

Resume at a Glance

Dr. Prof. V. LAKSHMI NARASIMHAN

B.Sc., B.E., M.E., Ph.D., GCM, CELD, P.E., PCM, SrMACM, MAAEE, SrMIEEE,
Fellow ACS, Fellow IEAUST, Fellow IEE (IET)

- Total Research Funding Managed to date > \$5.5 Million
- Total Salary Budget Managed to date > \$10 Million
- Funding Organizations ARC, Australian DoD, US DoD, Rational Inc., Boeing Inc., & many other organizations
- Research and Academic Staff Managed at any one time > 70
- Papers in International Journals and Conferences ~250
- On Technical Panels > 80 Leading IEEE/ACM/ACS Conferences
- Invited Keynote Addresses & Tutorial Presentations >12 International Conferences
- Honors and Graduate Students Supervised > 50
- Number of Years in Academia > 18
- Number of Years in Industry > 10
- Major R & D Projects Completed to date > 20
- Involvement in CRCs CRC-CI, CRC-CIEAM, CRC-DSTC
- Defense Security Clearance Level Top Secret Positive Vetting
- **Distinguished Speaker of ACM (Association for Computing Machinery), USA.**
- **Distinguished Speaker of IEEE (Institute of Electrical and Electronics Engineering), USA.**
- Regular Referee for leading IEEE, ACM Journals and International Conferences.
- Editorial Board Member of **International Journal of Emerging Computing and Networking Technologies – IJECNT**, 2012-current.
- Editorial Board Member of **International Journal on Information Sciences and Computing, ISSN 0973-9092, www.ijisac.com**, 2011-current.
- Editor-in-Chief, **Conferences in Research and Practice in Information Technology (CRPIT)**, The Australian Computer Society (ACS) Conference Series, 2006-2007.
- Editorial Board Member of International Journal of Network Security (IJNS), <http://isrc.nchu.edu.tw/ijns/> (2005-current).
- Editorial Board Member of **International Journal on Intelligent Decision Technologies (IJIDT)**, 2006-2009.

- Editorial Board Member of **Neurocomputing**, <http://www.elsevier.com/locate/neucom>, 2006-current.
- Editorial Board Member of **Informing Science: The International Journal of an Emerging Transdiscipline**, 2006-current.
- Editorial Board Member of **International Journal of Network Security & Its Applications** (IJNSA), ISSN: 0974 – 9330 (Online), ISSN Pending (Print), 2009-current.
- International Editorial Board Member of **Journal Business Management**, 2008-current.
- International Editorial Board Member for the **Journal of Information Technology Education**, 2008-current.
- International Editorial Board Member for the **International Journal of Computer Technology and Electronics Engineering**, 2011- current.
- International Editorial Board Member for the **International Journal of Emerging Technology and Advanced Engineering**, 2011-current.
- Editorial Advisory Board of **Intelligent Technologies for the Aged: the Grey Digital Divide**, IGI Global Publishers, (www.igi-global.com)
- **Program Evaluator for Computer Science, ABET** (Accreditation Board for Engineering and Technology), USA.
- Executive Board Member, NIST Managed Federal Information Systems Security Educators' Association (FISSEA), 2008-2010; ex-officio member since 2010.
- **Board Member (Independent), Birla Research Foundation India Limited, 2011 onwards.**
- Invited Foreword to the Book, "Innovation in business and Enterprise: technologies and frameworks", Dr. L. Al-Hakim, IGI Global Publishers, 2009.
- **One of the top 5% most viewed LinkedIn profiles for 2012.**

- Mission Critical Projects Managed includes the following:
 - Combat system design and development (submarine systems)
 - Event algebra system for operational command, virtual environment (classified) & E-commerce
 - Peta byte Geospatial Information System (GIS)
 - Human language technologies for information management and information fusion
 - Distributed object computing facility (CORBA Trader, meta object facility and others). Actual application classified.
 - Embedded systems operating system and system design
 - Multiprocessor (hardware) systems design, operating systems design, load balancing techniques, distributed algorithms and complexity analysis

- Professional Associations

- Fellow, Institution of Electrical Engineers (IEE), UK (now re-named Institution of Engineers & Technologists, UK)
- Fellow, Institution of Engineers, Australia (I.E.Aust)
- Fellow, Australian Computer Society (A.C.S.)
- Senior Member, Institution of Electronic and Electrical Engineers, USA (IEEE)
- Senior Member, Association of Computing Machinery (ACM)
- Expert Technical Panel Member of International Standards Organization (ISO) – ISO TC108 on Engineering Asset Management.
- Expert Technical Panel Member of Institution of Electronic and Electrical Engineers, USA (IEEE). (P730 Software Quality Assurance Standards Working Group (WG), Committee/Standard for Systems and software engineering - Life cycle processes - Requirements engineering, IEEE Indic Virtual Keyboards Working Group (P1908.1), ISO/IEC JTC1/SC7, and other Working Groups; and, WG21 Software Asset Management).
- Executive Board Member (and regular member), NIST-based Federal Information Systems Security Educators' Association (FISSEA), 2008-2010; ex-officio member since 2010.
- Core Group Member, National Board of Accreditation (NBA), New Delhi, India, since 2012.
- Desk Appraisal Member, National Board of Accreditation (NBA), New Delhi, India, since 2012.
- Life Member, Indian Science Congress Association (ISCA)
- Member, International Federation for Information Processing (IFIP)
- Member, Informing Science Institute (ISI)
- Member, The Australian Association for Engineering Education (AAEE)
- Member, Standards Australia and Standards New Zealand
- Technical Member (Information Standards), American National Standards Institute (ANSI)
- Australian Army Reserve (Engineering)
- Member, Newcastle Chamber of Business
- Consultant to The Boeing Aerospace Company, USA
- Consultant to MIMOSA (Machinery Information Management Open Source Alliance), USA
- Member WASET (World Academy of Science, Engineering and Technology), USA, scientific and committees
- Chair, East Carolina ACM Professional Chapter, 2008-current.
- Member, Society of Educational & Entrepreneurship Development (SEED)
- Scientific Chair of COINFO – 25-27 October 2013, Wuhan, China, <http://coinfo.istic.ac.cn/>
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Dr. Prof. V. LAKSHMI NARASIMHAN

B.Sc., B.E., M.E., Ph.D., GCM, CELD, P.E., SrMACM, MAAEE, SrMIEEE,
Fellow ACS, Fellow IEAUST, Fellow IEE (IET)

PERSONAL PARTICULARS

Address for : Vice-President (Research)
Communication : Srikar & Associates Intl. Inc.
109 Fairmount Way, NC 28562, USA (also at India & Australia)
Email: vlinsimhan60@gmail.com
Cell : +1-270-392-4891 (USA) and +91-98402-42910 (India)

Marital Status : Married with two children

ACADEMIC QUALIFICATIONS

CELD Certificate in Executive Leadership Development, Defence Science and Technology Organisation (DSTO), Australia.

GCM Graduate Certificate in Management (Scientific Leadership), University of South Australia.

Ph.D. The University of Queensland, Australia. Broad area of research: parallel processing systems; specific area of work: dataflow architectures, multiprocessor systems and languages.

M.E. Madras Institute of Technology, Madras, India, in the field of Electronics and
(**Distinction**) Computer Engineering. (now part of Anna University, Chennai)

B.E. Indian Institute of Science, Bangalore, India, in the field of Electronics and
(**Distinction**) Communication Engineering.

B.Sc. University of Madras, Madras, India, majoring in Physics with Mathematics and
(**Distinction**) Chemistry as ancillaries.

ACADEMIC DISTINCTIONS

1. Received the University of Queensland Postdoctoral Research Fellowship during 1989-1990.
2. Received the University of Queensland Post Graduate Research Scholarship for my Ph.D. Degree. This award is tenable for 4 years though I availed myself of this award for 3½-years only.
3. Received the University Grants Commission (UGC) award during the M.E. Degree. This award was given for 1½-years by the Government of India.
4. Received the Tata Endowment Merit Scholarship during the B.E. Degree from the prestigious Tata Foundation, Bombay, India. This award was given for 3-years.
5. Received National Scholarship during the B.Sc. Degree from the Government of India. This award was given for 4-years.

6. Received various prizes during high school study period, which include the State First award in the school final examination. Received the best student award in school for academic performance. Also won several awards for excellence in extra-curricular activities.

RESEARCH PUBLICATIONS

I have published a large body of technical reports and papers in journals and international conferences on various aspects of the theory and practice of information systems design, management and exploitation. (Some reports are classified). I have also edited two books, both from the IEEE Press. Details available upon request.

INDUSTRIAL AND TEACHING EXPERIENCE

2010-Present Vice-President (Research)
Srikar & Associates Intl. Inc.
109 Fairmount Way, NC 28562, USA (also at India & Australia)
Email: vlmsimhan60@gmail.com
Cell: +1-270-392-4891 (USA) and +91-98402-42910 (India)

R&D Activities

- Research on Medical Information Systems
- Research on Software Engineering Issues
- Research on Command & Control Systems for a wide variety of platforms (both commercial and Military platforms) – covers several areas
- Research on issues on information management and information fusion
- Research on Asset Management Issues
- Research Human Computing Issues

2008-2010 Full Professor
Department of Computer Science
East Carolina University
Greenville
NC 27858
USA
Email: narasimhanl@ecu.edu

Example systems delivered

- Information studies frameworks, such as PROVIDE (an educational system), wherein several courses, training programs, hands-on exercises and interactive mechanisms have been achieved. This system further has a FAQ, Question generator and a (simple) automatic marker. This system is targeted at providing several educational programs, such as, Java, JavaBeans, Microsoft based System analysis, Requirements analysis, Testing and various other educational objectives. I was also involved in the development and delivery of various modules for these courses. One interesting feature of the system is that one can dynamically compose a course using existing modules. This system has been successfully employed to deliver courses to industry – both on-site and off-site.
- Biographical information extraction and exploitation framework (BINFOX): for biographical data management for insurance, finance and defence industries (contains hardware, software and operating system). The project is being applied to business intelligence and profiling of real-world objects, such as

communicable diseases. This system is used by Librarians, Analysts and specialists in information retrieval.

- An information Prospecting Facility (Panorama) for design recovery, automatic metrics generation and testability of large software systems (contains hardware, software and operating system).
- Multi-level Information and System Security: Addresses issues in software component security and integration and related metrics (contains hardware, software and operating system).
- An Integrated Supply-chain Management Solution: Addresses issues in supply chain management including visualisation, scheduling, planning and plan generation.
- OSA-CBM Compliant Autocoder (Boeing Inc. consultancy): An OSA-CBM Compliant Autocoder software has been developed for integrated data collection, condition monitoring and maintenance of various systems and sub-systems for Boeing Inc. – much of the work is commercial-in-confidence and on-going.
- Information Security: This area included two major projects, one involving cryptographic algorithms as applied to e-Commerce and related applications and another on end-to-end information security for multiple databases.
- Medical Informatics: This area included one project on cardiovascular diseases life cycle management pan and software infrastructure design and development. This project is now elaborated with pulmonary care providers. Consequently, the second project deals with Obstructive Sleep Apnea (OSA) and its impact on the cardiovascular system and their life-cycle/s. These two projects are being carried out in conjunction with medical specialists at the Brody School of Medicine at East Carolina University. Several international standards development are also being considered under this project in its later stages. This system is used by Librarians (particularly with a Medical focus), Analysts and specialists in information retrieval.

My professional activities are on: Open distributed processing using middlewares, such as CORBA, EJB and COM+ technologies, performance modeling of information systems, multimedia information analysis tools (incorporating geospatial data), free text processing, ontology management and trader processing, techniques for information fusion, information extraction, information integration, data warehousing and data mining. My research activities in software technology include: component technology, composability in software systems and technologies for horizontal and vertical integration. Example systems delivered (or currently being developed) include OGC compliant (CORBA based) geospatial data delivery system, fact extraction system, speech processing system and information fusion system. Data warehousing and data mining components are present in these systems through integration of second party (government) and third party (commercial) products (i.e., GOTS and COTS). Several of the systems have significant commercial applicability with large message processing companies like financial institutions and TV & Radio stations. These systems have been used for business analysis, information flow studies, process re-engineering, etc. The issues raised here have relevance to mobile computing also.

My responsibilities include: Supervising four research assistants, three tutors, five masters students, and several undergraduate students. Induction, critical assessment, mentoring and peer evaluation of several classified tasks are part of the responsibilities in this position.

2006-2008

Technical Director, Srikar & Associates Intl. Inc.
Full Professor
Department of Computer Science
Western Kentucky University

Bowling Green
KY 42101
USA

Example systems delivered

- **Sensor Network for Asset Management:** This project concerned the development and deployment of sensor networks for asset management; several ISO and MIMOSA Standards are being used in this project. Applications include, medical, agricultural, security, detection and other areas (contains hardware, software and operating system).
- **Systems and Technology for Homeland Security:** This area included two major projects involving mobile and autonomous systems for information gathering and analysis (contains hardware, software and operating system).
- **Information Security:** This area included two major projects, one involving cryptographic algorithms as applied to e-Commerce and related applications and another on end-to-end information security for multiple databases.
- **Medical Informatics:** This area included one project on cardiovascular diseases life cycle management pan and software infrastructure design and development.

My professional activities are on: Open distributed processing using middlewares, such as CORBA, EJB and COM+ technologies, performance modeling of information systems, multimedia information analysis tools (incorporating geospatial data), free text processing, ontology management and trader processing, techniques for information fusion, information extraction, information integration, data warehousing and data mining. My research activities in software technology include: component technology, composability in software systems and technologies for horizontal and vertical integration. Example systems delivered (or currently being developed) include OGC compliant (CORBA based) geospatial data delivery system, fact extraction system, speech processing system and information fusion system. Data warehousing and data mining components are present in these systems through integration of second party (government) and third party (commercial) products (i.e., GOTS and COTS). Several of the systems have significant commercial applicability with large message processing companies like financial institutions and TV & Radio stations. These systems have been used for business analysis, information flow studies, process re-engineering, etc. The issues raised here have relevance to mobile computing also.

My responsibilities include: Supervising four Assistant Professors, one Post-doctoral Fellow, five research assistants, three tutors, seven masters students, and several undergraduate students. Induction, critical assessment, mentoring and peer evaluation of several classified tasks are part of the responsibilities in this position.

2002-2006 Technical Director, Srikar & Associates Inc.
Full Professor and Chair in Software Engineering
School of Electrical Engineering and Computer Science (EECS)
University of Newcastle
Callaghan, Newcastle
NSW 2308
AUSTRALIA

Example systems delivered

- **Mechanisms for Ultra-secure Access to Large Repositories of Sensitive Data over the Grid (consultancy):** This project concerned the development of ultra-secure access mechanisms to protect

sensitive medical data. This project was compliant with various provisions of HIPPA (contains hardware, software and operating system).

- Heterogeneous Asset Integration, Management and Visualisation Platform (consultancy): This project concerns with development of a distributed system for managing a variety of asset profiles (typically manufacturing and process industries), their management and condition visualization from a single-point of entry. This work was compliant with the various Standards of ISO, ANSI and MIMOSA (contains hardware, software and operating system).
- A Critical Investigation into Metrics for Component Based Software Engineering (CBSE) (consultancy): This project concerned the development of a software system to obtain values for a suite of metrics for various phases of CBSE, which include issues that cover, design phase, development phase, coding phase, testing phase and various operations such as, costing and management. The software can handle people/consultants situated at multiple sites.
- Campus Mobility Map: Online Access to Information for People with a Mobility Disability (consultancy): This project from the Federal Ministry of Aged care concerns the development of 3-D maps with several types of articulation (e.g., facilities) (contains hardware, software and operating system).
- Medical Informatics: This area included one project on cardiovascular diseases life cycle management pan and software infrastructure design and development.

My professional activities are on: Open distributed processing using middlewares, such as CORBA, EJB and COM+ technologies, performance modeling of information systems, multimedia information analysis tools (incorporating geospatial data), free text processing, ontology management and trader processing, techniques for information fusion, information extraction, information integration, data warehousing and data mining. My research activities in software technology include: component technology, composability in software systems and technologies for horizontal and vertical integration. Example systems delivered (or currently being developed) include OGC compliant (CORBA based) geospatial data delivery system, fact extraction system, speech processing system and information fusion system. Data warehousing and data mining components are present in these systems through integration of second party (government) and third party (commercial) products (i.e., GOTS and COTS). Several of the systems have significant commercial applicability with large message processing companies like financial institutions and TV & Radio stations. These systems have been used for business analysis, information flow studies, process re-engineering, etc. The issues raised here have relevance to mobile computing also.

