binary Trees into Butterfly Networks" (with S. E. Hambrusch). IEEE Transactions on Computers, Vol 40, No 7, pages 853 - 863, July 1991.
125. "An Approximation Algorithm for Hypercube Scheduling" (with A. Boals, J. Hashmi, and N. Sherwani), In the Proceedings of the International Conference on Computing and Information, pages 474 - 483, May 1991.
126. "Compact Hypercubes: Properties and Recognition" (with A. Boals and N. Sherwani). In the Proceedings of the International Conference on Computing and Information, pages 395 - 402, May 1991.
127. "On Optimal Embeddings into Incomplete Hypercubes" (with A. Boals and N. Sherwani). In the Proceedings of the Fifth International Parallel Processing Symposium, pages 416 - 423, May 1991.
128. "Efficient Algorithms for Scheduling Tasks on Hypercubes" (with A. Boals, J. Hashmi, and N. Sherwani). In the Proceedings of the Sixth Distributed Memory Computing Conference, pages 76 - 82, May 1991.
129. "A Lower Bound on Embedding Large Hypercubes into Small Hypercubes" (with A. Boals, N. Sherwani, and S. Hambrusch). Congressus Numerentium, vol 78, pages 141 - 151, December 1990.
130. "Multiple Network Embeddings into Hypercubes" (with S. E. Hambrusch). In the Proceedings of the Fifth Distributed Memory Computing Conference, pages 1384 - 1392, April 1990.
131. "Embedding Large Tree Machines into Small Ones" (with S. E. Hambrusch). In the proceedings of the 5th MIT Conference on Advanced Research in VLSI, MIT Press, pp. 179-199, March 1988.
132. "Optimal 3-dimensional Layouts of Complete Binary Trees" (with S. E. Hambrusch). Information Processing Letters, vol. 26, no. 2, pages 99 - 104, October 1987.
133. "On Optimal 3-dimensional Layouts of Complete Binary Trees" (with S. E. Hambrusch). In the Proceedings of the 24th Annual Allerton Conference on Communication, Control, and Computing, pages 573 - 574, October 1986.

Invited Presentations / Articles Submitted for Publication

1. “Future Trends in Networking – Smart Pill Motivation,” Distinguished Speaker talk at Manipal University, Jaipur, India, October 2016.
2. “The NSF/IEEE-TCPP Curriculum Initiative on Parallel and Distributed Computing,” Invited talk at the 11th European Workshop on Microelectronics Education, Southampton, UK, May 2016.
3. “High Performance Informatics for Big Data Medical Research,” Distinguished speaker talk at MERI Group of Institutions, MERI College of Engineering and Technology, Delhi, 2016.
4. “High Performance and Big Data Proteogenomics – Challenges and Opportunities,” Distinguished speaker at the 2015 Workshop on Advanced Computing Networking, Guangzhou, China, May 2015.
5. “Opportunistic Resource Utilization Networks,” IISc Global Conference, Chicago, July 2013.
6. “Using ICT Best Practices to Reach Stakeholders in Developing Countries,” Yolanda Baker, Rajeev Agrawal, Ajay Gupta, International Conference on Statistics and Informatics in Agriculture, Dec 18-20, 2012. Invited Conference Presentation.
7. “Smart Sensor Networks – Challenges and Opportunities,” Distinguished Speaker talk at LN Mittal Institute of Technology, Jaipur, India, December 2012.
8. “Designing, simulation and testing of a data acquisition card for a condition based maintenance project” (with N. Gupta). For publication within US Army circulars. Classified. July 2011.
9. “Can Smart Sensor networks Permeate our Society,” Malviya National Institute of Technology, Jaipur, India, December 2010.
10. “Mining Domain Similarities from Digital Libraries,” (with S. Lakhanpal and R. Agrawal), submitted to International journal on Digital Libraries, 2016.
11. “On Bounding Localization Errors” (with M. Terwilliger and C. Coullard). Journal submission to ACM Mobile Computing and Communications Review (MC2R).
12. “An Adaptive MAC Protocol for Efficient Group Communications in Sensor Networks” (with T. Canli, Z. Chen, A. Khokhar). Submitted for conference publication.
13. “Efficient Algorithms for Computing Fast Fourier Transform over Wireless Sensor Networks” (with T. Canli, M. Terwilliger and A. Khokhar). Submitted for journal publication.

