Dr. Manjunath Ramachandra

Ph :( 080) 26797124 (Res)

97400 98984 (mobile)

e-mail:manju\_r\_99@yahoo.com

**Career objective**

To seek a responsible position, that utilizes my education and provide me with varied experience that enhances my skills and offer a high level of challenges, responsibility & opportunity and at the same time add value to my organization.

**Professional Profile**

About 18+ years of work experience in the overlapping verticals of Signal processing including the image and video processing, Machine learning and content delivery. Research in the same field led to PhD, about 120 publications and a book.

**Organizational Experience**

Senior Domain specialist- Signal processing, Philips healthcare research (2011-tilldate)

Domain specialist –Image processing at the CTO office, Philips (2009-2011)

Technology specialist at the CTO office, Philips (2006-2009)

Technical consultant/ Program manager in Celstream Technologies (2005-2006)

Senior design specialist in Celstream technologies (2004-2005)

IT Analyst in Tata Consultancy Services (2003-2004)

### System Architect in U&I System Designs (1999-2003)

Project Consultant and faculty in Golden Valley Institute of Technology (1995-1999)

Teaching faculty, Department of electronics & computer science, University Visveshwaraiah college of engineering ( 1993-1995)

**Work Experience**

***Technology management***

* Worked for the technology office that cater for 600+ engineers of Healthcare.
* Research in multidisciplinary & emerging technologies and help research teams to develop prototypes/proof of concept
* Development of new algorithms, product features. Advisor for the advanced technology & exploratory projects, project definition based on future requirements
* Development of new paradigms that have potential benefits across the business units
* Successful transfer of research projects to Business for productisation.
* Work closely with the system architects of various products and impart the domain knowledge for the ongoing projects throughout the life cycle, from conception to maintenance
* Collaboration, ecosystem development
* Industry-academy interactions & funding proposals linked to business.
* Review/approval of Statement of work, RFC.
* Part of organization initiatives and roadmaps
* Alignment with business, advice for procurements
* Advice to enhance the business excellence through smart solutions
* Publication of technical papers in international journals/ conferences
* Key member of innovation management special interest group (SIG)
* Advice for Technology Roadshows

***Representation of organization and branding***

* Representation of the organization in national & international forums to align the business interests.
* Contribution to the international standards in image/video compression, content transfer
* Participation in conferences as author/reviewer/session chair/program committee/chief guest/keynote speaker
* Advice for Workshops in academic institutions
* Advisor for academic institutes on emerging technologies
* Part of the Industry academy collaboration and industry hospital collaboration; design of clinical studies, setting up of dedicated facilities, ecosystem development to provide concept to certification of the solution, Government funding initiatives, technical and strategic advisor for setting up of the center of Excellence (CoEs) through the government funds
* Mentoring the student community
* Guidance to Doctoral students, Post graduate interns

***Competency, Innovation and knowledge management***

* Chaired the committee for the development of framework of best practices & knowledge management in the organization
* Setup of new competency groups to generate business
* Architect for competency management strategies
* Part of Multi- year competency Roadmap of the organization.
* Establishment of Center of Excellence
* Mentor resources to publish papers, patents.
* Validation of technical activities of the team
* Meeting target on IPs, Patents and publications
* Active participation in reviews.
* Practice development
* Bringing value creation and differentiator in product/solutions by various innovative approaches

***Delivery management***

* Ownership for multiple projects with a collective size of 80+ members.
* Understanding of the client’s needs; product enhancements, customization, solution for the software-related issues in adherence to delivery schedules.
* Single point of contact for customers, responsible for all deliverables with quality and milestones
* Review of all deliverables before shipping to the customer, handling of escalations. Defect prevention planning
* As technical consultant, system architect, finalizing implementation & validation strategies and approval of deliverables.

***Project Leadership***

* Interfacing with the users for mapping requirements & finalising specifications.
* Resource allocation, WBS, task allocation, project tracking, goal setting for the resources
* Overseeing smooth implementation of the solution
* Interacting with the team members to ensure smooth progress of project work.
* Ensuring adherence to quality norms throughout the development & implementation process.
* Catered to the training needs of the Central Engineering resources, mentoring

***SDLC Planning & Co-ordination***

* Part of all phases of software development life cycle including requirements, design, coding, optimization, synthesis, porting, verification, validation adhering to the quality norms
* Involved in high-level design and software development
* Handled testing, system integration, debugging and troubleshooting, extending post-implementation technical support to the client.

***Program management***

* Rotation of resources across projects, multiple account management, Optimal utilization of resources & reuse of modules
* Set up of new competencies/business.

***Customer management***

* Presentations to customers, techno-business discussions, negotiations, business/ project proposals
* Part of the customer roadmaps
* Handling of escalations.

**Ph.D research**

“Compact architecture for the analysis and processing of subnet signals using differentiators as building blocks”.

The research involved concepts and algorithms developed from signal processing, making use of Machine learning. The new class of neural network developed during the research can be used in pattern recognition and classification, image processing, time series prediction etc., with arbitrarily small training data. The application example for multimedia data network traffic shaping has been studied. The traffic pattern recognition algorithm developed as a part of the research can be used to ensure quality of service (QoS) in the data network management, content search, distributed computing, multimedia networks, cloud, mobile network, web services, supply chains, workflow management, fleet traffic management and the like.

**Extension of PhD Research work**

* Developed a class of learning systems called “Differentially fed artificial neural networks” and used the same for internet traffic (self-similar) pattern recognition, classification & clustering with enhanced speed and SNR.
* Developed algorithms for the optimal partitioning & merging (fusion) of the self-similar random process/ systems and applied the same for molecular imaging
* Developed algorithms for multi-scale representation of systems and applied the same for multi-scale imaging, sensors, Information and content management (life cycle including acquisition, processing, retrieval), supply chain management etc.