My responsibilities include: Supervising four research assistants, five tutors, five masters students, and several undergraduate students. Induction, critical assessment, mentoring and peer evaluation of several classified tasks are part of the responsibilities in this position.

2001-2002 Technical Director, Srikar & Associates Inc.
Full Professor
Computer Science Department
University of North Texas
PO Box 311366
TX 76203
USA

Example systems delivered

- Development of a system for system requirements elicitation, evaluation and its effectiveness, which was based on a self-paced questionnaire that had been developed so as to link both dynamically and bi-directionally to the actual requirements. The system was evaluated with MS students over a period of five years in two different Universities – as a longitudinal study.
- Human language technology had been pursued through the fact extraction software system towards business intelligence applications. This system was also capable of performing as a tunable front-end to a number of data mining applications.
- Medical Informatics: This area included one project on cardiovascular diseases life cycle management pan and software infrastructure design and development.
- Systems and Technology for Homeland Security: This area included two major projects involving mobile and autonomous systems for information gathering and analysis (contains hardware, software and operating system).

My professional activities are on: Open distributed processing using middlewares, such as CORBA, EJB and COM+ technologies, performance modeling of information systems, multimedia information analysis tools (incorporating geospatial data), free text processing, ontology management and trader processing, techniques for information fusion, information extraction, information integration, data warehousing and data mining. My research activities in software technology include: component technology, composability in software systems and technologies for horizontal and vertical integration. Example systems delivered (or currently being developed) include OGC compliant (CORBA based) geospatial data delivery system, fact extraction system, speech processing system and information fusion system. Data warehousing and data mining components are present in these systems through integration of second party (government) and third party (commercial) products (i.e., GOTS and COTS). Several of the systems have significant commercial applicability with large message processing companies like financial institutions and TV & Radio stations. These systems have been used for business analysis, information flow studies, process re-engineering, etc. The issues raised here have relevance to mobile computing also.

My responsibilities include: Supervising four research assistants, five tutors, six masters students, and several undergraduate students. Induction, critical assessment, mentoring and peer evaluation of several classified tasks are part of the responsibilities in this position.

1995-2001 Head and Principal Research Scientist, Information Management and Fusion Group, Information Technology Division, DSTO, Australia 5108.

Sep.98 – Jan.99 : Acting Research Leader, Command Control and Intelligence Systems (on special higher duty assignment).

Defence R&D is challenging and soon after joining, amalgamation of what at the time were two separate groups took place. The group consisted of 27 staff from a variety of backgrounds and with a range of abilities. I developed an effective research program and provided positive leadership and in a time of rapid change within Defence and DSTO, I was able to develop a shared vision for what this group and the individuals within it could achieve. I had been able to achieve this through on-going partnership with my customers and my colleagues from a range of specialities, and through my positive attitude, beliefs and enthusiasm.

Furthermore, I maintained links with academia and industry. I had co-ordinated several joint seminars with industry representatives and, in addition, my staff and I were key players in various DSTO initiatives through the CRC program in the Distributed Systems Technology Centre, Brisbane. I had been instrumental in starting the Distributed Applications Special Interest Group, a joint academic-industry forum, for

analysing information infrastructure issues. My research experience led to my appointment as Adjunct Professor in the University of South Australia, where I continued to contribute to academic teaching and research. This association not only provides DSTO with a valuable link to academic research and improved access to well-qualified graduates, but also gave the University access to very experienced researchers within DSTO. In addition I had served on a number of international conference organising and technical committees, further strengthening DSTO's network of industry and academic contacts.

Example systems delivered

- A middleware compliant (CORBA) geospatial data delivery system had been built to handle Peta bytes (million Gigabytes) of data over 22 domain catalogs. Ideas on data dictionary (and metadata) and bi-directional linking technologies were investigated so that user-query performance can be optimized in the best manner. The architecture of the system employed a three layer service model so that a variety of user types can be handled efficiently over various communication channels. The system had been developed using COTS (Commercial-off-the-shelf), GOTS (Government-off-the-shelf) and in-house technologies. A full conceptual version of the system was currently functional, which met fault tolerance and other quality of service metrics. The system had also been amalgamated with an distributed heterogeneous image delivery system.
- Human language technology had been pursued through: a) a fact extraction software system to discover “Who?, When? What? Where? and How?”, which had been developed using Java and middleware (CORBA) technology and had been ported over a number of platforms and integrated with a number of systems. The system had been shown to be useful for data mining applications, for example. b) a speech processing and transcription software system had been developed to augment the fact extraction system, so that broadcast material could now be used as a means for driving the fact extraction system for analysis purposes. This system was also capable of performing as a tunable front-end to a number of data mining applications.
- An information fusion system had been developed (prototype is already functional) to handle multiple message and transaction types so that useful filtering and integration of information led to a better fused picture of current activities in a business environment. The fused picture led to better decision support for higher management in terms of taking both re-active and pro-active course of actions.
- One of the first Trader specifications and an operational version was designed within my group. The work was performed in conjunction with DSTC CRC (Cooperative Research Centre for Distributed Systems Technology Corporation) located in Brisbane (at the University of Queensland campus). The output of the work was taken as a submission for OMG Trader specification and implementation and was later successfully approved (along with the work by Unisys). The fundamental basis of this work was the development of a sub-graph matching algorithm, which is a variant of the one proposed by Edgar Dijkstra.
- Meta Object Facility (MOF): MOF allows the definition/specification of meta objects (information about objects), which was useful in addressing issues in interoperability. The MOF and Trader along with a cataloging system (primarily based on a light weight version of Z39.50) had been used as a means for solving problems in interoperability and composability. The MOF specification was also considered by the OMG.
- Data warehousing and data mining components were present in these systems through integration of second party (government) and third party (commercial) products (i.e., GOTS and COTS). Though these systems were being delivered to Defense customers, they have significant commercial applicability to companies requiring to process large amount of messages and transactions, such as financial institutions, Media organizations, Digital Library industry and TV & Radio stations. These systems had been used for business analysis, information flow studies, process re-engineering, cognitive modeling, etc.

My professional activities are on: Intelligence applications (specific details are classified, but mainly on automating business and technical information process re-engineering), Open distributed processing using middlewares such as DCE/CORBA, EJB and COM+ technologies, performance modeling of information systems, multimedia information analysis tools (incorporating geospatial data), free text processing, ontology management and trader processing, techniques for information fusion, information extraction, information integration, data warehousing and data mining. My research activities in software technology include: component technology, composability in software systems and technologies for horizontal and vertical integration. Example systems delivered (or currently being developed) include OGC compliant (CORBA based) geospatial data delivery system, fact extraction system, speech processing system and information fusion system. Data warehousing and data mining components are present in these systems through integration of second party (government) and third party (commercial) products (i.e., GOTS and COTS). Several of the systems have significant commercial applicability with large message processing companies like financial institutions and TV & Radio stations. These systems had been used for business analysis, information flow studies, process re-engineering, etc. The issues raised here have relevance to mobile computing also.

My responsibilities include: Supervising six senior research scientists, seven research scientists and a member of professional officers. Induction, critical assessment, mentoring, peer evaluation of several classified tasks, strategic planning, budget and financial planning and intellectual and human resources management are part of the responsibilities in this senior position.

Security Clearance: Top Secret (positive vetting).

I was also an Adjunct Associate Professor at the University of South Australia, The Levels, Australia, where my research centered on message understanding machines and mechanisms for searching and sorting.

1985-1995 Senior Lecturer in the Department of Electrical and Computer Engineering, The University of Queensland, Brisbane-4072, Australia.

My professional activities are on: 1) parallel programming languages and algorithms (two suites were developed for evaluation of parallel and distributed systems using PVM and PARMACS), 2) development of large scale software testing and validation tool (originally developed for Ada, but being ported by several researchers for other programming languages), 3) a distributed simulation tool using Petri nets, 4) VLIW and systolic architecture tool (mainly compiler optimization based tool), 5) performance modeling tool, 6) LAN and WAN based distributed operating systems, 7) Transputer based applications (mainly image processing algorithms using MPEG 4-7 standards) and 8) load scheduling and distribution on multiprocessor systems.

My teaching centered on: Parallel Processing Paradigms and Languages, Supercomputer architectures and Distributed Operating Systems Design and Analysis.

My responsibilities included: Supervision of 12 postgraduate students and overall design, development and delivery of courses to undergraduates and postgraduates. Significant research leadership skills led to the formation of a Research Laboratory, seeding of an IEEE sponsored leading International Conference series and receipt of several competitive research grants. I was also the Director of the PA3SE (Parallel Algorithms, Architectures And Software Engineering) Research Laboratory.

1989-1992 Lecturer in the Department of Electrical Engineering, University of Queensland, Brisbane-4072, Australia.

My professional activities are on: 1) parallel and distributed computer and software architectures, languages and algorithms, 2) development of software assessment and validation tool and 3) distributed simulation.

My teaching centered on: 1) Advanced Digital Design 2) Super Computer Architectures and 3) Parallel Processing Paradigms and Languages.

My responsibilities included: Supervision of five postgraduate students and overall design, development and delivery of the courses to undergraduates and postgraduates. Deploying my professional abilities, I was able to work towards a Research Laboratory through grants from various bodies.

1988-1989 In various capacities, namely, Postdoctoral Fellow and Senior Research Assistant Grade-2 in the Department of Electrical Engineering, University of Queensland, Brisbane-4072, Australia.

Research work centered on the development of features such as batching arbitration and fault tolerance over a multiprocessor system.

1985-1988 Tutorial Assistant in the Department of Electrical Engineering, University of Queensland, Brisbane-4072, Australia.

My duties included offering tutorials, laboratory demonstration and correction of assignments. I have handled advanced (honors) courses such as Programming languages: Theory and Practice, Super Computer Architectures, Digital Communication, Modulation Theory, Advanced Digital Design and Microcomputer Interfacing.

I had also given a few guest lectures to the course on Programming languages theory and Super Computer Architectures.

1984-85 Hindustan Computers Private Limited, Madras, India as Systems Programmer. I developed an utility for volume preserving and compression on the PDP-11/780 computer system using C programming language and under a Unix-like operating system. The system was sold by the company as part of their commercial software suite.

1983 Trainee engineer at the Bharat Electronics Laboratories, Bangalore, India. Training covered several sectors of the organization including design, manufacturing and testing. Designed and developed a small test-rig for one of their digital systems facility.

1981-82 Trainee engineer at the Naval Physical Oceanographic Laboratories, Cochin, India. Developed a multi-source data acquisition system with visualization capability.

OTHER CONCURRENT APPOINTMENTS HELD (Paid or unpaid or honorarium-basis)

2012 (months) Research Director, PSN College of Engineering, Anna University, Melathediur, Palayamkottai, Tamil Nadu 627152, India.

2012 (2 months) Visiting Full Professor, Department of Avionics, Indian Institute of Space

	science and Technology (IIST), Valliamala, Kerala, India.
2011 (3.5 months)	Visiting Research Fellow, ABB Inc. Bangalore, India.
2009 (3.5 months)	Visiting Scientist, CSIRO (Council for Scientific and Industrial Research Organisation), Hobart, Australia.
2006-Present	Adjunct Full Professor, Department of Computer Science, University of Arkansas, Little Rock, AR72204, USA.
2008-Present	Adjunct Full Professor, Department of Computer Science and Electronics Engineering, Amal Jyothi College of Engineering, Kottayam, India.
2006-Present	Asset Management Consultant, Boeing Aerospace Corporation, St. Louis, MO, USA.
2006-Present	Technical Director, Srikar Consultancies Pty Ltd, Australia.
2008 (5 weeks)	Visiting Scientist, CSIRO (Council for Scientific and Industrial Research Organisation), Brisbane, Australia.
2007 (6 months)	Asset Management Consultant, MIMOSA, Cincinnati, OH, USA.
2004 (6 months)	(visiting) Associate Professor, Nanyang Technological University, Singapore
2001 (3 months)	Institute of Systems Sciences, National University of Singapore, Singapore.
2001 (5 months)	(visiting) Associate Professor, Brooklyn College, CUNY, NY, USA.

RESEARCH GRANTS AND CONTRACTS SUCCESSFULLY MANAGED

NOTE: Australian research grants **DO NOT** include the salaries of academic staff members involved in the project.

1. Australian Research Council (large grant) on, "A Novel Dynamic Dataflow Multiprocessor System, 1991-93, (V.Lakshmi Narasimhan, T.Downs, L.Skattebol) Amount Awarded: AUD\$102,000.
2. National company teaching grant scheme on, "The Development of An Auto Sampling System", 1991-92, in collaboration with M/s. Analytical Instruments Pty Ltd, Brisbane, (V.Lakshmi Narasimhan), Amount: AUD\$50,000.
3. Tertiary Education Development Institute grant on, "SIL: Simulation Development Package", 1991, Amount: (V.Lakshmi Narasimhan), AUD\$6000.
4. University of Queensland Special Projects grant on, "The Design and Implementation of a Low Cost Shared Memory Multiprocessor System", 1991, (V.Lakshmi Narasimhan), Amount: AUD\$6,000.
5. ATERB grant on "An Integrated Tool for Testing Large Communications Software Systems", 1994, (V.Lakshmi Narasimhan), Amount: AUD\$4,000.

6. DEET and Institution of Engineers, Australia, International Conference Support Scheme for the First International Conference on Algorithms and Architectures for Parallel Processing (ICA³PP) held in Brisbane from 19-22 April, 1995, (V.Lakshmi Narasimhan), Amount: AUD\$10,000.
7. Queensland Tourism Development, "ICA3PP International Conference 1995", (V.Lakshmi Narasimhan), AUD\$1,000.
8. DSTO Task: DST95/187, 1995-97, valued at AUD \$100,000 on Advanced Information Management issues, (Task Manger: V.Lakshmi Narasimhan), Later award increased to AUD \$600,000 for the same period.
9. DSTO Task: DST97/185, 1997-2000, valued at AUD \$745,000 on Intelligence, Information and Fusion Management, (Task Manger: V.Lakshmi Narasimhan).
10. Australian Research Council (large grant) on, "Design and Evaluation of Data-Rule Allocation Algorithms in Distributed Deductive Database Systems", 1998-2000, (M.Mohania and V.Lakshmi Narasimhan), Amount Awarded: AUD \$151,000.
11. US Defense Department Grant on, "Automatic Processing of Speech (various aspects)", 1998-2000, (V.Lakshmi Narasimhan), Amount Awarded: US \$80,000.
12. US Defense Department Grant on, "Tools for Business Intelligence Processing (various aspects)", 1999-2001, (V.Lakshmi Narasimhan), Amount Awarded: US\$200,000.
13. Institute of Systems Science (ISS), National University of Singapore, "Consultancy on Research Enhancement at ISS", Singapore, (V.Lakshmi Narasimhan), Amount Awarded: SING\$24,000, 2001.
14. University of North Texas Research Establishment Grant, "Research Program in Software Engineering", USA, (V.Lakshmi Narasimhan), Amount Awarded: US \$50,000, 2001.
15. Rational Software Corporation, USA, "The Software Engineering Education Development (SEED) Program", (V.Lakshmi Narasimhan), Amount Awarded: US \$325,350, 2002.
16. The University of Newcastle Research Establishment Grant, "Research Program in Software Engineering and Information Engineering", Australia, Amount Awarded: AUD \$50,000, 2003.
17. The University of Newcastle Research Project Grant, "Medaline: MEDALine INformation extraction and Exploitation System", (V.Lakshmi Narasimhan and H.Ye), Amount Awarded: AUD \$4,714, 2004.
18. The University of Newcastle, "Mobile Embedded Systems TEchnology (MESTEC) Research Centre", Strategic Initiatives Fund, (V.Lakshmi Narasimhan, S.Chalup, J.Khan, A.Kouzani, H.Ye and A.Quail), Amount Awarded: AUD \$65,000, 2004. Added with one APA for 3.5 years to do a PhD, the allocation for 2004, is around AUD \$145,000. Allocation of funding for years 2005-2006 are pending.
19. CRC on Integrated Engineering Asset Management (CRC-CIEAM), "Long term strategic partnership with the International Standards Organisations MIMOSA and ISO on the IT aspects of Integrated Asset Management", (V.Lakshmi Narasimhan), Total Project Funding for 2004-07: AUD\$406,050.
20. CRC on Integrated Engineering Asset Management (CRC-CIEAM), "Postgraduate Student Scholarships", (V.Lakshmi Narasimhan), Total funding for 2005-2009: AUD\$140,000.