Ph.D. Students (Research)

Abduljaleel Al-Hasnawi, Hasan AlShahrani, Vijay Bhuse, Chaoli Cai, Vinay Gavirangaswamy, Shilpa Lakhanpal, Zille-Huma Kamal, Majdi Maabreh, Rajani Pingili, Mark Terwilliger, Basheer Qolomany, Ihab Ahmed Mohammed (comm), Shadha Muhi Noor Tabatabai (comm)

M.S. Students (R&D)

Vikash Achutaramaiah, Sheersh Agrawal, Smriti Agrawal, Umer Ahmed, Adawia Alalawneh, Osama Awwad, Bilal Abu Bakr, Praveen Bhat, Hector Chavez, Edward Crampton, Dillon Daudert, Siva Desaraju, Sathya Priya Durairju, Muaaz Gul Awan, Danyang Hua, Yu-Ting Huang, Mohamed El-Wakil, Nishant Gupta, Andrew Hassevoort, Andrew J Hovingh, Vivek Kinra, Jonah Kubath, Varunkrishna Kundoor, Mustafa Manver, Sandino N. Vargas-Pérez, Mitul Patel, Madhuri Revalla, Mohammad Ali Salhuddin, Raed Salih, Junaith Shahabdeen, Ashwin Vijayakumar

B.S. Students (R&D)

Benjamin Beckmann, Kyle Batzer, Domonic D Caro, Prashant Gupta, Shrey Gupta, Andrew Hassevoort, David Landreth, Muhammad Khan, Q R Lodhi, Matthew Peter, Evan Rubin, Praneet Soni, Partha Vasisht, Nisha Verma

High School Students (R&D)

Jonathan Brelje, Eric Boromisa, Caleb Crooks, Aakash Gupta, Gagan Gupta, Amin Itani, Ravi Kothari, Owen, Langejans, Alex Liou, Henri Prudhomme, Samuel Rabick

Awards Received by My students

- *[Best Paper Award nomination]* M. Maabreh (with A. Gupta and F. Saeed), “A Parallel Peptide Indexer and Decoy Generator for Crux Tide using OpenMP,” The 14th *International Conference on High Performance Computing and Simulation*, July 2016.
- *[Scholarly Endeavor Award (WMU)]* Z. H. Kamal (with A. Gupta and L. Lilien), “MicroOppnet – Small-Scale Testbed for Class 2 Opportunistic Networks,” *Research and Creative Activities Day*, Western Michigan University, April 20, 2006 (poster).
- *[Honorable Mention in Student Poster Competition]* V. Bhuse (with A. Gupta and L. Lilien), “Lightweight Intrusion Detection for Sensornets,” *The Seventh Annual CERIAS Information Security Symposium - "Negotiating Trust: Security, Privacy, Risk,"* Center for Education and Research in Information Assurance and Security (CERIAS), Purdue University, West Lafayette, Indiana, March 21, 2006.

Academic Honors

- Awarded David Ross Fellowship, Purdue University, 1988.
- Recipient of Addison and Wesley Award for best academic performance at University of Cincinnati, 1984.
- Distinction in Actuarial Exam, part-2, 1984.
- Merit Scholarship at Birla Institute of Technology and Science, 1977-1982.

Professional Service

- Member of numerous Technical Program Committees and Advisory Boards of international conferences over the years. Reviewer for many conferences and journals.
- Institutional, college and departmental service in many committees including University Sabbatical Leaves, Grade Appeals and Program Dismissals Appeals, Graduate Council.

Membership in Professional Societies

- Association of the Computing Machinery (ACM).
- Institute of Electrical and Electronics Engineers (IEEE). (Senior Member.)
- Special Interest Group on Algorithms and Computation Theory (SIGACT).
- American Society of Engineering Education (ASEE).

Community Work

- Member, Scholarship Committee at the Kalamazoo Foundation, 2013-2016
- Board Member, Indo American Cultural Center and Temple, 2003-2007
- Webmaster, IACCT, kalamazootemple.org. 2001