**Core technologies**

* Medical image processing (Ultrasound, MR, DXR, Optical) & imaging systems (ultrasound)
* Image, video and signal processing life cycle.
* Computer vision, Machine learning & pattern recognition

**Product space**

* Healthcare/Medical devices, Multimedia

**Software skill set**

* ***Signal/image processing:*** MATLAB, SPW, SIMULINK, ITK, OpenCV
* ***Programming*** ***Languages:*** C,C++, VHDL, Verilog
* ***Embedded systems:*** Optimization & porting of source codes forSparc Leon3, ARM9 &11, TMS 320C and proprietary processors/SoC of Thomson; Xilinx, Cadence & synopsis simulation/synthesis tools
* ***Microsoft technologies:*** Visual studio, WM9, windows DRM10

**Standards**

* Healthcare: DiCom, JPEG 2000, Risk management (ISO 14971:2012), Continua, wi-fi in Healthcare.
* Data transfer: ASF, H.323, ZigBee, Bluetooth, GSM/GPRS, Wi-fi, IEEE 802.xx, DLNA, RTP,WPAN,IPv6
* Data compression: MPEG2. MPEG4, H.264, WMV, DVC, MP3, MPEG4 AAC, HEAAC+, WMA, SBC, JPEG, G.xxx, AMR, AC3.

Philips Healthcare Research - Senior Domain specialist

* Ownership of signal & medical image processing domain activities in the business horizontals
* Advisor for research projects in exploratory and conceptual phase and successful transfer of the same to the business units
* Technical contribution for the projects in terms of algorithm development & evaluation
* Domain advice for medical image processing and machine learning projects in development phase, working closely with multiple project teams
* Advisor for Product designs targeting specific marketing segments, value creation and differentiator in product/solutions, quantification tools.
* Finalization of research methodologies
* Review of project designs & algorithms, project plans, strategy documents
* Business funded project Proposals
* Enhancement of new competencies in the group
* Technical presentation to the top management and the collaborators to get their buy-in for the collaboration activities.
* Key member in driving industry-academy relations, innovation ecosystems and hospital/clinical ecosystem based on the business roadmaps.
* Management of clinical studies
* Mentoring
* Publications/IP development
* Analysis on next generation technologies for the products

Philips Healthcare -Domain specialist

* Development of new algorithms & domain advise for advanced technology projects to develop product features
* Hospital visits to gain a deep understanding of the issues in healthcare technology, consumer insight and the clinical workflow.
* Funded project Proposals
* Key member in driving industry-academy relations, innovation ecosystems and hospital/clinical ecosystem based on the business roadmaps.
* Representation of Philips in Wi-Fi in healthcare task group

Philips-Technology specialist

* Representation of Philips in international standardization bodies –DLNA Media format task force, DLNA- Ecosystem sub-committee, Content service provider task force, wi-fi and CE linux forum (CELF). As a single point of contact with in Philips for all information related to media formats providing expert suggestions/decisions.
* Member of Special interest Group (SIG) embedded system & Advisor for NASSCOM for the future roadmaps in Healthcare technologies that get translated in to government policies.
* Contribution for patents/ publications, Technology & Innovation Management (TIM)
* Mentoring the engineers to submit patentable inventions and papers in international

Conferences /journals, help in drafting patents.

* Competency management and Multiyear Competency Roadmap for the organization.
* Domain owner for ‘Connectivity’ competency
* Advisor for Wi-fi activities
* Contribution to new business.

Major activities in Philips

**Domain expertise for the projects**

Contribution to the domain knowledge of the signal/image processing & machine learning projects and continue to help the team during implementation. The projects include

* Camera based Blood haemoglobin estimation,
* Anemia classification based on conjunctival images
* Wireless ultrasound solution over the Rocket Machine
* Face detection and anonymisation in the video of patients
* Test approach for facial landmark detection in CPAP mask for Sleep apnea
* Big data analytics for the classification of tumors from the Brain MR images
* Motion stabilization in Colposcope video
* Super value ECG from concept to prototype
* Scan conversion & rendering for Lowcost Ultrasound decoder
* Semantic Web Infrastructure for Radiotherapy structure set data
* Camera based respiration rate measurement in Neonatal ICU
* Content based image retrieval using pulse coupled neural network for medical images
* Dose optimisation in IMRT plan
* Quantification of coronary blockages from digital X ray images(QCA)
* Principle component analysis(PCA) based registration of PET/CT images for the preclinical workstation, Imalytics
* Exploration of Single channel EEG over MSP430

**Definition and Drafting of research project proposals**

The projects were drafted in consultation with the clinicians and the business. It includes

* Auto-interpretation of Echocardiogram images with QLab over the cloud
* Automated Echocardiographic image analysis and mining over Bigdata
* Integrated echo-electro Cardiogram
* Feasibility study of Prostate elastography with harmonic ultrasound imaging
* Classification of atherosclerotic carotid plaques using Ultrasound imaging
* Role of diffusion weighted imaging and ADC value in the follow-up for the early treatment of TB pleural effusion
* Determinants of post stroke cognitive impairments – Longitudinal neuro-psychological and neuro-imaging study
* Validation strategy for Ultrasound based Brachy therapy plan software (TG-43)

**Definition and technology support for Philips funded Colloborative projects**

* Segmentation and classification of cyst and lesions in Ultrasound Breast images
* Brain tumor segmentation from MR images using Fuzzy c means
* Automated Brain tumor segmentation from MRI using fast implementation of Level set method
* Brain tumor classification from MR images using SVM classifier
* A case study analysis of Glioma Multiforme Tumor segmentation from MR images using Neural network techniques with fusion framework
* Performance Evaluation of Wavelet Based Medical Image Registration
* Mechanical modeling of Brain AVM from CT images