21. CRC on Construction Innovation (CRC-CI), "Issues in Asset Management Software Visualization", (V.Lakshmi Narasimhan), Funding for 2004 (Stage 2): AUD \$50,000. Stage 3 proposal is pending.
22. The University of Newcastle International Travel Grant to attend IEEE Software Engineering Research and Practice (SERP 2004) Conference, USA, (V.Lakshmi Narasimhan), Amount Awarded: AUD\$2,500, 2004.
23. Equity and Diversity Program, (Federal Ministry of the) Department of Education, Science and Technology, (thru' The University of Newcastle), HEEP (Higher Education Equity Program) Research Grant Program, "Campus Mobility Map: Online Access to Information for People with a Mobility Disability", (V.Lakshmi Narasimhan), AUD\$17,000, 2005-06.
24. The University of Newcastle Research Project Grant, "A Critical Investigation into Metrics for Component Based Software Engineering (CBSE)", (V.Lakshmi Narasimhan), AUD\$3,311, 2005.
25. CRC on Integrated Engineering Asset Management (CRC-CIEAM), "Heterogeneous Asset Integration, Management and Visualisation Platform", 2005-08, (V.Lakshmi Narasimhan), AUD\$66,000.
26. Australian Research Council: eScience Program, "Mechanisms for Ultra-secure Access to Large Repositories of Sensitive Data over the Grid", ARC Funding: AUD\$100,000, 2006-2007, (P Croll, V Lakshminarasimhan, W Caelli, J Soar). Total Funding: AUD\$214,260.
27. Equity and Diversity Program, (Federal Ministry of the) Department of Education, Science and Technology, (thru' The University of Newcastle), HEEP (Higher Education Equity Program) Research Grant Program, "Campus Mobility Map: Online Access to Information for People with a Mobility Disability: Phase II", (V.Lakshmi Narasimhan), AUD\$18,000, 2006-07.
28. Western Kentucky University, "Program Development Grants", (V.Lakshmi Narasimhan), US\$1,500, 2006.
29. Proposal Incentive Fund Grant, Western Kentucky University, "Meta-Analysis of Clinical Cardiovascular Data towards Evidential Reasoning for Disease Management", (V.Lakshmi Narasimhan and Di Wu), US\$22,600, 2007.
30. NSF Kentucky EPSCoR, "Intensive Workshop on High Performance Computing for Informatics and Bioscience", (V.Lakshmi Narasimhan and Di Wu), US\$10,000, 2007.
31. Western Kentucky University, "Equipment Grant", (V. Lakshmi Narasimhan and Emam), \$16,000, 2007.
32. Kentucky Biomedical Research Infrastructure Network (KBRIN) Research Grant, "A Novel Method for Protein Structural Refinement using Coarse-Grained Models over a High Performance Computing Environment", (Di Wu and V. Lakshmi Narasimhan), \$25,000, 2007-2008.
33. MIMOSA (Machinery Information Management Open Source Alliance), Cincinnati, USA, R&D Grant, "MIMOSA Standards for communication technologies for large machinery asset management" (V. Lakshmi Narasimhan), \$10,000, 2007.
34. ACM FCRC Educator's Travel Grant to attend, "ACM Federated Computing Research Conference FCRC2007", San Diego, USA, June 8-16, (V. Lakshmi Narasimhan), \$1,225, 2007.
35. NSF DFWG 2007 Educator's Travel Grant to attend, "Digital Forensics Working Group conference", June 17-20, 2007, at the Kentucky Regional Computer Forensics Laboratory at the University of

Louisville Shelby Campus, (V. Lakshmi Narasimhan), \$1,000, 2007.

36. Boeing Aerospace Corporation, St. Louis, MO, “Design of an Autocoder for Boeing OSA-CBM Implementation”, US\$70,000 (2007 - awarded), US\$134,000 (2008 - awarded), US\$90,000 (2009-awarded, but funding did not materialize due to market collapse).
37. Western Kentucky University, Faculty Scholarship Council Grant, “A Comprehensive Approach to Formal Analysis and Verification of Security Protocols”, (V. Lakshmi Narasimhan), \$4,000, 2007-08.
38. Kentucky White Paper Infrastructure Funding, “Automation, Robotics, Simulation, and Animation at Western Kentucky University”, (T. Leeper, V. Lakshmi Narasimhan, M. Mostafa, D.W. Hoffa and M. Cambron), US\$1,400,000 (2008).
39. East Carolina University, “Intelligent Asset Management”, (V. Lakshmi Narasimhan), US\$40,000, 2008-2010.
- 40.

PENDING RESEARCH GRANT APPLICATIONS

Available upon request.

NUMBER OF HONORS AND GRADUATES SUPERVISED

1. Awarded Honors theses : More than 70 (Seven of them won various awards and four of them won the outstanding thesis award of the year)
2. Awarded MEngSc (res) theses : 12
1. Awarded PhD degrees : 10
2. Phd students : 3
3. MEngSc (res) students : 2 (currently registered)

OTHER ACCOMPLISHMENTS

A. TEACHING AND TEACHING INTERESTS

I have taught the following courses at the undergraduate and postgraduate levels (in no specific order of preference). The course syllabi may be provided upon request. Postgraduate level courses reflect my research aspirations as well. . Teaching technique has always been hands-on in most aspects with materials drawn from recent books and papers on research and practical journals.

A.1 Undergraduate Level

Digital systems design and computer arithmetic

Computer Architecture (quantitative and qualitative approaches)

Parallel and Distributed Algorithms

Distributed Operating Systems

Data structures and algorithmic optimisation

Principles of programming languages (theory and practice)

Software Development Methodology

Software engineering principles and practice

Modelling and simulation (mainly based on Petri nets)

OO systems design and development and integration

Algorithms and complexity metrics

Object Oriented Programming: From C to C++ and Java

Ethical Issues in Software Systems

A.2 Postgraduate Level

Requirements Engineering

Software Specification and Design

Software Design Methodology & Design Patterns

Software Testing

Project Management

Software Metrics and Quality Assurance

Ethical and Legal issues in Software Systems

Advanced computer architectures

Parallel and distributed computing systems (parallelism and distributivity at device level, O/S level and systems level)

Parallel algorithms and performance instrumentation

Requirements engineering

Distributed object computing

Distributed operating systems

Graph theory and queuing theory for distributed systems (both software and hardware systems) applications

Complexity analysis (including theoretical and practical complexity analysis)

Performance evaluation and modelling

Advanced Software Engineering strategies (theoretical aspects for academics and practical aspects for practitioners). Will cover areas like testing, visualisation, instrumentation of software systems

Advanced concepts in systems integration (CORBA, EJB and ODSI and issues in composability)

Digital Library design (for Multimodel, multimedia and geospatial data covering areas like metadata, catalogue service, ontology)

Advanced data and information linking methodologies (http, SGML, XML, UML, VXML, P-UML, etc).

B. ACADEMIC SERVICE

1. Australian Research Council – Internal Referee and later Distinguished External Referee for the following panels (from 1991- current):
 - Discovery Grant Program
 - Industry Linkage Grant Program
 - Australian Research Fellow Grant Program
 - Cooperative Research Centre Program (under the Prime Minister’s Office)
 - and various other grant programs.
2. External examiner for MEngSc and PhD theses from the University of Queensland, Queensland University of Technology, The University of Melbourne, Flinders University , University of South Australia, Deakin University, University of southern Queensland, Anna University, MS University and LaTrobe University.
3. Referee for a number of international journals such as:
 - IEE Proceedings on Computers and Digital Techniques
 - IEEE Transactions on Parallel and Distributed Systems
 - IEEE Transactions on Computers
 - IEEE Transactions on Software Engineering
 - IEEE Transactions on Parallel and Distributed Systems
 - IEEE Computer
 - IEEE Internet Computing
 - IEEE Software Journal
 - IEEE Transactions on Systems, Man, and Cybernetics--Part C: Applications and Reviews
 - Journal of Microcomputer Applications
 - Australian Computer Journal
 - Journal of Systems Sciences
 - The IEAust Journal
 - The Computer Journal (British Computer Society Publication)
 - Journal of Computer Systems, Science and Engineering
 - Informing Science Journal
 - International Journal on Intelligent Decision Technologies
 - (Journal of) Neurocomputing
 - Informing Science: The International Journal of an Emerging Transdiscipline
 - Journal of Computer Science and Technology

(Journal of) Computers & Education
International Journal of Signal and Imaging Systems Engineering (IJSISE)
(Journal of) Computers and Education
Journal of Information Technology Education
Web Intelligence and Agent Systems - *An International Journal*

Referee for a number of leading IEEE International conferences such as:

19th IEEE Fault Tolerant Computing Systems.
Australasian Computer Sciences Conference (3 conferences) 1991-2002.
IEEE Parallel and Distributed Computer Systems Conference 1996-1999.
IEEE High Performance Computing Conference 1995-1999.
Parallel and Real Time Conference 1995-1999.
IEEE International Conference on Algorithms And Architectures for Parallel Processing, 1995-'97.
IEEE Australia New Zealand Intelligent Information Systems Conference 1992-1996
International Computer Systems Conference 1992-95.
IEEE 4th Engineering Information Technology (EIT 2003) Conference, 2003.
International Conference on Scientific & Engineering Computation (IC-SEC), Singapore, 2002.
Fifteenth International Conference on Software Engineering and Knowledge Engineering (SEKE'03), 1-3 July 2003, San Francisco, California.
Sixteenth International Conference on Software Engineering and Knowledge Engineering (SEKE'04), 20-24, June 2004, Alberta, Canada.
IEEE SouthEastCon 2010, Charlotte, USA, 18-21 March, 2010.
ACM SouthEastCon 2010, 15-17, 2010, Oxford, Mississippi, USA.
IEEE DEST Conference, 12-15 April, 2010, Dubai, United Arab Emirates.
WMSCI'2010 (14th World Multi-Conference on Systemics, Cybernetics and Informatics: WMSCI 2010), June 29th - July 2nd, 2010 – Orlando, Florida, USA.
The Third International Conference on Wireless, Mobile Networks & Applications, May 25-27, 2011, Dubai, UAE.
International Conference on Computer Science, Engineering & Applications (ICCSEA-2011), May 25-27, 2011, Dubai, UAE.
Plus, all conferences where I am on the Technical Program Committee (see point 8 below) or Program Chair in some 80+ conferences.

4. Member of the Australian Technology Network (ATN) ARC Small Grants Assessor Network. Referee for a number of large ARC grant proposals (both nominated and invited), small ARC grants and other grant proposals, 1995-2001.
5. Presented a number of research papers in various national and international conferences of repute.
6. I have guided over 35 undergraduate students for their honors/pass theses. Seven of their theses have won awards with four of them winning Outstanding Thesis Award from the Department of Electrical and Computer Engineering and one thesis winning the Outstanding Thesis of the Faculty of Engineering.
7. Anonymously nominated for the Second Edition of Five Hundred Leaders of Influence produced by the American Biographical Institute Inc, North Carolina, USA.

8. Inaugural Chairman and General Chairman for the IEEE First ICA³PP (International Conference on Algorithms and Architectures for Parallel Processing) Conference held in Brisbane from 19th to 21st April, 1995.

9. **Member of the Technical Program Committee for the following conferences:**

- International Computer Systems Conference 1992-95
- Third International Conference on FT&T 1994, USA.
- Second Parallel Architectures for Real Time Systems (PART-95) Conference, Perth, 1995.
- IEEE Second International Conference on High Performance Computing (ICHPC), 1995.
- IEEE Second ICA³PP (International Conference on Algorithms and Architectures for Parallel Processing) Conference, Singapore, 1996.
- Massively Parallel Computing Symposium, Italy, 1996.
- Fourth Euromicro Workshop on Parallel and Distributed Processing, Spain, 1996.
- First International Conference on Computing and Information Technology for Architecture, Engineering and Construction, Singapore, May 1996.
- Third Parallel Architectures for Real Time Systems (PART-96) Conference, Brisbane, 1996.
- IEEE Third ICA³PP (International Conference on Algorithms and Architectures for Parallel Processing) Conference, Melbourne, 1997.
- Fourth Parallel Architectures for Real Time Systems (PART-97) Conference, New Castle, 1997.
- Fifth Parallel Architectures for Real Time Systems (PART-98) Conference, Adelaide, 1998.
- International Workshop on Data Warehouse Design and OLAP Technology (DWDOT'98), August 28, Vienna, August 24-28, 1998.
- Twentieth Australasian Computer Science Conferences (Three conferences), Adelaide, 2000.
- I2TS:2002, International Information Technology Symposium, Oct. 2002, Florianapolis, Brazil.
- IEEE 4th Engineering Information Technology (EIT 2003) Conference, 2003
- Fifteenth International Conference on Software Engineering and Knowledge Engineering (SEKE'03), 1-3 July 2003, San Francisco, California.
- Sixteenth International Conference on Software Engineering and Knowledge Engineering (SEKE'03), 2004, Canada.
- The 2004 International Conference on Software Engineering Research and Practice (SERP'04), June 21-24, 2004, Las Vegas, Nevada, USA.
- The 2004 International Symposium on Web Services and Applications (ISWS'04), June 21-24, 2004, Las Vegas, Nevada, USA.
- The 2004 International Symposium on Embedded Systems Applications (ESA'04), June 21-24, 2004, Las Vegas, Nevada, USA.
- International Workshop on Networked Embedded Computing (NEC-04), Montreal, Canada, Aug. 15-18, 2004.
- The 3rd International Information and Telecommunication Technologies Symposium (I2TS2004), Sao Carlos, SP, Brazil, December 6-9, 2004.
- International Programme Committee and Board of Reviewers of Knowledge Engineering Systems Conf., KES2005, 12-16 Sept, 2004, Melbourne, Australia.

- The 9th World Multi-Conference on Systemics, Cybernetics and Informatics, Orlando, Florida, USA, July 10-13, 2005.
 - IPSI-2005, IPSI BgD Multidisciplinary, Interdisciplinary, and Transdisciplinary Conferences, Carcassonne, France, April 23-26, 2005.
 - IPSI-2005, IPSI BgD Multidisciplinary, Interdisciplinary, and Transdisciplinary Conferences, Frankfurt, Germany, March 11-13, 2005.
 - Thirteenth International Conference on Advanced Computing & Communications - ADCOM 2005, Dec. 14-17, 2005, Amrita Vishwa Vidyapeetham, Coimbatore, India.
 - First International IEEE Workshop on Performance and Management of Wireless and Mobile Networks, Nov. 15-17, 2005.
 - 2005 International Conference on Computer Design (CDES-05), Monte Carlo Resort, Las Vegas, Nevada, USA, June 27-30, 2005.
 - 4th International Information and Telecommunication Technologies Symposium (I2TS'2005), Florianópolis, Santa Catarina, Brazil, December 14-17, 2005, Santa Catarina Federal University – UFSC.
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- 10th International Conference on Knowledge Based & Intelligent Information & Engineering Systems (KES2006), Bournemouth, UK - 9, 10 and 11 October 2006.
 - InSITE 2006 Conference, June 25-28, Greater Manchester, UK, Technical Review Committee (<http://InSITE.NU>).
 - 2006 IEEE International Conference on Computing and Informatics (ICOCI06), 6-8 June, 2006, Kuala Lumpur, Malaysia (<http://www.icoci06.uum.edu.my/DATA/CFPICOCI06.pdf>).
 - 11th Online World Conference on Soft Computing in Industrial Applications (WSC11), Savannah, GA USA, Sept.18 – Oct.6, 2006.
 - The 4th International Conference on Computing, Communications and Control Technologies: CCCT '06 (CCCT 2006), 20-23 July, 2006, Florida, USA.
 - I2TS 2006 - 5th International Information and Telecommunication Technologies Symposium, Cuiabá, Mato Grosso State, Brazil (Federal University of Santa Catarina), 6-8, December 2006.
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- ICHIT'07 (International Conference on Health Information Technology), Berlin, Germany, 12-15 June 2007.
 - Informing Science + IT Education Conference (InSITE 2007), University of Ljubljana, Serbia, 2007.
 - 1st KES International Symposium on Agent and Multi-agent Systems – Technologies and Applications (KES-AMSTA-07), Wroclaw, Poland, 17-18 May, 2007.
 - The 4th International Conference on Computing, Communications and Control Technologies: CCCT '06 (CCCT 2007), Germany.
 - Computer Science & IT Education Conference (CSITEd 2007), November 16-18, 2007, The Republic of Mauritius.
 - I2TS 2007 - 6th International Information and Telecommunication Technologies Symposium, Sao Palo, Brazil, 6-8, December 2007.
 - APMC2007 (Asia Pacific Microwave Conference), Dec.11-14, Bangkok, Thailand, 2007.
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- 9th IBIMA Conference on Information Management in Modern Organization, Marrakech, Morocco 4-6, January 2008
 - UBICOMM 2008, the Second International Conference on Mobile Ubiquitous Computing, Systems, Services and Technologies, to be held in Valencia, Spain, on Sept. 29 – Oct. 4, 2008.
 - Second International Research Workshop on Advances and Innovations in System Testing, May 4-6, 2008, Memphis, TN, USA.
 - Second National Conference on “ Next Generation Technologies”, 17-18 October, 2008, Institute of Technology and Science (ITS), Gaziabad, India

