Dr Manjunath Ramachandra

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***Current position***

* **Senior Domain Specialist, Philips** : Supported the research activities of Philips Research, India, spanning 150+ engineers

***Senior Level Positions***

* 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 the organization
* Software & Product Engineering Expertise
* Represented global organization in wi-fi Alliance & Instrumental for the formation of TDLS task group.
* Served as Liaison officer for CE Linux forum
* Served as the domain owner-connectivity, function manager and single point of contact across the global organization for all the information related to wi-fi, audio, video, image and voice compression & streaming, providing expert suggestions and decisions.
* Member of embedded system SIG & Advisor for NASSCOM for the future roadmaps in Consumer lifestyle and Healthcare
* Served as editor for International standards such as Region based media formats in DLNA & drafted about 30 profiles

## PROFESSIONAL PROLOGUE

* Hands on experience with Software development lifecycle on Multiple platforms, Processors & embedded systems
* Research in the frontiers of technologies leading to business creation, differentiating features of the products, exploration of Novel Platforms and prototypes.
* Extensive experience in managing large project team, road maps, multiple projects, Technologies, Innovation, Delivery, mentoring, Resource & Program management across geographies and customers with committed budget, quality and timeline
* Expertise with end to end solution in the product space of Networking, webapps & mobile, Medical imaging & healthcare informatics, Media & Entertainment and Consumer electronics.
* Thorough understanding and application of the tools & techniques of industry horizontals comprising of web technologies, signal & Image processing, Machine learning & Pattern recognition, Database management, Cloud/ internet and Wireless/ Connectivity
* Publication of papers & patents in international forums as the outcome of research
* Representation of the global organization in international bodies and committees
* Strong network with industries, standardization bodies, universities, hospitals, researchers and professional communities

## Core competencies

***Software skill set***

* ***Microsoft technologies:*** VC++, WM9, windows DRM10, WinCE
* ***Programming*** ***Languages:*** C,C++, python, C#, Java, J2EE,HTML5
* ***Software Development platforms:***.NET, WPF/WCF, Linux, IoS, Android, Gstreamer, Imalytics, ICAP ( Philips Proprietary)
* ***Database Platforms:*** Oracle, SQL, SPARQL/Jena/Jquery
* ***Signal/image processing:*** MATLAB, SPW, SIMULINK, LabView, ITK/VTK, OpenCV, OpenGL
* ***Embedded systems/VLSI:***UML***,*** Optimization/porting of C codes onSparc Leon, ARM9 &11, OMAP, TMS320C56 & 64, 320C6678, RTLinux, Mustang(Thomson), MSP 430; PIC, WinDriver, Xilinx, Cadence & synopsis simulation/synthesis tools on VHDL/ Verilog
* ***Web analytics platforms:*** Hadoop, Eucalyptus, Solr, WEKA, SAS, R, WebKit
* ***Web Technologies:*** ETL, Cloud, SoA, Big-data analytics, Semantic web, Multimedia Compression, database management, Content organization & Retrieval, internet of things, Content security, Data mining

***Standards***

* Multimedia Data compression: MPEG2. MPEG4, H.264, WMV, DVC, MP3, MPEG4 AAC, HEAAC+, WMA, SBC, JPEG, G.xxx, AMR, AC3, EAC3
* Data transfer: ASF, H.323, ZigBee, Bluetooth, GSM/GPRS,UMTS Wi-fi, IEEE 802.11a,b,g,z DLNA, Upnp, USB2, TCP,UDP,RTP,OMA,WPAN,IPv6,LTE, RADIUS, SIP,DVB
* Healthcare: DiCom, JPEG 2000, Risk management (ISO 14971:2012), Continua, HL7, EHR, IHE, wi-fi in Healthcare, FDA

## AREAS OF EXPERTISE – Product and solution development with application software involving algorithmic research

***Business Development***

* Identifying new customers, manage existing customers, execute business strategy to maximize opportunity with the customers
* Leading the customer discussions to advance the business process and presentations
* Implementing various business models including off-shore product design services, DDF, Fixed price and T & M based ODC

***Practice development***

* Defining the roadmap and strategy for the practice.
* Closely worked with sales teams to evaluate technology impact & competitor analysis and market entry strategy
* Competency development and proactively taking it to market
* Development of framework of best practices & knowledge management
* Setup of new competency groups to generate business
* Architect for competency management strategies for 600+ engineers
* Establishment of Center of Excellence