Technology and Innovation management

* Collaborating with the appropriate groups within Philips to generate ideas (through ideation work shop and creative guided thinking) and come out with publications and business solutions. Instrumental in proposing “test automation as a service” framework over the cloud, that is designed to reduce the test efforts substantially.
* Key member of Interoperability SIG, Test automation SIG and Image processing SIG; Instrumental for the definition of the charter of the SIG, white paper on Interoperability activities,. publications from the SIG and roadshow.
* Key member of E-forum; Authored whitepaper on Data analytics for Energy & Lighting segment with smart energy meter

Industry academy relations

* Instrumental to propose and review the syllabus of M.Tech course in ‘Healthcare Technology’ at PES Institute of Technology. It is first of its kind, to be collectively run by the engineering college as well as the medical college hospital.
* Part of Philips academic relation with SJCE ( Embedded systems lab, Medical imaging innovation Lab & embedded systems course), JSS ATE ( Open innovation lab) and KMC Manipal ( Medical image processing lab) defining Philips sponsored projects and the academic courses, advice and support to establish the laboratories and delivery of lectures on advanced topics (2007 –till date)
* Advisor for BMS college of Engineering in Biomedical instrumentation projects and establishment of CoE in point of care devices.

Representation in the standardization bodies:

1. DLNA: In media format task force, proposed about 30 profiles for the transfer of image, audio and video content. Closely worked with other members of the group to define the profiles and get the test streams. Served as the editor for the standardization guidelines of DLNA Video package task group.
2. Wi-fi alliance: Represented Philips in Video over wi-fi marketing group and wi-fi Peer to peer communication group. Presented turntable measurement technique for testing wi-fi devices. Instrumental for the formation of TDLS task group. Was a part of long range task group (health care).
3. CELF: Unanimously selected by CELF as the Industry Liaison officer to facilitate open source projects.

Competency management:

* Architect for the competency management mechanism and instrumental for the rollout of the technical competency management ( TCM ) tool across the business unit to cover 120 employees.
* Part of Multi year competency Roadmap Task group

Coaching:

1. Provided coaching for the group developing DLNA compatible TV

2. Provided coaching on wi-fi standards

3. Delivered tech-talks on

* Challenges in medical image processing.
* Biosensors technology and market opportunities
* Ultrasound imaging modality and image processing
* Advanced medical image processing

**Celstream –Technical consultant**

# ***At the organization level***:

# Interface with the customer, senior management and the engineering staff to start the projects, set up Labs and New business domains from the scratch, Research and IPs based on the market, feasibility, investment etc.

# Chair for Technology management, knowledge management and best practices management committees in the leadership group.

# Implementation of technical vision of the organization through the BU’s.

# Creation of business opportunities and provide advice, strategy & Road map to shape the techno business vision of the organization.

* Instrumental to get new projects and start IPs
* Provide technical expertise during procurement and budgeting
* Interaction and interfacing with the Business unit head, CTO, Program manager, Architect, Customers and Business development manager
* Evaluation of new project/IP proposals.
* In charge of techno business solutions and final recommendations for technical decisions.
* Coaching & Technical advice to the different project teams. Team building ( Technical management)

*At the business unit level*:

* Technology management and total responsibility for multiple accounts of Thomson Business in Multimedia. All the projects involve Optimization and porting on to embedded target platforms.
* Provided implementation strategies for each of the projects.
* Final decision on the design, verification and approaches for optimization and porting
* Provided the methodology and directions for code partitioning, optimization and porting activities specific to the platforms.
* Review of the progress of optimization.
* Evaluate the technical work of the team members.
* Interaction with managers and monitor project status
* Review of design, optimized code and test methodologies against the strategies
* Ensure the deliverables to customer adhering to quality and process guidelines.
* Delivery management- As a single point of contact for the customers and responsible for assured in-time deliverables with quality.
* Defect prevention plan.
* Attend to the issues escalated by the team and resolve with the customer.
* Interaction with the customer, customer presentations
* Finalizing effort, task priorities and dependencies.
* Help in recruitment.
* Competency development in content security and realization of business goals
* Interaction with managers for resource requirements, rotation, staffing and strategies
* Technical meeting & interaction with each of the teams every week.
* Interface to senior management on project status.
* Program management: Work with managers in preparing response to project proposals, SoW, approval of WBS, MPP, resource movement across the projects.

Major projects at Celstream

Optimization and porting of Image/video/speech standards on to embedded platforms: The activities of Thomson business unit include porting audio and video compression standards such as MPEG-2, MPEG-4 part 2, WMV9, WMA9, AAC, SBR, iLBC, H.264 and AC3 and streaming protocols such as RTP/RTCP, H.323 on to the target processors Brubeck (Thomson proprietary), ARM etc. Other projects include Optimization and porting of iLBC/VOIP, Digital media asset management, content security, Video storage and streaming (Video LAN), performance trials of ipv6 bridge over LAN.

Tata consultancy services-IT Analyst

* Responsible for the evaluation of design alternatives, system architecture
* Review of design and test strategies
* Implementation of critical modules and system integration
* Contribution for patents/ publications
* Mentoring
* People management

Major projects at TCS

Wireless LAN 802.11g: This project implements 802.11 a, b and g. The project was targeted for embedded platform, developed in verilog, tested with C and ported on to FPGA. MAC layer was developed targeting the ARM processor.