- International Multi-conference on Engineering and Technological Innovation (IMETI 2008) (www.infocybereng.org/imet2008), 29 June-2 July, Orlando, Florida, USA.
- I2TS 2008 - 7th International Information and Telecommunication Technologies Symposium, Foz do Iguacu (Iguacu Falls), Brazil, December 03-05, 2008.
- The 11th World Multi-Conference on Systemics, Cybernetics and Informatics: WMSCI 2008. Los Vegas, 2008.
- IEEE & ICST AustraliaCom'09, March 2009, ICST (Institute for Computer Sciences, Social-Informatics and Telecommunications Engineering), Sydney, Australia
- NIST Managed Federal Information Systems Security Educators' Association (FISSEA) Conference, March 2009, Gaithersburg, USA.
- ICETiC 2009: IEEE International Conference on Emerging Trends in Computing, 8-10 January, 2009, Kamaraj College of Engineering & Technology (KCET), Virudhunagar, Tamil Nadu, India.
- 4th International Symposium on Ubiquitous Applications & Security Services (UASS-09), <http://www.sersc.org/UASS2009/>, January 11-13, 2009, Las Vegas, Nevada, USA
- Software Engineering Symposium, a part of the 2009 World Congress on Computer Science and Information Engineering (CSIE 2009, <http://world-research-institutes.org/conferences/CSIE/2009>), March 31 - April 2, 2009, Los Angeles/Anaheim.
- The 12th World Multi-Conference on Systemics, Cybernetics and Informatics: WMSCI 2009. Los Vegas, USA, 2009.
- InSITE 2009 Conference, June 12-15, 2009, Macon State College, Georgia (USA), 2009.
- 2009 IEEE/INFORMS International Conference on Service Operations, Logistics and Informatics, July 22 - 24, 2009, Chicago, IL, USA, 2009
- WATIL '09 - 2009 International Workshop on Assistive Technologies and Independent Living, July 10, 2009, Brisbane, Australia, 2009.
- 2nd International Symposium on Academic Globalization (AG 2009), Los Vegas, USA, 2009.
- Sixth International Conference on Ubiquitous Intelligence and Computing, Brisbane, Australia, 7-10 July, 2009.
- Frontiers of Health Informatics Conference (HIC'2009), 19-21 August, Canberra, Australia, 2009.
- 13th World Multi-Conference on Systems, Cybernetics and Informatics (WMSCI'2009) Conference, 10-13 July, Florida, 2009.
- Networked Digital Technologies Conference (NDT2009), Prague, Czech Republic, July 28-31, 2009.
- The First International Workshop on Network & Communications Security (NCS 2009), Co-located with *Netcom 2009*, December 27-29, 2009, Chennai, India.
- 4th International Conference on Cooperation and Promotion of Information Resources in Science and Technology (COINFO 2009), November 21-23, 2009, Beijing, China, (<http://coinfo.istic.ac.cn/coinfo09/>).
- NIST Managed Federal Information Systems Security Educators' Association (FISSEA) Conference, March 2010, Gaithersburg, USA.
- 3rd International Symposium on Academic Globalization (AG 2010), Los Vegas, USA, 2010.
- 14th World Multi-Conference on Systemics, Cybernetics and Informatics (WMSCI 2010), Los Vegas, USA, 2010.
- 2010 International Conference on the Business and Digital Enterprises (ICBDE 2010), July 22-24, Bangalore, India.
- World Computer Congress, 1st IFIP/IMIA International e-Health Joint Conference, Brisbane, Australia, 20-23 September 2010.
- The First International Conference on Computer Science and Information Technology (COSIT-2011), January 2-4, 2011, Bangalore, India.

- NetCoM 2010 Conference, December 27 - 29, 2010, Chennai, India.
- NCS 2010 Conference, December 27~29, 2010 Chennai, India

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- WiMoNe 2010 Conference, December 27 - 29, 2010, Chennai, India.
 - The International Symposium on Science 2 and Expansion of Science (S2ES 2010), June 29th - July 2nd, 2010, Orlando, Florida, USA.
 - IEEE Conf. on Trendz in Information Sciences and Computing (TISC2010), 17th-19th December, 2010, Chennai, India.
 - The 3rd International Symposium on Academic Globalization (AG 2011), July 19th - July 22nd, 2011 – Orlando, Florida, USA.
 - IEEE - International Conference on Computer, Communication and Electrical technology (ICCCET-2011), 18th and 19th of March 201, Tirunelveli, Tamil Nadu, India.
 - The Third International Conference on Wireless, Mobile Networks & Applications, May 25-27, 2011, Dubai, UAE.
 - International Conference on Computer Science, Engineering & Applications (ICCSEA-2011), May 25-27, 2011, Dubai, UAE.
 - International Workshop on Data Mining for Web Intelligence (DMWI), Madras Institute of Technology, Anna University, Chromepet, Chennai, India, 20-21 January, 2011.
 - International Conference on Recent Trends in Information Technology (ICRTIT), Madras Institute of Technology, Anna University, Chromepet, Chennai, India, June 3-5, 2011.
 - BIT 1st Annual Congress of World *u-World*, *Theme: New Dimension of the Smart Planet in U-Era*, World EXPO Center, Dalian, China, October 23-25, 2011.
 - First International Conference on Emerging Technologies (INCET-2011) in Cloud Computing, Quillon, Kerala, India, Mar. 20-21, 2011.
 - International Conference on Advanced Computing (ICoAC2011), Anna University, Chennai, India, 6-8 Dec 2011. www.annauniv.edu/icoac2011
 - First International Conference on Computer Science, engineering and Information Technology (CCSEIT-2011), Manonmaniam Sundharanar University, September 23-25, 2011, Tirunelveli, Tamil Nadu, India.
 - International Conference on Parallel, Distributed Computing technologies and Applications (PDCTA-2011), Manonmaniam Sundharanar University, September 23-25, 2011, Tirunelveli, Tamil Nadu, India, September 23-25, 2011, Tirunelveli, Tamil Nadu, India
 - Trendz in Information Sciences and Computing (TISC2011) Conf., 7th-9th December, 2011, Chennai, India.
 - The Fifth International Conference on Network Security & Applications (CNSA-2012), July 15-17, 2012, Chennai, India.
 - The 3rd International Multi-Conference on Complexity, Informatics and Cybernetics: IMCIC 2012 (www.iis2012.org/imcic), to be held in Orlando, Florida, USA on March 25th - 28th, 2012 - Orlando, Florida, USA.
 - The 16th World Multi-Conference on Systemics , Cybernetics And Informatics: WMSCI 2012, July 17th - 20th, 2012 – Orlando, Florida, USA.
 - Intl. Conf. on Engineering Education (IAICERA 2012), Kanjarapalli, Kerala, India, July 19-21, 2012.
 - Intl. Conf. Recent Trends in Information Technology (ICRTIT 2012), Anna University (MIT Campus), Chennai, India, April 19-21, 2012.
 - 3rd Intl. Conf. on Computing and Communication, Dec.21-23, 2012, ICICIC Global and Springer-Verlag, Chennai, India.
 - 9th International ICST Conference on Heterogeneous Networking for Quality, Reliability, Security and Robustness (QShine-13), Moradabad, India, 11th -12th January, 2013.

- 3rd National Conference on Advanced Materials, PSN College of Engineering, Anna University, Tirunelveli, Tamil Nadu, India, 23-25 January 2013.
 - 1st Intl. Conf. On Advancement in Information Technology (ICAIT-2013), Poornima Institute of Engineering & Technology, Jaipur, India. March 22-23, 2013.
 - National conference on “Sustainable Institute Industry Partnership (SIIP)” at IIT Madras, 3rd & 4th April, 2013.
 - 4th National Conf. on Information Science and Engineering (NCISE-23013), 8th April 2013, Tirunelveli, India.
 - National Conference on “Sustainable Institute Industry Partnership (SIIP), Indian Institute of Technology, Madras, 3-4 April, 2013, Chennai.
 - Scientific Chair of COINFO – 25-27 October 2013, Wuhan, China, <http://coinfo.istic.ac.cn/>
 - IEEE International Conference on Recent Advances & Innovations in Engineering (ICRAIE-2014), Jaipur, India, March 7-9, 2014.
 - International Conference on Advances in Computing, Communication and Information Science (ACCIS-14), Cochin, India, 26-28, June 2014.
 - SPIN-2014 (International Conference on Signal Processing & Integrated Networks, Amity University, Uttar Pradesh, India, Feb. 20-21, 2014.
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10. Director, Parallel and Distributed Computing and Software Engineering (PA³SE Lab) at the University of Queensland. This research laboratory was started from ground up and had six staff members and 25 graduate students working on various aspects of parallel algorithms, architectures and software engineering problems.
 11. Editor, "Looking Forward", IEEE Computer Society Press, since 1995.
 12. Editor of the Proceedings of the IEEE First ICA³PP (International Conference on Algorithms and Architectures for Parallel Processing) Conference held in Brisbane from 19th to 21st April, 1995.
 13. Technical Chairman of ANZIIS'96: Fourth IEEE Australia and New Zealand Conference on Intelligent Information Systems, Australia, 1996.
 14. Listed in the Hensa Parallel Bibliography Archives on Who's Who in Parallel, since 1994.
 15. Editor of the Proceedings of ANZIIS'96: Fourth IEEE Australia and New Zealand Conference on Intelligent Information Systems, Australia, 1996.
 16. Inaugural Chairman of the Distributed Applications Special Interest Group (DA-SIG) at South Australia (headquartered at DSTO) which involves large computer firms such as IBM, DEC and SUN besides other Defense organizations and academia. This SIG has been actively involved in a number of RFT (Request For Tenders), RFI (Request For Information), RFS (Request For Services) for a number of Defence Information Systems Projects (1995-2000).
 17. Occasional Representative at the Research Executive at the DSTC CRC (Cooperative Research Centre for the Distributed Systems Technology Corporation), 1995-2000.
 18. Member Australian Defense-DSTO Futures Technology Forum, 1998-2000.
 19. Chair, Workshop on the Applications of NLP and AI to the Australian Defence Force, Oct.1999.

20. Nominated by the Australian Council of Research (ARC) as an “Expert Assessor of International Standing”, 2001-current.
21. Chair of the Task Force of World Academy of Science for Australia, 2004-current.
22. Founder and Director of Mobile Embedded Systems TEChnology (MESTEC) Research Centre, University of Newcastle, Australia, 2003-current.
23. Australian National Representative to MIMOSA International Standards Organization, USA, on Asset Management and Data Interoperability, 2004-current.
24. Expert Technical Panel Member on ISO Standards Committees TC108/SC 5 and Expert Panel Member of Working Groups: TC108/SC 5/WG6 and TC108/SC 5/WG7, on IT Aspects of Asset Management and Systems Interoperability Issues respectively, USA, 2004-current.
25. Expert Technical Panel Member of Institution of Electronic and Electrical Engineers, USA (IEEE). (P730 Software Quality Assurance Standards Working Group (WG), Committee/Standard for Systems and software engineering - Life cycle processes - Requirements engineering, ISO/IEC JTC1/SC7, and other Working Groups; and, WG21 Software Asset Management) and IEEE Indic Virtual Keyboards Working Group (P1908.1).
26. External Reviewer for the book by “Objects, Abstraction, Data Structures, and Design: Using Java, 1e.” by Koffman/Wolfgang, John Wiley and Sons, 2004.
27. Executive Committee Member CORE (COmputer Research Establishment), Australasia, 2005-current.
28. Executive Evaluation Member, National Doctoral Thesis Symposium to select best PhD thesis Awards – in the area of Electrical Engineering and Computer Science, India, 2005. (held at the Amrita Institute of Technology – Deemed University, Coimbatore, India).
29. Technical Program Vice-Chair of 2005 International Conference on Computer Design (CDES-05), Monte Carlo Resort, Las Vegas, Nevada, USA, June 27-30, 2005. Co-Editor of CDESD-05 Conference Proceedings.
30. Invited Keynote speaker at ACSIM 2004 Conf., Dec.6-9, New Delhi, India, 2004.
31. Invited Keynote speaker at Test Automation Workshop, Bond University, Australia, Sept.1-2, 2005.
32. Editorial Board Member of IJNS (International Journal of Network Security, <http://isrc.nchu.edu.tw/ijns/>) (2005- current).
33. Editor-in-Chief, Conferences in Research and Practice in Information Technology (CRPIT), The Australian Computer Society (ACS) Conference Series, 2006-2010.
34. Editorial Board Member of International Journal on Intelligent Decision Technologies (IJIDT), 2006-2009.
35. Editorial Board Member of Neurocomputing, <http://www.elsevier.com/locate/neucom>, 2006-current.

36. Editorial Board Member of [Informing Science: The International Journal of an Emerging Transdiscipline](#), 1006-current.
37. Editorial Board Member of [International Journal of Network Security & Its Applications](#) (IJNSA), ISSN: 0974 – 9330 (Online), ISSN Pending (Print), 2009-current.
38. Editorial Board Member of ICTACT Journal of Soft Computing, 2010-current.
39. Member, Ogden College Faculty Awards committee, Western Kentucky University, USA, 2007-current.
40. Member, Ogden College Student Awards Banquet committee, Western Kentucky University, USA, 2007- current.
41. Program Evaluator for Computer Science, ABET (Accreditation Board for Engineering and Technology), USA.
42. Reader for Advanced Placement Examination (for freshman and sophomore students), Educational Testing Service (ETS), Princeton, NJ. (ETS is a non-profit organization)
43. Conference Chair, ICETiC 2009: IEEE International Conference on Emerging Trends in Computing, 8-10 January, 2009, Kamaraj College of Engineering & Technology (KCET), Virudhunagar, Tamil Nadu, India.
44. Executive Board Member, Federal Information Systems Security Educators' Association (FISSEA), 2008-2010.
45. Member WASET (World Academy of Science, Engineering and Technology), USA, scientific and committees
46. NSF Panel Member on the following Panels:
 - CyberTrust: http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf08521
 - Network Technology and Systems (NeTS): http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf08524
 - Computer Systems Research (CSR): http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf08538
47. Session Chair at over 150 sessions in many National and International conferences.
48. International Editorial Board Member for the **Journal of Information Technology Education**, 2008-current.
49. Editorial Advisory Board of Intelligent Technologies for the Aged: the Grey Digital Divide, IGI Global Publishers, (www.igi-global.com).
50. Book Reviewer, "Grey Digital Divide", AGL Publishers, 2009.
51. Program Chair, The IEEE International Conference on Emerging Trends in Computing (IEEE ICETiC), Virudhunagar, India, 8-10 January, 2009.