Satellite receiver terminal: This project implements GSM and GPRS standards for the client, APSI. A fair balancing of the hardware and firmware has been done to maximize the flexibility. The demonstration was planned on customized OMAP and Xilinx board from I-ways. The MAC layer and a part of the physical layer functionalities have been pushed to the OMAP that contains ARM9 and TMS processor

U & I System designs- System Architect

* Verification of requirements and design feasibility from business and technology perspective
* Technical contribution as system architect
* Customer handling; Techno-business discussions and IP demonstrations
* Project management
* People management, assistance in recruitment
* Advice on validation strategy for the product
* Development of algorithms. Contribution for standard/protocol development (WPAN)
* Provide a leading vision for the project/IPs, the overall comprehension of how the hardware, software, and network fit together as a system; end to end solution.
* Responsible for multiple accounts
* Implementation of the critical modules and system integration

# **Major projects at U & I System designs**

# 

# **Audio/Video compression standards:** The end to end flow of MPEG-2, MPEG-4 and MP3 were implemented with ASIC. The modules developed in VHDL were ported on to XCV800 board**.**

The scene change detection algorithm was developed based on the Euclidian distance in the feature space and subsequent grouping of the macro blocks. The project was demonstrated on the Avnet board with 1 million gates FPGA. CORDIC algorithm has been used in the optimization of MP3 code. Verification at the system level was carried out on SPW platform.

# **Wireless PAN**: This project was started to replace the cable at workplace with wireless media. It is an amalgamation of many existing standard stacks like 802.11, MPEG-4, Bluetooth, 802.11.3, 802.15.3, Zigbee and 1394 Fire wire. SoC based solution was proposed targeting the indigenous P20 RISC processor.

**Golden Valley Institute of Technology**

* Regular faculty for Signal processing, Networking, VLSI, Computer architecture
* Technical consultancy for projects in collaboration with the industries

The projects have been developed for the industries and got implemented through the students as a part of their curriculum. It provided an opportunity to work with the industries and take part in the live projects and IPs by providing assistance with the workforce and technology

**List of collaborative projects carried out:**

1. Front end tool for speech signal processing:
2. Speech storage & synthesis algorithms:
3. Microprocessor based Solar panel control:
4. Filter design in Group delay domain:
5. FSK Modem using Micro controller:.
6. Integration control of data system for high speed wind tunnel:
7. HDLC CRC unit:
8. Microprocessor based stand-by system:

**Achievements**

**List of Patents submitted:**

1. Relevance based scalable QoS for Video Content
2. Relevance based scalable security for Video Content
3. Revenue model for optimal content transfer for enhanced user experience

###### List of scholarships won

* National merit scholarship from the Govt. of India
* State level award from the Govt. of Karnataka for securing highest marks in the province in second PUC.
* GATE scholarship during Master degree course
* Young investigator award, Society of Molecular Imaging, 2004.
* Figures in Marquis Who’s Who 2008
* Figures in “2000 outstanding intellectuals of the 21st century”, International Biographical center, UK, 2008

**ACADEMIC RECORDS:**

Examination Board/University School/College Class

S.S.L.C K.S.S.E.B Sumathi Jain First

P.U.C P.U.Board I Grade college First

B.E Bangalore University BMS college First

M.E Bangalore University UVCE First

PhD Bangalore University UVCE Doctoral degree

**List of conference sessions chaired:**

Session chair for ‘Knowledge management’, ITSim2003, Kuala Lumpur, Malaysia.

Member, Scientific committee, Advanced Computation for Engineering Applications, Cairo, Egypt

Member, Scientific committee 4th WSEAS Int. Conf. on APPLIED INFORMATICS AND COMMUNICATIONS (AIC'04). Spain

Member, Scientific committee 4th WSEAS Int. Conf. on SIGNAL PROCESSING, COMPUTATIONAL GEOMETRY & ARTIFICIAL VISION (ISCGAV'04)

Member, Scientific committee 4th WSEAS Int. Conf. on SYSTEMS THEORY AND SCIENTIFIC COMPUTATION (ISTASC'04) (former: Scientific Computation and Soft Computing)

Member, Program committee, ISSCI2006/WAC2006

Member, 5th WSEAS Int. Conf. on SIGNAL PROCESSING, COMPUTATIONAL GEOMETRY & ARTIFICIAL VISION (ISCGAV'05) Malta, September 15-17, 2005

Member, Program committee, IRMA 2007

Member, Program committee, ISSCI2007/WAC2007

Member, Technical committee, EMC 2008

Member, Program committee, Edutainment 2008

Member, Program committee, ISSCI2008/WAC2008

Member, Program committee, Edutainment 2009

Member, Program committee, Edutainment 2010

Chairperson, NWBME'11 symposium on Medical signal Processing,2011

Member, Program committee, Edutainment 2011

Member, Program committee, Edutainment 2012

Session chair for Image processing ICMCCA-2012

Member of Program Committee, ICVSP-2012

Member of Program Committee, EMC-12

Member, Program committee, Edutainment 2013

Member, Program committee, C-Cube 2013

Member, Program committee & Session chair, NCRTEC 2013

Member, Technical committee, NESP 2014

Member, Technical committee, ICVSP 2014

**List of workshops conducted**

* Workshop for the faculties on image processing at SIT Tumkur, 2003.
* Workshop for the faculties on ASIC design flow at MSR School of Advanced Studies, 2003.
* Workshop for the participants of Medical image processing program on image Segmentation and registration at SJCE Mysore, 2009.
* Workshop for the participants of Medical image processing program on imaging modalities at SJCE Mysore, 2011.
* Workshop for the participants of Medical image processing program on Medical image processing at SJCE Mysore, 2012.