52. Program Co-Chair, The First International Workshop on Network & Communications Security (NCS 2009), Co-located with *Netcom 2009*, December 27-29, Chennai, India.
53. Co-Convener, “Future Challenges for Informatics in Geophysical Sciences”, American Geophysical Union (www.agu.org) Fall meeting, 14-18 December, San Francisco, CA, USA, 2009.
54. Invited Foreword to the Book, “Innovation in business and Enterprise: technologies and frameworks”, Dr. L. Al-Hakim, IGI Global Publishers, 2009.
55. Invited Member of Judging Panel NIST Managed Federal Information Systems Security Educators’ Association (FISSEA) Conference, Professional Security Competition, March 2010, Gaithersburg, USA.
56. Included in the AcademicKeys Who's Who in Engineering Higher Education (WWEHE), 2010 onwards.
57. Technical Chair, ICETT First International Conference on Emerging Technologies in Cloud Computing (INCET-2011), Sasthamcotta, Quilon, Kerala, India, Mar. 25-26, 2011.
58. Technical Chair International Workshop on Bioinformatics, Alappuzha, Kerala, India, March 28th 2011.
59. Editorial Board Member of **International Journal on Information Science and Computing**, ISSN **0973-9092**, www.ijisac.com, 2011- current.
60. International Editorial Board Member for the **International Journal of Computer Technology and Electronics Engineering**, 2011- current.
61. **Co-Chair** of The Fifth International Conference on Network Security & Applications (CNSA-2012), July 15-17, 2012, Chennai, India.
62. International Editorial Board Member for the **International Journal of Emerging Technology and Advanced Engineering**, 2011-current.
63. Editorial Board Member of **International Journal of Emerging Computing and Networking Technologies – IJECNT**, 2012-.
64. Core Group Member, National Board of Accreditation (NBA), New Delhi, India, since 2012.
65. Desk Appraisal Member, National Board of Accreditation (NBA), New Delhi, India, since 2012.
66. **Editorial Board Member** International Journal of Computer, Communication and Information Technology (IJCCIT), 2012-
67. Technical Advisor, 3rd National Conference on Advanced Materials, PSN College of Engineering, Anna University, Tirunelveli, Tamil Nadu, India, 23-25 January 2013.
68. **Distinguished Speaker of ACM (Association for Computing Machinery).**
69. **Distinguished Visitor of IEEE (Institute of Electrical and Electronics Engineering), USA.**
70. **Scientific Chair of COINFO** – 25-27 October 2013, Wuhan, China, <http://coinfo.istic.ac.cn/>

71. Panelist, NSF Graduate Research Fellowship Program (GRFP), National Science foundation, USA, 2014.
72. **Conference Chair** for the International Conference on Advances in Computing, Communication and Information Science (ACCIS-14), Cochin, India, 26-28, June 2014.
- 73.

C. SERVICE TO EMPLOYER AND COMMUNITY

1. Inaugural Chairman of the IEEE Computer Society Chapter within the Queensland Region, 1990-96.
2. Member of the IEEE Queensland Section Steering Committee. Vice-Chairman of IEEE Queensland during 1993-95.
3. Conducted short courses on operating systems to the Community at Large under the auspices of the Department of Continuing Education, The University of Queensland, 1989-92.
4. University of Queensland Representative at World Expo88, Brisbane, 1988.
5. University of Queensland Representative at Tertiary Education Expo (various periods).
6. Liaised with schools and have guided a number of students from various schools in Queensland under the CSIRO Student Research Scheme (since its inception in 1991).
7. Member of the Physical Sciences and Engineering Library Committee within the University of Queensland, 1989-95.
8. Executive committee member of 4EB Radio Broadcasting Station for Tamil Language Programming, 1991-95.
9. Passed Certificates B and C (highest) in the Infantry wing of the army. Currently a Lieutenant with the Australian Army Reserve Force (Signals Corps).
10. President of the Literary Association in high school (1975-77), Chairman of the Physics Association (1980-83) at the University of Madras (Vaishnav College Campus), Member Fine Arts Association at the University of Madras (1981-83) and National Service Scheme Member (1980-83) at the University of Madras.
11. Won several literary prizes and awards in Sanskrit (both at high school and University levels) and won various prizes in quiz programs.
12. Successful liaison with industries, such as Mentor Graphics and Analytical Instruments Ltd, on a number of research projects.
13. Member of the Curriculum Steering Committee for Software Engineering Degree at the Computer Science Department, Curtin University of Technology, Perth, Western Australia.
14. Technical member and assessor of the ESRL/DSTO Research & Technology Awards Committee, 1998-2000.

15. Member of the DSTO-ADF Strategic Planning and Policy Committee on Technology, 1999-2000.
16. Chair and Member of various Selection Panels for Research Scientists and Senior Research Scientists, 1995-2000.
17. Chair and Member of various Promotion Panels Senior Research Scientists, Research Scientists and Various cadres of Professional Officers, 1995-2000.
18. Chair, Faculty Search Committee, University of North Texas, Denton, Texas, USA, 2001-2003.
19. Member, Faculty Executive Committee and Faculty Research Committee, University of North Texas, Denton, Texas, USA, 2001-2003.
20. Member of the Advisory Board for the Centre for IT Application (CITA), University of Newcastle, Newcastle, Australia, 2003-current.
21. Member, Faculty Research Committee, Faculty of Engineering and Architecture, University of Newcastle, Newcastle, Australia, 2003-2004.
22. Consultant through the World Bank to Bundung Institute of Technology (ITB), Indonesia, 2004 – Educational Programs in Computer Science and Software Engineering.
23. Invited Committee Member of the Standards Australia and Standards New Zealand, 2004-current – on Asset Management Standards, Technologies and Software Systems.
24. Expert Member on Machine Condition Monitoring for Standards Australia, 2004-current.
25. Consultant to Gerson Lehrman Group's Council of Advisors, 2004-current.
26. Senior Consultant at Athena InfoServ Pty Ltd, 2004-current.
27. Executive Committee Member, IEEE NSW Section, Australia, 2004 - current.
28. Editorial Committee Member and Review Committee Member, Journal of Information, Information Technology, and Organizations (JIITO).
29. Executive Committee Member, Australian Computer Society (ACS) NSW Branch, Australia, 2005 - current.
30. Member, Occupational Health and Safety Committee, The University of Newcastle, 2005-2006.
31. Member of judging panels of various student competitions.
32. Chair/Member of Tenure committees of:

Dr. Alex Arvind, University of Northern British Columbia, Canada

Dr. A. Emam, Western Kentucky University, USA

Dr. M. Mustafa, Western Kentucky University, USA

Dr. G. Xia, Western Kentucky University, USA

Dr. H. Zhang, Western Kentucky University, USA

33. Consultant to The Boeing Aerospace Company, Seattle, USA – on Asset Management Standards, Technologies and Software Systems.
34. Consultant to MIMOSA (Machinery Information Management Open Source Alliance), USA – on Asset Management Standards, Technologies and Software Systems.
35. ABET and SACS Program Accreditation Committee Chair, East Carolina University, Greenville, 2008-current.
36. Member, College Assessment Committee, College of Technology and Computer Science, East Carolina University, Greenville, 2009-current.
37. Member, Internationalization Committee, East Carolina University, Greenville, 2008-current.
38. Member, College Awards Committee, College of Technology and Computer Science, East Carolina University, Greenville, 2009-current.
39. Chair, East Carolina ACM Professional Chapter, 2008-current.
40. Consultant, National Institute for Interdisciplinary Science and Technology, Council of Scientific and Industrial Research (CSIR), Thiruvananthapuram, India – on the use of Multi-agent Technology for Bioinformatics.
41. Member, East Carolina University Senate Appellate Committee and Due Process Committee, 2009-current.
42. [Program Evaluator for Computer Science, ABET](#) (Accreditation Board for Engineering and Technology), USA, 2008-current.
43. Member, Committee for the successful department of Masters of Science in Security Studies, East Carolina University, 2009-present.
44. Member, Student Activities Board Senate Committee & Visual Arts Committee, East Carolina University, 2010-2012.
45. Member, College of Technology and Computer Science Technology Committee, East Carolina University, 2010-2012.
46. Member, Faculty Recruitment Committee, Department of Computer Science, College of Technology and Computer Science Technology, East Carolina University, 2010-2011.
47. TECS College Member, International Affairs Task Force, East Carolina University, 2010-Present.
48. University of North Carolina General Faculty Assembly Delegate August 2011 - July 2014.
49. Selected as a Member of Engagement and Outreach Scholars Academy (after peer review), East Carolina University, 2011.
50. Member, Research/Creative Activity Grants Committee, East Carolina University, 2011-current.
51. Distinguished Speaker of ACM (Association for Computing Machinery), USA.

52. Distinguished Speaker of IEEE (Institute of Electrical and Electronics Engineering), USA.
53. One of the top 5% most viewed LinkedIn profiles for 2012.
54. Member, Governing Body of Acharya Institutes, Yeswantpur, Bangalore, India.
55. Keynote Speaker in IEEE Conference on Open Systems (ICOS) 2013, December 2-4, Kuala Lumpur, Malaysia, 2013.
- 56.

NAMES AND ADDRESSES OF REFEREES

1. Professor Paulo de Souza
OCE Science Leader
Micro-sensing Technologies and Systems
CSIRO Computational Informatics
E paulo.desouza@csiro.au
T +61 3 6232 5578 **M** +61 488 991 632
Postal Address: CSIRO, Private Bag 12, Hobart TAS 7001, Australia
Street Address: CSIRO, College Road, Sandy Bay TAS 7005, Australia
2. Dr. Srini Ramaswamy, PhD, SMIEEE
Research Director
Asean Brown Boveri (ABB)
Bhoruka Tech Park
Whitefield Road, Mahadevapura
Bangalore
India
Phone: +91-997-289-3968
Email: srini@ieee.org (OR) srinitn@gmail.com (OR) srini@acm.org
3. Prof. Jeffrey Soar, PhD, FACS
Department of Information Systems
Faculty of Business
Director, Collaboration for Ageing and Aged-Care Informatics Research (CAAIR)
University of Southern Queensland, AUSTRALIA, 4350
Telephone: +61 400 746657; Email: soar@usq.edu.au
4. Prof. P.R. Croll, FACS, FBACS
Southern Cross University
Faculty of Information Technology
Southern Cross University
Coffs Harbour, NSW
Australia
Phone: +61 7 434-077-142 and +61 7 3871 3494
Email Address: peter@blict.com and pcroll@scu.edu.au
5. Prof. R.S. Rajesh
Professor and Head
Department of Computer Science

M. S. University
Tirunelveli, Tamil Nadu
India
Tel.: +91-94438-69904
Email: rs_rajesh1@yahoo.co.in AND rsrajesh_tv1@rediffmail.com

6. Dr. N. Rajkumar
President
Srikar & Associates International
India Operations Located at: 406, Willow Block, Prince Greenwood Apartment, 66. Vanagaram
Road, Chennai - 600 058, TamilNadu, India.
Tel.: (M) [+91 9443738526](tel:+919443738526) (W) [+91 44 26257666](tel:+914426257666) (H) [+91 44 26376726](tel:+914426376726)
Email: n_raj_kumar@yahoo.com

MEMBERSHIP OF PROFESSIONAL BODIES

1. Fellow, Institution of Electrical Engineers (IEE), UK (now re-named Institution of Engineers & Technologists, UK)
2. Fellow, Australian Computer Society (A.C.S.)
3. Fellow, Institution of Engineers, Australia (I.E.Aust)
4. Senior Member, Institution of Electronic and Electrical Engineers, USA (IEEE) **Distinguished Speaker of IEEE (Institution for Electrical and Electronics Engineering).**
5. Senior Member, Association of Computing Machinery (ACM) & **Distinguished Speaker of ACM (Association for Computing Machinery).**
6. Expert Panel Member, International Standards Organization (ISO) – ISO TC 108 on Engineering Asset Management.
7. Expert Panel Member (Information Management Standards), American National Standards Institute (ANSI)
8. Expert Technical Panel Member of Institution of Electronic and Electrical Engineers, USA (IEEE). (P730 Software Quality Assurance Standards Working Group (WG), Committee/Standard for Systems and software engineering - Life cycle processes - Requirements engineering, ISO/IEC JTC1/SC7, and other Working Groups; and, WG21 Software Asset Management) and IEEE Indic Virtual Keyboards Working Group (P1908.1).
9. Expert Panel Member, MIMOSA (Machinery Information Management Open Source Alliance), USA
10. Board Member (Independent), Birla Research Foundation India Limited, 2011 onwards.
11. Professional Engineer, Institution of Engineers, Australia (I.E.Aust)
12. Member and Executive Board Member, Federal Information Systems Security Educators' Association (FISSEA), 2008-2010.
13. Core Group Member, National Board of Accreditation (NBA), New Delhi, India, since 2012.
14. Desk Appraisal Member, National Board of Accreditation (NBA), New Delhi, India, since 2012.
15. Member, International Federation for Information Processing (IFIP)
16. Member, The Australian Association for Engineering Education (AAEE)
17. Member, Informing Science Institute (ISI)
18. Member, Standards Australia and Standards New Zealand
19. Member WASET (World Academy of Science, Engineering and Technology), USA, scientific and committees
20. Member, Newcastle Business Club
21. Consultant to The Boeing Company
22. Consultant to MIMOSA
23. Australian Army Reserve (Engineering)
24. Member, Society of Educational & Entrepreneurship Development (SEED)
- 25.

PROFESSIONAL ACTIVITIES

Intelligence applications (specific details are classified, but mainly on automating business and technical information process re-engineering), Open distributed processing using middlewares such as DCE/CORBA, EJB and ActiveX technologies, performance modeling of information systems, multimedia information analysis tools (incorporating geospatial data), free text processing, ontology management and trader processing, techniques for information fusion, information extraction, information integration, data warehousing and data mining.

My professional activities in software technology include: component technology, composability in software systems and technologies for horizontal and vertical integration. The issues raised here have relevance to mobile computing also.

COURSES, CONFERENCES AND MEETINGS RECENTLY PARTICIPATED AND/OR INVITED FOR PRESENTATIONS

Java and Enterprise Java Beans
CORBA
Z39.50 and other catalog servers
Geospatial consortium for integrated GIS data and information delivery
Oracle 2000
Interoperability issues forum
Data mining for business applications
Data warehousing design for digital data management
Software Architectures
Digital Asset Management
Integrated Surveillance Picture Development
Integrated Intelligence Picture Development
Future Capability Planning and Development
High level Language Architecture (HLA)

OTHER INVITED PRESENTATIONS

A. In the United States of America

- Department of Computer Science, Massachusetts University of Technology, Cambridge, USA
- Department of Computer Science, University Illinois, Urbana-Champaign, Urbana, USA
- Department of Computer Science, University of Chicago, Chicago, USA
- Department of Computer Science, University of California, Irvine, USA
- Duke University, Durham, North Carolina, USA
- Department of Computer Science, Rowan University, Philadelphia, USA

- Department of Computer Science, City University of New York (CUNY), New York, USA
- Department of Computer Science, University of Texas Pan American, USA
- Department of Computer Science, Brockport College, State University of New York (SUNY), USA
- Department of Computer Science, University of Central Arkansas, USA
- Department of Computer Science, University of California, San Bernardino, USA

- Department of Electrical and Computer Engineering, Idaho State University, Pocatello, USA
- Department of Computer Science, University of Missouri, Rolla, USA
- Department of Computer Science, Wake Forest University, Winston-Salem, USA
-

B. In Australia

- Department of Computer Science, Australian National University, Canberra
- Department of Computer Science, University of New South Wales, Sydney
- Department of Computer Science, Curtin University, Perth
- Department of Electrical Engineering, Queensland University of Technology, Brisbane
- Department of Computer Science, James Cook University, Townsville

- Department of Computer Science, Central Queensland University, Rockhampton
- Department of Computer Science, Adelaide University, Adelaide
- Department of Computer Science, University of South Australia, The Levels
- School of Information Technology, Queensland University of Technology, Brisbane

- Department of Computer Science, University of Tasmania, Hobart.
- ICT Center, Commonwealth Scientific and Industrial Research Organisation (CSIRO), Brisbane, Queensland.
- ICT Center, Commonwealth Scientific and Industrial Research Organisation (CSIRO), Hobart, Tasmania.
- IEEE NSW Section, Sydney, Australia.
- IEEE Queensland Section, Brisbane, Australia.
-

C. In Other Countries

- Department of Computer Science, McGill University, Montreal, Canada
- Department of Electrical and Computer Engineering, University of Western Ontario, London, Ontario, Canada
- Computer Science Department, University of Northern British Columbia, Canada.
- Department of Computer Science, Aston University, Birmingham, United Kingdom
- Defence Evaluation Research Agency (DERA), Malvern, United Kingdom (plus other UK Defence Organisations and Agencies).
- Department of Computer Science, Vaxjo University, Vaxjo, Sweden
- Uninorte, Manizales, Columbia
- Pontificia Universidad Javeriana, Bogotá, Columbia
- Nacional and Autónoma, Bogota, Columbia
- Pontificia Universidad Javeriana, Cali, Columbia
- Tallinn Technological University (TTU), Tallinn, Estonia
- University of Tartu, Tartu, Estonia
- Malaysian Computer Society, Kuala Lumpur, Malaysia

D. In India

- Indian Institute of Science, Bangalore, India
- Indian Institute of Space science and Technology (IIST), Thiruvananthapuram, Kerala, India.
- Indian Institute of Technology, Chennai, India.
- Centre for Development of Telematics (C-DOT), Bangalore, India
- Amrita University of Technology, Coimbatore, India
- Madras Institute of Technology, Anna University, Madras, India
- St.Xavier Engineering University, Nagarcoil, Tamil Nadu, India
- Manonmanium Sundaranar University, Tirunelveli, Tamil Nadu, India
- Indian Institute of Technology (IIT), New Delhi, India (under the auspices of the IEEE)
- SRM University, Chennai, India
- Institute of Technology and Science (ITS) Ghaziabad, India
- Ramco (India) Ltd, Chennai, India
- Amritha Viswa Vidyapetam, Amritapuri, India
- Kamaraj College of Engineering And Technology, Virudunagar, India
- Amal Jyothi College of Engineering, Kottayam, India

- University of Pune, India
- Kalasingham University, Krishnan Koil, Tamil Nadu, India
- National College University, Trichy, India
- Bharathidasan Institute of Management (BIM), Bharatidasan University, Trichy, India
- IEEE and CSI (computer Society of India), Southern Region, Chennai, India
- Madras Institute of Technology, Anna University, Chennai, India
- KCG College of Technology, KCG Nagar, Karappakkam, Chennai, India
- Sathyabama University, Jeppiar Nagar, Chennai, India
- Baseliros Mathews II College of Engineering, Kollam, India
- Sri Vellappally Natesan College of Engineering, Alappuzah, India.
- Madras Institute of Technology, Anna University, Chennai, India.
- Arunachala College of Engineering for Women, Manavilai, Vellichanthai - 629 203, India.
- Karunya University, Tamil Nadu, India.
- Paavai University, Namakkal, Tamil Nadu, India.
- Sagar Institute of Research and Technology, Ayodhya Bypass Road, Bhopal – 462 041 (M.P.). India.
- Acropolis Institute of Technology and Research, Indore, MP, India.
- Tata Consultancy Services (TCS), Whitefield, Bangalore, India.
- Bharath Niketan Engineering College, Aundipatty, Theni-625536, Tamil Nadu, India.
- Asean Brown Browri (ABB), Bangalore, India.
- IEEE New Delhi Section, India.
- IEEE Chennai Section, India.
- ACM, Cochin Section, India.
- KSR College of Engineering and Technology, Thiruchengodu, Tamil Nadu, India.
- Kongu Engineering College, Erode, Tamil Nadu, India.
- EBETi (Erode Builders Engineering Technology Institute), Erode, Tamil Nadu, India.
- Krishna Thejomayo College of Engineering, Tirupathi, Andhra Pradesh, India.
- Indian Medical Association (IMA), Vijawada, Andhara Pradesh, India.
- Hindustan University, Chennai, Tamil Nadu, India.
- ITM University, Gaziabad, India.
- Narayanaguru College of Engineering, Manjalumoodu, Tamil Nadu, India.
- Center for Development of Advanced Computing (CDAC), Pune, India.
- Mar Ephraem College of Engineering and Technology, Marthandom, Tamil Nadu, India.
- Vellore Institute of Technology (VIT), a Deemed and Autonomous University, Tamil Nadu, India.
- Easwari College of Engineering, Chennai, India.
- Aadhi Parashakthi College of Engineering, Melmaruvaththur, India.
- SKR College of Engineering and Technology, Poonamallee, India.
- Pruthyusha College of Engineering and Technology, Thiruvallur, India.
- Sri Vidya College of Engineering, Madurai, Tamil Nadu, India
- CSI College of Engineering, The Nilgiris, Tamil Nadu, India
- Mahalingam College of Engineering and Technology, Pollachi, India.
-

2013 ACM Distinguished Seminars Offered To Date

S. No.	College	Dates	Contact Details
1.	Jerusalem College Of Engineering	Jan. 7	Dr.C.R.RENE ROBIN Professor & Head Department of Computer Science and Engineering Jerusalem College of Engineering. Chennai 100.

2.	Velammal Engineering College	Jan. 8	Prof.Dr.V.Yegnanarayanan M.Sc M.Phil.,M.Tech.,Ph.D. M.AMS.,LM.IMS.,LM.RMS.,LM.ISTE, M.IACSIT, Senior Member, IEEE Senior Professor, Mathematics R&D & Research Coordinator, Department of Maths, Principal Investigator, NBHM Research project, DAE, Govt of India. Velammal Engineering College, Chennai-600066 Contact No. 9444036628/office: 26591860 extn 224. e-mail: prof.yegna@gmail.com
3.	S.A. Engineering College	Jan. 9	Dr. P. Balasubramanian Professor Department of Electronics and Communication Engineering S.A. Engineering College (Affiliated to Anna University) Poonamallee-Avadi Road Chennai 600 077 Tamil Nadu, INDIA Phone: +91-(0)44-2680 1499/1999 Ext: 243 Mobile: 91-(0)94456 23738
4.	Rajalakshmi Engineering College	Jan. 11	P KUMAR Associate Professor - IT
5.	Arunai Engineering College	Jan. 21	S.A.Samson Asst.Prof/ECE Arunai Engineering College Tiruvannamalai. 9994976475
6.	Jeyaram College Of Engineering & Technology	Dec.19 Jan. 22-23 Workshop	Dr. S. A. Sahaaya Arul Mary Academic Dean & HOD/ CSE JCET Mobile: 9750962385
7.	VSU Engineering College	Jan. 24 morning	Dr. N. K. Sakthivel, M.Tech., Ph.D. Professor & Head, Computer Science & Engineering Coordinator, Research and Development Centre, VSU Engineering College, KARUR - 639 111 Mobile : _ +91 9443302399
8.	Excel College Of Technology	Jan. 24 Afternoon	Prof. Rathinavel, Salem Main Road, , Pallakkapalayam, Komarapalyam, Tamilnadu 637303 India Event Contact: Prof S Rathinavel (profsr.eec@gmail.com)
9.	Periyar Maniyammai Engineering College	Jan. 25	A.SATHEESH, Head, Department of Software Engineering headmsec@pmu.edu / vbsatheesh@yahoo.com Contact phone no : 9789493355
10	Knowledge Institute Of Technology	Jan. 28	Dr.V.Kumar Prof & HOD CSE Mobile No.: 9894068769 2) Dr.N.Santhiyakumari IEEE Student Branch Counselor

			Prof & HOD/ECE Mobile No.: 9994053679.
11	Nanda Engineering College	Jan. 29	Dr. S.ARUMUGAM Mobile: 9965099900
12	Sri Ramakrishna Engineering College	Jan. 30 Morning	Prof. Balamurugan, Email id:balamurugank@srec.ac.in , srecieestudents@gmail.com Contact phone no: 9894548074
13	NGP Institute Of Technology	Jan. 30 Evening	Dr. S. Suresh Kumar I Director - Research I Prof & Head - ECE I Dr. NGP Institute of Technology I Coimbatore - 48, TN, India I +919442514130 I sskpsg@gmail.com
14	SVS Engineering College	Jan 31 Morning	S.R.Mugunthan +91-99449-20319 srmugunth@gmail.com
15	National Engineering College	Feb. 1	M. Willjuice, Principal m_willjuice@yahoo.com 9442649406, 9443487093
16	Thiagarajar Engg College	Feb. 2	Prof. S M Shalinie Mobile number is 9344120708
17	Cochin University of Science & Technology	Feb.4	G. Santhosh Kumar, MTech, PhD Asst. Professor Dept. of Computer Science Cochin University of Science & Technology Cochin - 682 022 +914842577126 (ext 2306) Tel (Off) 09447305879 Mobile +914842212221 Tel (home)

CITATIONS OF RESEARCH WORK

- Research work on Software Test Data Generation
- Research works on Software Metrics, Software Comprehension and CBSE
- Research works on Genderization Issues in Software Engineering
- Design and Analysis of Timeout Batching Arbitration Techniques (two variants)
- Research works on Medical Gaming Technologies
- Various R&D and Implementation aspects of Dynamic Dataflow Computing System – PATTSY
- Performance Meta Modeling of Algorithms and Parallel Computer Architectures (various aspects)
- Research on Dynamic Load Balancing using Interval Arithmetic
- Research on Scheduling using Artificial Neural Networks
- Information Management and Exploitation for Intelligence Applications: Classified Citations in Multimedia and Geospatial Information Systems
- Event algebra system
- International Standards Organization (ISO) Standards (i) 13374-2 on Data Management (ii) 13374-3 on Data Communication using Enterprise Service Bus – extensive usage and citations in the industry.

HOBBIES AND OTHER SOCIAL INTRESTS

Cycling, Cricket, Baseball, Photography

Chess, Bridge, Designing video Games, Developing miniature models

LIST OF PUBLICATIONS

(In reverse chronological order)

1. BOOKS AND BOOK CHAPTERS

1. V. Lakshmi Narasimhan and L.C.Jain (Editors), "Digital Asset Management: A Knowledge-Based Approach", Springer-Verlag, Berlin, Germany, 2011 (on-going).
2. V. Lakshmi Narasimhan and L.C.Jain (Editors), "Digital Rights Management: A Knowledge-Based Approach", Springer-Verlag, Berlin, Germany, 2011 (on-going).
3. V. Lakshmi Narasimhan, "Proceedings of the International Workshop on Bioinformatics", Alappuzha, Kerala, India, March 28th 2011.
4. V. Lakshmi Narasimhan, "Proceedings of the ICETT First International Conference on Emerging Technologies in Cloud Computing (INCET-2011)", Sasthamcotta, Quilon, Kerala, India, Mar. 25-26, 2011.
5. V. Lakshmi Narasimhan and E. Prakash, "Workshop on Business Intelligence and Multimedia", Workshop Proceedings, 10th August, 2010, Manonmanium Sundaranar University, Tirunelveli, Tamil Nadu, India.
6. V. Lakshmi Narasimhan, Invited Forward to the Book, "Innovation in Business and Enterprise: Technologies and Frameworks", Dr. L. Al-Hakim (Editor), IGI Global Publishers, 2009.
7. V. Lakshmi Narasimhan and , "Proceedings of The First International Workshop on Network & Communications Security (NCS 2009)", December 27-29, Chennai, 2009, India.
8. V. Lakshmi Narasimhan, R.Rajesh and S. Selvam (Editors), "Proceedings of the IEEE International Conference on Emerging Trends in Computing (IEEE ICETiC)", Virudhunagar, India, 8-10 January, 2009.
9. V. Lakshmi Narasimhan and D. Wu (Editors), "Issues in High Performance Computing", Proceedings of the NSF EPSCoR International Workshop on High Performance Computing in Bioinformatics, Oct.3-5, 2007, Bowling Green, Kentucky, USA.
10. V. Lakshmi Narasimhan and M. Das, "A Comprehensive Perspective on Information Security: Tools, Technologies and Architectural Requirements", Book Chapter in *Issues in Information and Media Literacy: book of readings and cases* Informing Science Publishers, 2008.
11. V. Lakshmi Narasimhan, "A Monograph on Current Bus Arbitration Techniques", Under Preparation, 20089. I have already prepared 6 chapters of this book, but due to paucity of time and job becoming more "operational", I could not complete this as yet. But this will be one of the first priorities.
12. V. Lakshmi Narasimhan (Co-Editor), "Proceedings of the 2005 International Conference on Computer Design (CDES-05) Conference", Monte Carlo Resort, Las Vegas, Nevada, USA, June 27-30, 2005.
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2. V.Lakshmi Narasimhan and A.Hector, "Integrated Engineering Asset Management: Information Technology Issues in Perspective for the Present and the Future", Submitted to the Journal of , Aug. 2006.
3. V.Lakshmi Narasimhan and V.Datla, "From Requirements Elicitation to System Development: An Empirical Study on a Software Development Course", Submitted to IEEE Trans. on Software Engineering, April, 2006.
4. B.K.Gunther, G.J.Milne and V.Lakshmi Narasimhan, "Custom Computing Applied to UseNet Filtering", Submitted to Australian Computer Science Communications, 1999. I heard that it has come back after review, but further work needs to be done before re-submission.
5. M.Gallagher and V.Lakshmi Narasimhan, "A Critical Study on Software Metrics and Complexity Measures", Submitted to the Jol. of Systems Software, 2004. Under re-review.
6. S.Slomka and V.Lakshmi Narasimhan, "Investigations into the Shiva Multiprocessor System", Submitted to IEE Proc. on Computers and Digital Techniques, May 2004. Under re-review.
7. S.Slomka, K.Sterzl and V.Lakshmi Narasimhan, "A Methodology for Simulation of the Shiva Multiprocessor System", Submitted to Parallel Computing, May 2004. Might submit to another journal shortly; withdrawn from Parallel Computing.
8. A.Symons and V.Lakshmi Narasimhan", Short Note: Calculating Optimal Flit Size and Upper Limit on the Performance of Wormhole Routing", Submitted to The Computer Journal, May 2003. One more theorem needs proving. Currently working on it.
9. V.Lakshmi Narasimhan and P.Garske, "VLSI Design and Evaluation of a Centralised Batching Arbiter Unit With a Timeout Feature", Submitted to IEEE Trans. on VLSI Systems, Dec. 2003. Heard from only two referees: one says lot more needs to be done, another says that the paper needs only little further work. The reports provided were interim only and editor has not taken any decision yet. Perhaps needs a re-write with some additional work.

10. V.Lakshmi Narasimhan and C.Arnold, "An Improvement to Dynamic Stream Handling in Dataflow Computers", Submitted to The Computer Journal, 2004. Might withdraw the paper, due to the fact that my research interests are moving elsewhere.
11. M.Gallagher and V.Lakshmi Narasimhan, "Using Program Instrumentation as an Aid in Software Testing", Submitted to IEE Software Engineering Journal, 2003. Have not heard yet – needs revision.
12. S.Slomka, V.Lakshmi Narasimhan and A.Murdoch, "A Simulation Environment for the Shiva Multiprocessor System", Submitted to Simulation, 2004. Under re-review.
13. V.Lakshmi Narasimhan and P.Garske, "A Critical Survey of Current Arbitration Techniques", Submitted to ACM Computing Surveys, 2003. Might concentrate on the monograph, rather than on this paper.
14. P.Garske and V.Lakshmi Narasimhan, "Petri Net Modelling and Analysis of Centralised Timeout and Batching Arbitration Units", Submitted to IEE Proc. on Computers and Digital Techniques, 2003. Under re-review.
15. V. Lakshmi Narasimhan and T.Downs, "A Subjective Study of Various Tools for Software Testing and Quality Assessment", Resubmitted (after revision) for publication in IEE Software Engineering Journal, 2004.
16. V. Lakshmi Narasimhan and A.Symons, "A Measurement Based Analysis of Strassen's Matrix Multiplication Algorithm over a Distributed Ethernet Based System", Submitted to IEEE Trans. on Parallel and Distributed Systems, 2004. Second revision is only partially complete, due to loss of student and decreased interest in this area.
- 17.

12. PAPERS UNDER PREPARATION

1. B. Hendradjaya, "Measurement and Evaluation of Component Based Software Engineering (CBSE) Software Systems", Under Preparation for Submission to IEEE Transactions on Circuits and Systems, 2005.

13. THESES PUBLISHED

1. V. Lakshmi Narasimhan, "Design and Implementation of A Dynamic Dataflow Array Processor System (PATTSY)", Ph.D. Thesis, Dept. of Electrical Engg., Univ of Queensland, Australia, 325-pages, June 1990.

2. V. Lakshmi Narasimhan, "Design and Implementation of PRESRV: An Utility for Volume Preservation", M.E. Thesis (towards partial fulfilment), Madras Institute. of Technology (now part of Anna University), Division of Electronics Engg., India, Jan.1985, 72-pages.
3. V. Lakshmi Narasimhan and J.K. Ramachandra, "Dual Microcomputer Shared Memory System", B.E.(Hons) Thesis (towards partial fulfilment), Indian Institute of Science, Dept. of ECE, India, April 1983, 88-pages.

14. POST-DOCTORAL FELLOWS SUPERVISED

1. Dr. M. Das, Assistant Professor, Dhurubai Ambani Institute of Information and Communication Technology, Ahmedabad, India.
- 2.