**List of keynote speeches delivered/discussion panels chaired**

**‘**Introduction to medical imaging workflow’ at BMS college, 2010

Discussion panel, NWBME'11 symposium on Medical signal Processing,2011

‘Medical Imaging - Looking beyond structures’ at PESIT, Bangalore 2011

“life cycle of medical image processing” at the Imaging processing workshop, CMRIT, 2011

Invited talk, “ Medical Image Segmentation” at the Workshop on, "Biomedical Systems: Technologies for Inclusive Healthcare", PESIT 2013

Invited talk, “ Tools and techniques for Medical Image Segmentation” at the Workshop on Medical Image Processing: Application Development using ITK and VTK, MIT Manipal 2013

Keynote speech, “Tools and techniques for Advanced medical imaging” at the workshop “Bio-Signal Processing”, MSRIT, 2013

Invited talk “Challenges with medical imaging modalities” at the workshop “Challenges in Medical Imaging”, SJCE, 2013

Chief guest and keynote speaker, “Technology enablers  for the emerging applications”, IEEE confluence2012, JSS ATE 2012

Invited talk “Emerging models to address   
the challenges in the delivery system of technical education “ at the workshop on train the trainer, AMC 2013

Lead speaker “Technology enablers for the emerging applications   
over embedded platforms”, NESP 2014