15. THESES SUPERVISED

15A. POSTGRADUATE THESES AND AWARDS

1. V.S. Jithin, ""A Study of Time-Cost Effective Algorithms for Scheduling Jobs Over A Cloud Environment", MS Thesis, Anna University, 2013.
2. N. Gupta, "Accuracy, sensitivity and specificity measurement of various classification techniques on healthcare data", MS Thesis, Jaipur University, 2013.
3. A. Rawal, "
4. Sukhdeep Singh, "Petri net modelling and analysis of Mobile Communication Protocols - UMTS, LTE, GPRS and MANET", MS Thesis, Jaipur University, 2013.
5. Gurpal Singh, "
6. W. Simpson, "eHealth using mobile applications for CoMA (Communication of Medical Advice)", PhD Thesis, Thesis Committee Member, Southern Cross University, Coffs Harbour, Australia, 2013.
7. P. Latha, "Study of QoS Multicast Routing for Mobile AD HOC Networks", PhD thesis, Thesis Committee Member, Sathyabama University, Jeppiar Nagar, Chennai, India, 2011.
8. N. Jaisankar, "A security framework for preventing Network Layer attacks in Mobile Adhoc Networks", PhD thesis, Thesis Committee Member, School of Computing Sciences and Engineering, Vellore Institute of Technological (VIT) University, Vellore, India, 2010.
9. Al-Anni Maad Kamal Rasheed, "Applying Intrusion Detection System for Denial of Service Attack", PhD thesis, Thesis Committee Member, Pune University, India, 2010.
10. S.D. Sudarsan, "Signal Detection Framework Using Semantic Text Mining Techniques", PhD thesis, Thesis Committee Member, University of Arkansas at Little Rock, USA, 2009.

11. S. Atkinson, "An Introductory Diagnostics Medical Gaming Environment", MS Thesis, Thesis Committee Member & Advisor, East Carolina University, USA, 2009.
12. A. Cramp, "Simulation of Multiple Systems of Systems in the High Level Architecture", Adelaide University, Australia, PhD Thesis Committee Member (external), 2009.
13. J. Croll, "The impact on usability of clinician acceptance of Health Information Systems", Faculty of Health and Education, Queensland University of Technology, Australia, PhD Thesis Committee Member (external), 2009.
14. K. AIM. Abdalla Al-Mabrouk, "Identification of the Major Issues for Successful Information Technology Transfer in the Arab World", PhD thesis, The University of Southern Queensland, Toowoomba, Australia, Thesis Committee Member (external), 2008.
15. W. Wang, "Remote machine condition monitoring and fault diagnosis system through Internet and mobile communication", PhD Thesis, City University of Hong Kong, Hong Kong, Thesis Committee Member (external), 2008.
16. Vijayarekha Karuppaiyan, "Application of Image Processing Techniques and Development of Algorithms for Quality Grading of Citrus Fruits Based on External Defects", PhD Thesis, Anna University, Chennai, India, Thesis Committee Member (external), 2008.
17. H. Ho, "Software Architectures for Condition Monitoring and Asset Management: Enterprise Oriented Messaging", MS (res) thesis, Western Kentucky University, Bowling Green, USA, 2007.
18. Prapanna T Parthasarathy, "Component Integration Metrics and their Evaluation", MS (res) thesis, Western Kentucky University, Bowling Green, USA, 2007.
19. B. Hendradjaya, "Component Based Software Engineering Metrics: Theoretical Consideration and Their Practical Evaluations", PhD thesis, University of Newcastle, Newcastle, Australia, 2007.
20. Yang Yong, PhD Thesis, "Systematic Transformation of Functional Analysis Model into OO Design and Implementation", PhD thesis, Nanyang Technological University, Singapore, Thesis Committee Member (external), 2006.
21. Quoc Vong Do, PhD Thesis, "2D Object-Based visual Landmark Recognition in a Topological Mobile Robot", University of South Australia, Adelaide, Australia, PhD Thesis Committee Member (external), 2006.
22. Manik Lal Das, PhD Thesis, "Design and Analysis of Authentication Techniques", Indian Institute of Technology, Bombay, India, PhD Thesis Committee Member (external), 2006.
23. B. Strakie, PhD Thesis, "Regenerative Grammars for Spoken Dialog System", School of Electrical Engg. and Computer Science, University of Newcastle, Australia. Awarded 2005.
24. Renyi Zhao, Master's Thesis, "Even Algebra for E-Commerce Transactions Modelling", Master's Thesis, School of Electrical Engg. and Computer Science, University of Newcastle, Australia. Awarded 2004.

25. Shuxin Zhao, Shuangyi Zhang and Hailong Liang, Master's Thesis, "A Pedagogical E-Learning Distributed System", Master's Thesis, School of Electrical Engg. and Computer Science, University of Newcastle, Australia. Awarded 2004.
26. S.Slomka, PhD Thesis, "Multiple Classifier Structures for Automatic Speaker Recognition Under Adverse Conditions", School of Electrical, Electronics and Systems Engg, Queensland University of Technology, Australia, 1999.
27. N. Comino, MEngSc (research) Thesis, "On the Use of Metamodels for Parallelising a Class of Practical Application", Dept. of Electrical and Computer Engg, The University of Queensland, Australia, 1998.
28. K. Sterzl, MEngSc (research) Thesis, "Modelling and Analysis of Multilevel Cache Memory Systems", Dept. of Electrical and Computer Engg, The University of Queensland, Australia, 1999.
29. C.J. Semple, MEngSc (research) Thesis, "Design and Implementation of a Distributed System Using IBM PC Compatible Computers and Novell[™] Network", Dept. of Electrical and Computer Engg, The University of Queensland, Australia, 1999.
30. A. Symons, PhD Thesis, "Performance Metamodels of Parallel Computers", Dept. of Electrical and Computer Engg, The University of Queensland, Australia, 1997.
31. Gregory Wickham, PhD Thesis, "Monitoring the Performance of Micro-kernal Based Operating System and Supported Applications", Department of Computer Science, Deakin University, Melbourne, Australia. Thesis Committee Member (external), 1997.
32. A paper by Mr.A.Symons (a PhD student under my supervision) on Performance Analysis of a Parallel FFT Algorithm on a Transputer Network has won the IEEE (Qld) Best Paper Award, 1996.
33. R. Tan, MEngSc (research) Thesis, "Load Balancing Studies using ANNs for Large Scale FEM Problems", Dept. of Electrical and Computer Engg, The University of Queensland, Australia, 1996.
34. Xingcha Fan, Ph.D. Thesis, "Asynchronous System Design Issues for Multi-Function Unit Digital Signal Processors", Flinders University, Adelaide, Australia. PhD Thesis Committee Member (external), 1996.
35. M.J. Gallagher, MEngSc (research) Thesis, "A System for the Generation of Test Data for Ada Programs", Dept. of Electrical and Computer Engg, The University of Queensland, Australia, 1995, 178 pages.
36. S. Slomka, MEngSc (research) Thesis, "An Integrated Simulation Environment for the Shiva Multiprocessor System", Dept. of Electrical and Computer Engg, The University of Queensland, Australia, 1994, 210 pages.
37. P.M. Garske, MEngSc (research) Thesis, "Analysis and VLSI Design of a Batching Arbiter with a Timeout Feature", Dept. of Electrical and Computer Engg, The University of Queensland, Australia, 1993, 219 pages.

38. F.P. McCready, MEngSc (research) Thesis, "Design and Construction of a Novel Dataflow Computer, Hippias II", Dept. of Electrical and Computer Engg, The University of Queensland, Australia, 1992, 165 pages.
39. S. Mabbs, PhD Thesis, "An Instrumentation Tool for Parallel Program visualisation", Department of Computer Science, University of Melbourne, Australia. PhD Thesis Committee Member (external), 1994.
40. B. Soh, PhD Thesis, "Intrusion Detection", Department of Computer Science, LaTrobe University, Melbourne, Australia. Thesis Committee Member (external), 1995.
41. David Kearney, PhD Thesis, "Performance Modelling of Asynchronous Logic Systems", Department of Electrical Electronic and Systems Engineering, Queensland University of Technology, Brisbane, Australia. Thesis Committee Member (external), 1999.
42. Daryl Giarola, M.Eng.Sc. (research) Thesis, "Bit Serial Implementations of Floating Point arithmetic Operator", Department of Electrical Engg., University of Queensland, Brisbane, Australia. Thesis Committee Member (external), 1991.
- 43.

15B. AWARD WINNING UNDERGRADUATE THESES

1. B. Mathis and T. West, "Mallampati score as an independent predictor of Obstructive Sleep Apnea (OSA)", **Won the Best Paper Award at East Carolina University Student Paper Competition, 2006.**
2. O. Carr, "An Implementation of a Multi-Precision Version of the International Description Encryption Algorithm (IDEA)", Honours Thesis, Department of Pure Mathematics, University of Adelaide, 1999.
3. R.S. Tan, "Parallel Implementation of Recurrent Neural Networks over a Tranputer Network", **Won the Maude Walker Scholarship/Prize, 1994.**
4. A. Murdoch, "A Simulation Environment for the Shiva Multiprocessor System", B.E. (Hons) Thesis, Dept of Electrical Engg, University of Queensland, Australia, 119-pages. **Won the Outstanding Undergraduate Thesis of the Department of Electrical and Computer Engineering Award for the year 1994.**
5. S. Price-White, "Design and Implementation of a Novel Shared Memory Dual Processor System", B.E. (Hons) Thesis, Dept of Electrical Engg, University of Queensland, Australia, 116-pages, 1992. **Won the IEAust outstanding undergraduate thesis prize.**
6. K. Wood, "A Four Channel Time-Out Arbiter for Multiprocessor Arrays", B.E. (Hons) Thesis, Dept of Electrical Engg, University of Queensland, Australia, 128-pages. **Won the Outstanding Undergraduate Thesis of the Department of Electrical and Computer Engineering Award for the year 1988. Also won the Outstanding Undergraduate Thesis of the Faculty of Engineering Award for the year 1988.**

7. I.G. Clatworthy, "Programming Languages and Parallel Computers", B.E. (Hons) Thesis, Dept of Electrical Engg, University of Queensland, Australia, 69-pages, 1988. **A paper based on the thesis won the IEEE Student Paper Contest, 1988.**
8. C.R. Amies, "Multiprocessor Computer Systems", B.E. (Hons) Thesis, Dept of Electrical Engg, University of Queensland, Australia, 93-pages. **Won the Outstanding Undergraduate Thesis of the Department of Electrical and Computer Engineering Award for the year 1987.**
9. P.W. King, "Models for the Performance Prediction of Parallel Processing Architectures", B.E. (Hons) Thesis, Dept of Electrical Engg, University of Queensland, Australia, 96-pages. **Won the Outstanding Undergraduate Thesis of the Department of Electrical and Computer Engineering Award for the year 1986.**

15C. OTHER UNDERGRADUATE THESES

1. Two honours theses have been submitted in the year 2006 under my supervision.
2. Eighteen honours/pass theses have been submitted in the year 2005 under my supervision.
3. Twelve honours/pass theses have been submitted in the year 2004 under my supervision.
4. External Supervision of three students (C.P.Prasanna, V.Manral and A.K.Rathore) at Regional Engineering College, Tiruchirapalli, India, 1999 on "PASTEST: A Test Data Generation Suite for Pascal Programs". (Large thesis).
5. Six honours/pass theses have been submitted in the year 1995 under my supervision.
6. Four honours/pass theses have been submitted in the year 1994 under my supervision.
7. Six honours theses have been successfully submitted in the year 1993 under my supervision.
8. Three honours/pass theses have been successfully submitted in the year 1992 under my supervision.
9. Eight honours/pass theses have been successfully submitted in the year 1991 under my supervision.
10. A.C. Lewty, "Distributed Event-Driven Simulation of a Dynamic Dataflow Machine -- PATTSY", B.E. (Hons) Thesis, Dept of Electrical Engg, University of Queensland, Australia, 116-pages, 1990.
11. H.K. Tran, "Implementation of Parallel Algorithms", B.E. (Hons) Thesis, Dept of Electrical Engg, University of Queensland, Australia, 92-pages, 1990.
12. S. Lowe, "PATTSY: A Dynamic Dataflow Computer", B.E. (Hons) Thesis, Dept of Electrical Engg, University of Queensland, Australia, 58-pages, 1989.
13. W-T.T. Chong, "A Front-end Compiler for Adam", B.E. (Hons) Thesis, Dept of Electrical Engg, University of Queensland, Australia, 51-pages, 1989.
14. M.J. Thomson, "Language Implementation on a Dataflow Computer", B.E. (Hons) Thesis, Dept of Electrical Engg, University of Queensland, Australia, 50-pages, 1988.

16. HARDWARE & SOFTWARE SYSTEMS DEVELOPED

1. **Medical Gaming Environment for Characterization Parkinson and Alzheimer's Diseases:** A 3D game based software has been designed to characterize (for the first time) Parkinson and Alzheimer's diseases. The system monitors patients under non-medical environment and does not use much of the 'psychological assessment' processes employed currently.
2. **Asclepius:** This is a software for providing communicable diseases and pharmaceutical relation information in the JIT (Just In Time) manner. The software gathers information from multiple sources and analyzes them in a timely manner.
3. **ISO108 Foundation Three Layers:** This is a software is based on the ISO OSA-CBM International Standards that is a foundation to engineering asset management. This C++ based software is currently being actively used by a major MNC.
4. **Resource Discovery in Semantic Cloud:** This is a software achieves resource discover over a semantic cloud, where services are characterized in a specially semantic manner using extended XML.
5. **Mallampatti Score:** This is a hardware-software environment provides the Mallampatti score of patients so that sleep-disorder can be characterized in a systematic manner.
6. **IP Rights Detection:** This is a software, based on natural language processing technologies, detects potential IP rights violations.
7. **FunGIS: Functional University of Newcastle Geospatial Information System:** This software creates a 3D map of the University of Newcastle including footpaths and provides additional information for different types of users (e.g., diasabled, non-Egnlish speakers, etc). The first version of the software is operational and is currently being tested for scalability and reliability purposes.
8. **Event Algebra based E-commerce Transaction Verification System:** This software models E-commerce transactions using event algebra so that various types of transactions and their correctness can be modeled and proven. The system and its prototype are being tested over real e-commerce applications.
9. **Submarine Combat System Design -- Interoperability of Software Systems:** A TCP/IP compliant middleware system has been designed (different to CORBA, but along somewhat along similar lines) to handle specifics of submarine combat system software, which employs a variety of communication protocols, QoS (quality of Service requirements) and real time operational considerations.
10. **An "event algebra" abstraction mechanism** has been designed for the behavioral modeling of virtual environment interactions (such as a set of virtual ships interacting with a virtual submarine and a virtual helicopter) so that cooperative engagement capability could be explored.
11. **A middleware compliant (CORBA) geospatial data delivery system** (data warehouse along with a browser and querying facility) is being built to handle Peta bytes (million Gigabytes) of data over 22 domain catalogs. Ideas on data dictionary (and metadata) and bi-directional linking technologies are being investigated so that user-query performance can be optimized in the best manner. The architecture of the system employs a three-layer service model so that a variety of user types can be handled efficiently over various communication channels.

12. **Human language technology** has been pursued through a) a fact extraction software system to “discover Who?, When? What? Where? and How?”, which has been developed using Java and middleware (CORBA) technology and has been ported over a number of platforms and integrated with a number of systems. The system has been shown to be critically useful for data mining applications, for example. b) a speech processing and transcription software system has been developed to augment the fact extraction system, so that broadcast material could now be used as a means for driving the fact extraction system for analysis purposes.
13. **An information fusion system** has been developed to handle multiple message and transaction types so that useful filtering and integration of information will lead to a better fused picture of current activities in a business environment. The fused picture can lead to better decision support for higher management in terms of taking both re-active and pro-active course of actions.
14. **A messaging system software** for handling a variety of messages (constraints include one or more of: real time, priority basis, event basis, etc) was defined for military applications.
15. One of the first **Trader specifications** and an operational version was designed within my group. The work was performed in conjunction with DSTC CRC (Cooperative Research Centre for Distributed Systems Technology Corporation) located in Brisbane (at the University of Queensland campus).
16. **Meta Object Facility (MOF):** MOF allows the definition/specification of meta objects (information about objects), which is useful in addressing issues in interoperability.
17. **Data warehousing and data mining components** are present in these systems through integration of second party (government) and third party (commercial) products (i.e., GOTS and COTS). Though these systems are being delivered to Defense customers, they have significant commercial applicability to companies requiring to process large amount of messages and transactions, such as financial institutions, media organizations, Digital Library industry and TV & Radio stations.
18. **Two software suites were developed for the performance evaluation** of parallel and distributed systems and architectures using PVM and PARMACS. These two systems have been used to model algorithms and understand their performance over a wide variety of platforms, including but not limited to PC LANs, Unix LANs, Mixed LANs and IBM SP/2 (PVM based).
19. **A large scale software testing and validation suite** was developed originally for Ada programming language, but it is being ported by several researchers in various countries for other programming languages (e.g, Java, Pascal and C++). Design details and performance of the system have been published in a reputed international journal also. Source code is around 70K lines of C code.
20. **A distributed simulation tool using Petri nets** for systems understanding was developed and tested over digital systems design and verification. The system has also been used for organizational modeling and workflow and information flow analysis and, for data mining purposes.
21. **A compiler optimization tool** has been developed (mainly as a vehicle for analyzing VLIW and systolic computer architectures), which has wider applications for database query optimization and performance enhancement.
22. **SOM based Load Balancing Tool:** A particular Neural network (called SOMs) was studied for load balancing large amount of computational overhead over a network of processors. The problem taken was a large computational fluid dynamics problem which was solved using FEM (Finite Element Method) over a 2008X2008 grid over a 16 processor Crossbar connected network. We got very interesting performance results which have been published in IEE Proceedings. We also used

Genetic algorithms to tune up the load balancing. Hence it could be construed as a neuro-genetic algorithm.