**List of Publications**

1. Manjunath.R, K.S.Gurumurthy, Signal processing with self-similar RNAs, *12th NASA Symposium on VLSI Design,* 2005*.*
2. Manjunath.R,. K.S.Gurumurthy, Alternate approaches for the control of the evolution of the stem cells, *ISDB,* 2005.
3. Manjunath.R, K.S.Gurumurthy, Protein synthesis with self-similar RNAs, *Cold Spring Harbor Laboratory, Meetings, Eukaryotic mRNA Processing*, 2005
4. Manjunath.R, K.S.Gurumurthy, Alternate approaches for the control of the evolution of the stem cells, 55th Canadian chemical engineering conference, Canada, Oct 16-19, 2005
5. Manjunath.R, Self- similar models for biological system and process, ISMB 2006
6. Manjunath.R, K.S.Gurumurthy, Hierarchical representation of memory, *ECMTB* 2005
7. Manjunath.R, K.S.Gurumurthy, New applications targeting   self similar sequencing of Nucleic acids in genes, *ECMTB*, 2005
8. Manjunath.R, Enhancement and interpolation of self similar multi-scale biological images, Multiscale Biological Imaging, Data Mining & Informatics, Santa Barbara, CA, USA, 2006
9. Manjunath.R, K.S.Gurumurthy, Long-range dependency of signals transmitted over a fading channel, *Med-Hoc-Net*, 2005.
10. Manjunath.R, K.S.Gurumurthy, Role of synchronization on QoS in a wireless adhoc network*, MWSCAS*, 2005
11. Manjunath.R, .K.S.Gurumurthy, Compact architecture for the Transmission rate control using differentially fed Artificial Neural Networks, CODEC’04
12. Manjunath.R, K.S.Gurumurthy, Maintaining Long-range dependency of traffic in a network, CODEC’04
13. Manjunath.R, A New Cell Scheduling Algorithm in Adhoc Network with Bayesian Decision, world wireless congress
14. Manjunath.R, K.S.Gurumurthy, Optimal Neural network for Cell Scheduling with Bayesian decision, WAC ISSCI 2004
15. Manjunath.R, K.S.Gurumurthy, A new a architecture for Transmission control using rate feedback, WAC ISSCI 2004
16. Manjunath.R, K.S.Gurumurthy, A new Cell Scheduling Algorithm with Differential feedback, *MWSCAS*, 2005
17. Manjunath.R, K.S.Gurumurthy, Differentially fed Artificial Neural Networks for network traffic shaping, *MWSCAS*, 2005
18. Manjunath.R, Vikas, A new Buffering Algorithm for data and commands over a high speed interconnect, IP’08
19. Manjunath.R, Shyam Vasudev Rao, Issues and Trends in Online Content Distribution through Controlled Encryption, IECMC2, 2008
20. Manjunath.R, Shyam Vasudev Rao, Location based Dynamic Management of Fleet Through Information Prediction over the Network, IECMC2, 2008
21. Manjunath.R, Shyam VasudevRao, Improving Quality of Service through shifted prediction feedback, CCNC 2008.
22. Manjunath.R, Prediction Feedback technique for maintaining a fair integration of sensor outputs, 9th Conference on the Simulation of Adaptive Behavior (SAB2006)
23. Manjunath.R, Shyam Vasudev Rao, Compact architecture for the analysis and processing of subnet signals using differentiators as building blocks, APSITT 2008
24. Manjunath Ramachandra, Shyam VasudevRao, Data Network performance modeling and control through prediction feedback, ISSRE 2009
25. Manjunath Ramachandra, Selva kumar, Narendranath Udupa, Integrating the content security with the QoS in data networks, ISSRE 2009
26. Manjunath Ramachandra, Shyam VasudevaRao, Control theoretic approach for the Reduction of RTT in a distributed system, ISSRE 2009
27. Manjunath R, Narendranath Udupa, Neural network based search engine for the query of multimedia content, ICCE 2009
28. Manjunath.R, Shyam VasudevRao, Novel architecture of a traffic shaper to handle service quality in multimedia network, CCNC 2008
29. Manjunath.R, K.S.Gurumurthy, Wavelet Representation of Differentially Fed ANN, WSEAS ISCGAV' 03 Rhodes islands
30. Manjunath.R, K.S.Gurumurthy, Bayesian Decisions with Differentially Fed Neural Networks, WSEAS ISCGAV' 03 Rhodes islands
31. Manjunath.R, K.S.Gurumurthy, Convolution of hyper planes with Gaussian kernels in a differentially fed ANN, WSEAS ISCGAV' 03 Rhodes islands
32. Manjunath.R. K.S.Gurumurthy, System Design using differentially fed Artificial Neural Network, WSEAS ISCGAV' 03 Rhodes islands
33. Manjunath.R, K.S.Gurumurthy, Ideal estimates of differentially fed ANN in Bayesian space, WSEAS ISCGAV' 03 Rhodes islands
34. Manjunath.R, K.S.Gurumurthy, Information geometry of differentially fed artificial neural networks, TENCON’02
35. Manjunath.R,. K.S.Gurumurthy and. K.R.Venugopal, Differentially fed   artificial neural networks as building blocks of FPGA (IEEE 11th annual symposium, 2002)
36. Manjunath.R, K.S.Gurumurthy, Tensor domain analysis of differentially fed artificial neural networks, ITSim2003
37. Manjunath.R,. K.S.Gurumurthy, Ideal estimates of differentially fed Bayesian space, ITSim2003
38. Manjunath.R, K.S.Gurumurthy, Convolution of hyper planes with Gaussian kernels in a differentially fed artificial neural network, ITSim2003
39. Manjunath.R, K.S.Gurumurthy, Bayesian decision on differentially fed hyper planes, ITSim2003
40. Manjunath.R, K.S.Gurumurthy, Convolution of hyper plane and Gaussian kernels in Neural networks, ANZIIS2003
41. Manjunath.R, K.S.Gurumurthy, Bayesian decisions with differentially fed hyper planes, ANZIIS2003
42. Manjunath.R, K.S.Gurumurthy, Optimal Neural network for Cell Scheduling with Bayesian decision, CODEC’04
43. Manjunath.R, K.S.Gurumurthy, New architecture for Configurable blocks using Differential ANN, IP Based SoC Design'2003
44. Manjunath.R, K.S.Gurumurthy, Tensor Domain analysis of hyper planes in a differentially fed ANN, ICAAI’03
45. Manjunath.R,. K.S.Gurumurthy, System Design using differentially fed Artificial Neural Network, ICAAI’03
46. Manjunath.R System design using differentially fed Artificial neural networks, PhD consortium, DATE 2005.
47. Manjunath.R, K.S.Gurumurthy, Triple Quad Model for Photons, *Quantum Information*, European Physical Society13.2005
48. Manjunath.R, K.S.Gurumurthy, Origin of Matter across the colliding galaxies, *International Meeting on Frontiers of Physics* 2005
49. Manjunath.R, K.S.Gurumurthy, Configurable Neural Blocks as Elements of Mixed signal FPGA, *MAPLD International Conference, 2005*
50. Manjunath.R, K.S.Gurumurthy, Research for Sustained economy, *WAYS*, 2005
51. Manjunath.R, K.S.Gurumurthy, Information geometric representation of galactic collision, *Asian-Pacific Regional IAU Meeting*, 2005
52. Manjunath.R, K.S.Gurumurthy, Evolution of self similar structure of Genes for photosynthesis, ECMTB*,* 2005
53. Manjunath.R, K.S.Gurumurthy, Continuous creation of matter across the black holes, *The Third 21COE Symposium: Astrophysics as Interdisciplinary Science* Waseda University, Japan
54. Manjunath.R, K.S.Gurumurthy, Wavelet representation of a differentially fed neural network, *MWSCAS,* 2005
55. Manjunath.R, K.S.Gurumurthy, Differentially fed Artificial Neural Networks.  
     *MWSCAS*, 2005
56. Manjunath.R, K.S.Gurumurthy, Bayesian estimator with differential feedback, *MWSCAS*, 2005
57. Manjunath.R, K.S.Gurumurthy, Triple Quad Model for Photons, SPIE *photonics north conf.* 2005
58. Manjunath.R, K.S.Gurumurthy, Hyper planes generation through convolution with Gaussian Kernels, *IICAI*, 2005
59. Manjunath.R, K.S.Gurumurthy, A new model for photons, *International Meeting on Frontiers of Physics* 2005.
60. Manjunath.R, K.S.Gurumurthy, Impact of self similar structure of genes on photosynthesis, *Botany*, 2005
61. Manjunath.R, Ecological gradation of energy in a pond ecosystem, 2nd International Conference on Renewable Resources & Biorefineries, 2006
62. Manjunath Ramachandra, Narendranath Udupa, Shyam Vasudevarao , Information feedback model for scalability in distributed software architecture, ISEC 2010
63. Manjunath Ramachandra, Shyam VasudevRao, Enhancing service reliability through prediction feedback, ISSRE 2010
64. Pandit Pattabhirama, Manjunath R, Custom mechanism of Test Automation-as-a-Service (TaaS) framework, IEEE annual symposium, 2010
65. Manjunath Ramachandra, Pandit Pattabhirama, Data Network traffic shaping in frequency domain, IEEE annual symposium, 2010
66. Manjunath Ramachandra, Pandit Pattabhirama, "Traffic Variance analysis in the Long range dependent distributed network traffic", IEEE annual symposium, 2010
67. Manjunath Ramachandra, Rajashree Ghosh, "Automation of resource utilization in body sensor network", IEEE annual symposium, 2010
68. Manjunath R, Hierarchical modelling of memory, 7th Asian Biophysics Association, 2011
69. Manjunath R, Long range dependency of nucleic acid sequence in genes , 7th Asian Biophysics Association, 2011
70. Manjunath R, Effective and optimal modeling of cancer therapies , 7th Asian Biophysics Association, 2011
71. Manjunath R, Protocols for shaping the Ultrasound for sonophorosis drug delivery , 7th Asian Biophysics Association, 2011
72. Manjunath R Information feedback model for wound treatment planning, Woundcare CON 2010
73. Manjunath.R Information feedback model to address software reliability in integrated environment, ARS 2010
74. Manjunath.R, Generation of reference image for registration from a deck of noisy PET/SPECT images AMPICON 2010
75. Manjunath.R, A new Model to capture the tumor growth patterns in MRI imaging, AMPICON 2010
76. Manjunath Ramachandra, Shyam Vasudev and Pandit Pattabhirama, Optimization of transactions in image sensors through in-place signal processing, IWNMA 2011
77. Manjunath R, Automation of resource utilization in a sensor network, SESA,2011
78. Manjunath, R, Pandit Pattabhirama, Buffer dynamics of a long-range dependent distributed network, ISC 2011
79. Manjunath, R, Pandit Pattabhirama,Novel approach for processing the feedback signals in a distributed network, ISC 2011
80. Manjunath Ramachandra, Rajeshwari Ghosh, Optimal resource utilization in body sensor network, ISC 2011
81. Manjunath Ramachandra, Rajashree Ghosh, Optimal resource utilization in image sensors, ISC 2011
82. Manjunath. R, Tutorial paper on Novel approach for software reliability modeling based on information feedback, ISEC 2011
83. Manjunath R, Narendranath Udupa, Optimal learning of distribution rules in a power system with Bayesian estimator, RACE 2012
84. Manjunath R, Narendranath Udupa, Optimization of cost function to maintain the agreed quality of service in a distributed power system, RACE 2012
85. Manjunath R, Optimal distribution of power with minimal ripples in the backup, RACE 2012
86. Manjunath R, Pattabhirama Pandit, Prashant H S, Optimal learning of partition rules of software components with Bayesian estimator , ISSRE 2011
87. Pattabhirama Pandit,  Santosh Yalawar, Mitesh kumar Mitra Manjunath R, IMPROVING THE TESTABILITY FACTOR IN COMPLEX SOFTWARE   SYSTEMS, ISSRE 2011
88. Pattabhirama Pandit, Girish Prasad Bogadi, Santosh Yalawar, Manjunath R, Continuous Iterative Testing – A crash recovery mechanism for uninterrupted test automation , ISSRE 2011
89. Manjunath R, Pattabhirama Pandit, Model based analysis of transient response of   distributed software components, ISSRE 2011
90. Manjunath Ramachandra Srinath Amarnath, Low pass filter based frequency domain approach for Network Traffic shaping , ICDCSE2011
91. eTELEMED 2014 titled "Digital WHO Hemoglobin Color Scale: Analysis and Performance"
92. Kishore Vinod, Manjunath Ramachandra, Santosh Yalawar and Prashanth Pai, A novel mechanism to continuously scan field logs and gain real-time feedback, ISSRE 2013
93. Kishore Vinod, Pattabhirama Pandit and Manjunath Ramachandra, Reliability feedback through system log analysis ISSRE 2013
94. Kishore Vinod, Manjunath Ramachandra, Santosh Yalawar and Pattabhirama Pandit, Diagnosing development software release to predict field failures, ISSRE 2013
95. Manjunath Ramachandra Cloud based Hierarchical model for software Test Automation-as-a-Service (TaaS) framework, Belgium testing days 2013
96. Rossel Banji, Pattabhirama Pandit, Mukul Gharpure and Manjunath Ramachandra, Managing Automated End-to-End Testing in Bitwise Heterogeneous Environments, ISSRE 2012
97. Manjunath.R, K.S.Gurumurthy, Wavelet Representation of Differentially Fed ANN, WSEAS Transactions on Circuits and systems Oct.2003
98. Manjunath.R, K.S.Gurumurthy, Bayesian decisions on differentially fed hyper planes, WSEAS Transactions on Circuits and systems Oct.2003
99. Lakshmi Prabha . P, Nima Judith Vinmathi and Manjunath Ramachandra, Image Scan line Conversion For Portable Ultrasound Machine Proceedings of the International Joint Journal Conference on Engineering and Technology (IJJCET 2011)
100. Manjunath. R, Continuous creation of matter across the black holes, Journal of Physics, 2006, 153–154
101. Manjunath Ramachandra, Shyam Vasudev, Narendranath Udupa, Network performance modeling and control through prediction feedback, International Journal of Computer Applications (0975 – 8887) , Vol1, No. 22, 2010.
102. Manjunath Ramachandra, Shyam Vasudev, Narendranath Udupa, Differential learning algorithm for Artificial Neural Networks, International Journal of Computer Applications (0975 – 8887) , Vol1, No. 18, 2010.
103. Manjunath Ramachandra, Information feedback Model for wound treatment planning, JOURNAL OF SOCIETY FOR WOUND CARE & RESEARCH, 2011