23. **A performance modeling suite** was developed for analytical evaluation of performance of a computing systems (both hardware and software) so that bottlenecks can be readily identified. The system was developed over a LAN based cluster computer system. In addition, a particular multiprocessor system called, Shiva, was fully tested and its performance fully documented over a number of applications.
24. **LAN and WAN based distributed operating systems** was developed for distributed computing purposes. The main applications for this system include weather modeling and stock market modeling.
25. **A Transputer based tightly coupled multicomputing system** was built to evaluate particular application requirements (mainly image processing algorithms using MPEG 4-7 standards).
26. **Two operational multiprocessor systems** have been designed: a) one system used shared memory technology over a four processor system, with built-in compiler primitives to detect and exploit inherent parallelism in applications. b) the second system used a tagged token architecture to implement a dynamic dataflow system using Linda language-like constructs.
27. **Batching Arbiter with a Timeout Facility:** A new form of arbitration called, “batching arbiter with a timeout facility” has been developed along with its VLSI implementation. A simplified version of the technique is being used in IEEE Futurebus. A patent on this technique is pending final approval.
28. **A High Speed Sampling System:** A Transputer based high speed sampling system has been designed for high data rate applications. This functional system employs novel use of the Transputer’s four communication channels.
29. **High Speed Data Acquisition and Visualisation System** for underwater sonar applications.
30. **Dual Processor System Hardware and Software** including operating system design and development for applications to high speed guidance system.

17. EDUCATIONAL RESOURCES DEVELOPED

(Technical Workshop Manuals and Student Lecture Notes)

1. V. Lakshmi Narasimhan, “Recent Trends in IT for Biomedical Applications”, 200-pages, 2011.
2. V. Lakshmi Narasimhan, “Trends and Issues in Data Mining and Their Unusual Applications”, 250-pages, 2010.
3. V. Lakshmi Narasimhan, “Software Metrics and Quality Assurance”, 250-pages, 2009.
4. V. Lakshmi Narasimhan, “Software Project Management”, 300-pages, 2008.
5. V. Lakshmi Narasimhan, “Ethics in IT”, 100-pages, 2008.
6. V. Lakshmi Narasimhan, “Enabling IT Systems for E-Commerce”, 240-pages, 2005.
7. V. Lakshmi Narasimhan, “Embedded Systems Engineering”, 260 pages, 2004.
8. V. Lakshmi Narasimhan, “Embedded Operating Systems: Design and Practice”, 330 pages, 2004.
9. V. Lakshmi Narasimhan, “Workflow Technology”, 340 pages, 2001.

10. V. Lakshmi Narasimhan, "Software Engineering Essentials", 300 pages, 2002.
11. V. Lakshmi Narasimhan, "Software Testing Methodology", 170 pages, 2003.
12. V. Lakshmi Narasimhan, "Software Processes and Capability Models", 120 pages, 2004.
13. V. Lakshmi Narasimhan, "Distributed Object Computing", 330 pages, 2002.
14. V. Lakshmi Narasimhan, "Information Engineering Design", 224 pages, 2002.
15. V. Lakshmi Narasimhan, "Software Engineering Principles", 259 pages, 2002.
16. V. Lakshmi Narasimhan, "Software Development Methodology", 243 pages, 2003.
17. V. Lakshmi Narasimhan, "Java Programming", 169 pages, 2001.
18. V. Lakshmi Narasimhan, "Object Oriented Programming", 175 pages, 2001.
19. V. Lakshmi Narasimhan, "Advanced Digital Systems Design", 220 pages, 2000.
20. V. Lakshmi Narasimhan, "Distributed Operating Systems", 240 pages, 2002.
21. V. Lakshmi Narasimhan, "Parallel Architecture and High Performance Computing", 300 pages, 2002.
22. V. Lakshmi Narasimhan, "Computer Architecture: Principles and Design", 240 pages, 2001.
- 23.

Statement of Capabilities of Prof Narasimhan (in brief)

Prof Narasimhan R&D work spans across two major areas: Software Engineering and Information Engineering.

In Software Engineering his capabilities include: testing, visualisation, automatic instrumentation, process management, web services, distributed object computing, e-commerce, supply-chain management, metrics and costing.

In Information Engineering his capabilities include: information extraction, information visualisation, automatic ontology generation, metadata extraction, data mining, view generation and maintenance.

PROJECTS CONSULTED

I have worked in, personally led and acted as consultant for a number of projects in the areas of distributed systems for information acquisition, management and dissemination. I have extensive experience in Program and Project Management, Strategic Management and Business Process Re-engineering and Improvement. Particular technologies where I had recently worked include Data warehousing, Data Mining and IT architectures. A number of systems have been developed in the past and some work is currently on-going. Example systems developed and delivered are given below.

Example Systems Current

- **Sensor Network for Asset Management:** This project concerns the development and deployment of sensor networks for asset management; several ISO and MIMOSA Standards are being used in this project. Applications include, medical, agricultural, security, detection and other areas (contains hardware, software and operating system).
- Particular experience covers distributed heterogeneous asset management in oil and gas industries, aerospace industries, financial industries, electrical power industries, IT and related industries.
- **Systems and Technology for Homeland Security:** This area includes two major projects involving mobile and autonomous systems for information gathering and analysis (contains hardware, software and operating system).
- **Biographical information extraction and exploitation framework (BINFOX):** for biographical data management for insurance, finance and defence industries (contains hardware, software and operating system).
- **An information Prospecting Facility (Panorama)** for design recovery, automatic metrics generation and testability of large software systems (contains hardware, software and operating system).
- **Multi-level Information and System Security:** Addresses issues in software component security and integration and related metrics (contains hardware, software and operating system).
- **An Integrated Supply-chain Management Solution:** Addresses issues in supply chain management including visualisation, scheduling, planning and plan generation.
- **OSA-CBM Compliant Autocoder (Boeing Inc. consultancy):** An OSA-CBM Compliant Autocoder software has been developed for integrated data collection, condition monitoring and maintenance of

various systems and sub-systems for Boeing Inc.

- **Mechanisms for Ultra-secure Access to Large Repositories of Sensitive Data over the Grid (consultancy):** This project concerns the development of ultra-secure access mechanisms to protect sensitive medical data. This project is compliant with various provisions of HIPPA (contains hardware, software and operating system).
- **Heterogeneous Asset Integration, Management and Visualisation Platform (consultancy):** This project concerns with development of a distributed system for managing a variety of asset profiles (typically manufacturing and process industries), their management and condition visualization from a single-point of entry. This work is compliant with the various Standards of ISO, ANSI and MIMOSA (contains hardware, software and operating system).
- **A Critical Investigation into Metrics for Component Based Software Engineering (CBSE) (consultancy):** This project concerns the development of a software system to obtain values for a suite of metrics for various phases of CBSE, which included issues that cover, design phase, development phase, coding phase, testing phase and various operations such as, costing and management. The software can handle people/consultants situated at multiple sites.
- **Campus Mobility Map: Online Access to Information for People with a Mobility Disability (consultancy):** This project from the Federal Ministry of Aged care concerns the development of 3-D maps with several types of articulation (e.g., facilities) (contains hardware, software and operating system).
- **Submarine Combat System Design (consultancy):** A TCP/IP compliant middleware system has been designed (different to CORBA, but along somewhat along similar lines) to handle specifics of submarine combat system software. This was a rather difficult task in that a variety of communication protocols, QoS (quality of Service requirements) and real time operational considerations are present, in addition to limited availability of parameters for manipulation. (Aspects of this work are classified and addresses issues relating to hardware, software and operating system).

Example Systems Delivered (till 2001).

- **Submarine Combat System Design (consultancy):** A TCP/IP compliant middleware system had been designed (different to CORBA, but along somewhat along similar lines) to handle specifics of submarine combat system software. This was a rather difficult task in that a variety of communication protocols, QoS (quality of Service requirements) and real time operational considerations are present, in addition to limited availability of parameters for manipulation. (Aspects of this work are classified).
- An “event algebra” abstraction mechanism had been designed for the behavioral modeling of virtual environment interactions (such as a set of virtual ships interacting with a virtual submarine and a virtual helicopter) so that cooperative engagement capability could be explored. The theoretical aspects of this work were nearly complete and it is intended that the systems will be executed in software and integrated with the HLA (High Level Language) based Virtual Ship environment currently being built with industry involvement.
- A middleware compliant (CORBA) geospatial data delivery system (data warehouse along with a browser and querying facility) was built to handle Peta bytes (million Gigabytes) of data over 22 domain catalogs. Ideas on data dictionary (and metadata) and bi-directional linking technologies were investigated so that user-query performance can be optimized in the best manner. The architecture of the system employed a three-layer service model so that a variety of user types can be handled efficiently over various communication channels. The system was developed using COTS (Commercial-off-the-shelf), GOTS (Government-off-the-shelf) and in-house technologies. Java, Enterprise Java Beans (EJB), various

database products such as Oracle, Sybase, Ingress and ESRI were used. Several quality of service (QoS) issues and metrics for various user application requirements were constructed and addressed. The system used CORBA as the application-level middleware, Java as the tool-level integration-ware, and a variety of databases over NT and Unix platforms. The system was also tailored for the development of an integrated image handling framework.

- Human language technology was pursued through a) a fact extraction software system to “discover Who?, When? What? Where? and How?”, which had been developed using Java and middleware (CORBA) technology and had been ported over a number of platforms and integrated with a number of systems. The system had been shown to be critically useful for data mining applications, for example. b) a speech processing and transcription software system had been developed to augment the fact extraction system, so that broadcast material could then be used as a means for driving the fact extraction system for analysis purposes. A substantial knowledgebase was also developed, which had extensive metadata, dictionary (& thesaurus) and bi-directional computable linking facility so that informal storage, retrieval and dissemination tasks were accomplished with better accuracy, precision and recall. Additional technology used include, but not limited to: UML, Perl, HTML, XML and SGML. We also performed some work on the classification of text and voice signals using NN. We used NNs as a "secondary filter", to prime up the primary filters (which were based on K-means and EM algorithms). A considerable portion of this work is not open to public. Besides the use of mathematical packages (such as Matlab and other NN packages), we also used Java, C/C++, Perl, etc languages. Ultimately we tried to produce our "products" in the form of components/beans so that they could be used (rather re-used) in a number of systems.
- An information fusion system was developed to handle multiple message and transaction types so that useful filtering and integration of information led to a better fused picture of current activities in a business environment. The fused picture led to better decision support for higher management in terms of taking both re-active and pro-active course of actions. Fundamental AI technology based software solutions, such as Bayesian Net, fuzzy logic and expert systems had been employed for data/information fusion purposes. Data and information from various sources (mainly from Internet and other internal sources, but available in various formats like HTML, popular wordprocessors, free text, semi-formatted text, etc) were combined with numerical data (flight paths for example) to produce what is called the "situation picture". The situation picture gave a snap-shot of what is happening, where and who were the people/parties involved and what were their potential implications to "us". It was a complex area, where we employed AI technologies such as fuzzy logic, rough sets and NN for handling numeric data. We used a number of clustering techniques (K-means, EM, etc) and data mining techniques (mainly sequence analysis and pattern matching techniques) for analysing non-numeric data (mainly free text and large-scale database based non-numeric data) and further "feature based analysis" for video and audio data (mainly K-means clustering and EM algorithms). This was a rather substantial project, which also involves the use of Bayesian (belief) networks and ripple down rules (basically an expert system) for (level 3 & 4) deductions. However, as was the norm, correlation does not necessarily means causation. Consequently, we were currently attempting Perl's Causality (network) theory. However, the results in the last part were not promising, as I believe that Perl himself has been working on the theory and it has been somewhat incomplete then.
- A messaging system software for handling a variety of messages (constraints include one or more of: real time, priority basis, event basis, etc) was defined for military applications. Even though this system was a complex one, a light weight version had been proposed to be implemented over MSMQ and IBM MQ.
- One of the first Trader specifications and an operational version was designed within my group. The work was performed in conjunction with DSTC CRC (Cooperative Research Centre for Distributed Systems Technology Corporation) located in Brisbane (at the University of Queensland campus). The output of the work was taken as a submission for OMG Trader specification and implementation and was later

successfully approved (along with the work by Unisys). The fundamental basis of this work was the development of a sub-graph matching algorithm, which is a variant of the one proposed by Edgar Dijkstra.

- Meta Object Facility (MOF): MOF allows the definition/specification of meta objects (information about objects), which was useful in addressing issues in interoperability. The MOF and Trader along with a cataloging system (primarily based on a light weight version of Z39.50) had been used as a means for solving problems in interoperability and composability. The MOF specification (and a partial implementation) was also taken to the OMG with some success.
- Data warehousing and data mining components are present in these systems through integration of second party (government) and third party (commercial) products (i.e., GOTS and COTS). Though these systems were delivered to Defense customers, they have significant commercial applicability to companies requiring to process large amount of messages and transactions, such as financial institutions, media organizations, Digital Library industry and TV & Radio stations. These systems have been used for business analysis, information flow studies, process re-engineering, etc.
- Two software suites were developed for the evaluation of parallel and distributed systems and architectures using PVM and PARMACS. These two systems have been used to model algorithms and understand their performance over a wide variety of platforms, including but not limited to PC LANs, Unix LANs, Mixed LANs and IBM SP/2 (PVM based).
- A large scale software testing and validation suite was developed originally for Ada programming language, but it is being ported by several researchers in various countries for other programming languages (e.g. Java, Pascal and C++). Design details and performance of the system have been published in a reputed international journal also. Source code is around 70K lines of C code. Tools used include, YACC, LEX and a self-developed LALR parser. The system was designed and developed for the Unix platforms, but can be readily ported to other platforms also.
- A distributed simulation tool using Petri nets for systems understanding was developed and tested over digital systems design and verification. The system had also been used for organizational modeling and workflow and information flow analysis and, for data mining purposes.
- A compiler optimization tool had been developed (mainly as a vehicle for analyzing VLIW and systolic computer architectures), which has wider applications for database query optimization and performance enhancement.
- A particular Neural network (called SOMs) was studied for load balancing large amount of computational overhead over a network of processors. The problem taken was a large computational fluid dynamics problem which was solved using FEM (Finite Element Method) over a 2008X2008 grid over a 16 processor Crossbar connected network. We got very interesting performance results which have been published in IEE Proceedings. We also used Genetic algorithms to tune up the load balancing. Hence it could be construed as a neuro-genetic algorithm.
- A performance modeling suite was developed for analytical evaluation of performance of a computing systems (both hardware and software) so that bottlenecks can be readily identified. The system was developed over a LAN based cluster computer system. In addition, a particular multiprocessor system called, Shiva, was fully tested and its performance fully documented over a number of applications.
- LAN and WAN based distributed operating systems was developed for distributed computing purposes. The main applications for this system include weather modeling and stock market modeling.

- A Transputer based tightly coupled multicomputing system was built to evaluate particular application requirements (mainly image processing algorithms using MPEG 4-7 standards).
- Two operational multiprocessor systems have been designed: a) one system used shared memory technology over a four processor system, with built-in compiler primitives to detect and exploit inherent parallelism in applications. b) the second system used a tagged token architecture to implement a dynamic dataflow system using Linda language-like constructs. Extensive use of functional languages (LISP, Id, SISAL, Haskell, Linda, Adam) was made, some of form the core such commercial middlewares such as CORBA and Enterprise Java Beans (EJB). In addition, we employed VHDL for design, development and verification.