104. Manjunath Ramachandra, Hierarchical encryption for Patient records, IP.com Dec 2010
105. Manjunath Ramachandra, Narendranath Udupa, Shyam Vasudevarao , Information feedback model for scalability in distributed software architecture,SETLabs Briefings, vol 8, No 6, 2010
106. Y. Kiran Kumar, Shashi B. Mehta and Manjunath Ramachandra, Vascular Segmentation of Cerebral AVM,Advances in Research, ,Vol.: 2, Issue.: 1, 2014
107. Y. Kiran Kumar, Shashi B. Mehta and Manjunath Ramachandra, Multimodality Vessel Modeling Analysis for Cerebral Arteriovenous Malformation, Journal of Behavioral and Brain Science 2014(accepted)
108. Y. Kiran Kumar, Shashi B. Mehta and Manjunath Ramachandra, Loop Modeling Forward and Feedback Analysis in Cerebral Arteriovenous Malformation" International Journal of Advanced Computer Science and Applications (IJACSA)(accepted)
109. Y.Kiran Kumar, Shashi Mehta, Manjunath Ramachandra, Cerebral Arteriovenous Malformations Modeling, Adv. Sci. Eng. Med. 6, 105-107 (2014)
110. Y.Kiran Kumar, Shashi Mehta, Manjunath Ramachandra Lumped parameter modeling for Cerebral Vessels – A Novel Approach International Journal of Advanced Research, Volume1, Issue7,July 2013,Page 8-15.
111. Y.Kiran Kumar, Shashi Mehta, Manjunath Ramachandra Lumped Modeling of Bifurcation – Cerebral Arteriovenous Malformation International Journal of Applied Information Systems 6(4):19-21, October 2013
112. Y.Kiran Kumar, Shashi Mehta, Manjunath Ramachandra, Lumped Parameter Modeling of Neurovascular Vessel Stiffness Analysis in Brain Arteriovenous Malformation. International Journal of Biomedical and Healthcare Science (IJBHS) Vol 3, No 2, 2013
113. Y.Kiran Kumar, Shashi Mehta, Manjunath Ramachandra, Simulation and Quantification of Tortuous Vessels– Cerebal AVM, Advances in Biology, 2014
114. Manjanaik.N, Manjunath.R, SELECTION OF INTRA PREDICTION MODES FOR INTRA FRAME CODING IN ADVANCED VIDEO CODING STANDARD, IJRET: International Journal of Research in Engineering and Technology, Volume: 02 Issue: 12, 2013
115. Manjanaik.N, Manjunath.R, Development of Efficient Intra Frame Coding in Advanced Video Standard Using Horizontal Prediction Mode. International Journal of Emerging Technology and Advanced Engineering Volume 3, Issue 2, 2013
116. Manjunath.R, Shyam Vasudev Rao, Simulation Model for Wireless Ad-hoc Networks using Differentially Fed Neural Network, National Conference on Current Trends in Communication, Devices and Computation(NCCTCDC 07)
117. Manjunath R, Hierarchical encryption of medical images , National Conference on Biopharmaceuticals & Healthcare,2011
118. Manjunath R, Effect of image filters on the scan conversion of Ultrasound images  , National Conference on Biopharmaceuticals & Healthcare,2011
119. Manjunath Ramachandra Srinath Amarnath, Reduction of waiting time of vehicles at a traffic signals through information feedback, IEEE-Annual Symposium,2011
120. Manjunath Ramachandra Srinath Amarnath, Effect of scalability of the demand side on the optimal distribution of electrical power , IEEE-Annual Symposium,2011
121. Manjunath Ramachandra Srinath Amarnath, Chaos reduction in vehicular traffic with selective prioritization , IEEE-Annual Symposium,2011
122. Manjunath R, Narendranath Udupa, Learning algorithms for enterprise data mining, National Journal of System and Information Technology, December 2008.
123. Manjunath.R , Using Neural networks in Wireless MAN QoS Architectures, Book chapter in Selected Topics in Communication Networks and Distributed Systems, World Scientific Publishing Co.
124. Manjunath.R, K.S.Gurumurthy, Learning algorithm with DANN. Book chapter in Encyclopedia of Database Technologies and Applications.
125. Manjunath.R, Quality of service based data integration for ERP, Book chapter in Enterprise Integration, IDEA group publishers
126. Manjunath.R, K.S.Gurumurthy, Information feedback approach for maintaining service quality in supply chain management, Book chapter in Supply chain management, IDEA group publishers
127. Manjunath.R, Information feedback approach for the Simulation of service quality in the inter object communications, Book chapter in Simulation and Modeling:  Current Technologies and Applications, IDEA group publishers
128. Manjunath.R, 1Dynamic management of security constraints in advanced enterprises, Book chapter in Advances in Enterprise IT Security, IDEA group publishers.
129. Manjunath.R, Vikas, 1 Model based approach for QoS constrained communication and data integration among multiple agents, Book chapter in Intelligent Quality of Service Technologies and Network Management: Models for Enhancing Communication, IDEA group publishers.
130. Manjunath.R, Vikas, 1 Traffic controller for handling service quality in multimedia network, Book chapter in Intelligent Quality of Service Technologies and Network Management: Models for Enhancing Communication, IDEA group publishers
131. Manjunath.R, K.S.Gurumurthy, Multi resolution analysis of differential fed artificial neural network, book chapter in "Neural Networks Applications in Information Technology and Web Engineering", Idea publishers
132. Manjunath. R, Pandit Pattabhirama, Information feedback based architecture for handling the scalability issues in the reusable cloud components in “Software Reuse in the Emerging Cloud Computing Era”. IGI Global in the Research Handbook, 2011
133. Manjunath. R, Pandit Pattabhirama Analysis of the high-speed network performance through a prediction feedback based model, Book chapter in 'Technologies and Protocols for Future Internet Design: Reinventing the Web', IGI publisher

**Book Publications**

* Manjunath Ramachandra , Web-Based Supply Chain Management and Digital Signal Processing: Methods for Effective Information Administration and Transmission, IGI publisher, USA,2009

The book provides in-depth analysis of the lifecycle of information management, including Data processing, storage, retrieval, classification, clustering, mining and pattern recognition.

* Bigdata informatics over quantum computers, IGI publisher

Proposal accepted; Likely to be published as edited book in 2015

**Academic relations, external research & networking**

* Providing guidance for 6 PhD scholars from Jain university(2010-), 4 scholars from VTU(2012-) ( AMC engineering college) and 1 scholar from Manipal university (2012-)

Visiting Professor; B.M.S.College of Engineering (2002-2004)

Visiting faculty; UVCE (2000-2001)

Advisor, syllabus search committee, M.S.R School of Advanced studies (Affiliated to Coventry University, UK) (2001-2004)