***Research and domain leadership***

* Development of new paradigms, algorithms and product features that have potential benefits across the business units
* Mentoring & coaching the research teams to develop prototypes/proof of concept of advanced technologies.
* Successful transfer of research projects to Business for productisation.
* Funding proposals linked to business and evolve research strategies.
* Management of research lifecycle
* Publication of technical papers/whitepapers in international journals/ conferences

***Program management***

* Hiring & rotation of resources across projects, multiple account management, reuse of modules, meeting time & budget
* Tracking of progress in projects
* Product performance and risk analysis, Post-sales web analytics
* Product and process specs
* Approval of bug fixing, development, porting and optimization strategies of the architects/SMEs.
* Enforcement of Quality and Regulatory compliance process

***Delivery management***

* Ownership for multiple projects with a collective size of 80+ members.
* Understanding of the client’s needs; product enhancements, customization, resolving 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.

***Technology & Innovation management***

* Worked for the technology office that caters for 600+ engineers
* Advisor for the advanced technology & exploratory projects based on the future requirements to bring in differentiating features
* Work closely with the system architects of various products, platforms & features to impart the domain knowledge for projects
* Development of Collaborations, ecosystem and Industry-academy interactions
* Review/approval of Statement of work, RFC.
* Provide input on business plans, market trends and strategies
* Key member of innovation management special interest group: Image processing & test automation
* Advisor and part of ideation workshops, Technology Roadshows etc.

***Project Leadership***

* Interfacing with the users for mapping requirements & finalizing specifications.
* Resource allocation, WBS, task allocation, project tracking, goal setting for the resources
* Overseeing smooth implementation of the solution with Agile methodologies/scrum
* Interaction with the team members to ensure smooth progress of project work.
* Catered to the training needs of the Central Engineering resources, mentoring

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

* Part of all phases of software development life cycle from conception to maintenance including requirements, design, coding, integration, optimization, synthesis, porting, verification, troubleshooting & validation adhering to the Quality norms
* Handled post-implementation technical support to the client.

***Customer management***

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

***Representation of the organization & branding***

* Represented Philips in national & international forums to align the business interests of the global organization.
* Contribution to the international standards in image/video compression, content transfer etc.
* Participation in conferences as author/reviewer/session chair/program committee/chief guest/keynote speaker
* 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

## Significant Projects/Programs/practices

***Networking/Mobile/Wireless***

* Domain expertise, development and solution architecture for the projects
* Android application over Smart phone for camera settings control & UI
* IoS application for patient data transfer on to hospital server
* Male grooming/beard style selection over Apple i-phone.
* Wireless PAN ( 802.15.3) prototype
* PHY & MAC of Bluetooth stack
* OFDM/802.11a & g MODEM PHY & MAC
* GPRS/GSM enabled handset
* Analysis and customisation of GSM/UMTS base station code for Ericsson
* Video Lan RTP/RTSP for VoD & IPTV solutions
* Over the air transfer of DVB content
* performance trials of ipv6 bridge over LAN
* International standards
* Represented the organisation in wi-fi alliance and contributed for video over Wi-fi and TDLS standards
* Presentation on turntable measurement for testing wi-fi devices

***Web technologies and infrastructure***

* Technology directions, Platform support and solution architecture for the projects
* Auto-interpretation of Echocardiogram images with QLab over the cloud
* Framework of Test automation as a service (TaaS) over the cloud
* MEDOC:Medical image retreival platform from the cloud/Server over the mobile devices for Telediognosis/teleradiology
* Porting of IHE DEN profiles on to ICAP platform
* Semantic web-mining of Radiology data from the Web based PACS

***Digital content management***

* Domain expertise/ Program management/Delivery management
  + Design, Optimisation and porting of MPEG2 MP@ ML, MPEG-4 SP, AVC, wmv9, VC1, AAC, MP3, AC3, HEAACv2, WMA, iLBC standards on to PC, FPGA, DSP processor platforms and ASIC.
  + Digital media asset management with DRM 10
  + Digital content security
  + Multimedia content distribution over DVB carousel

***Machine Learning***

* Technology directions, Platform support and solution architecture for the projects
  + Camera based Blood haemoglobin estimator
  + Anemia classification based on conjunctival images
  + Content based image retrieval using neural network for medical images
  + Retrieval of similar images using Pulse coupled neural networks
* Definition and technology support for Philips funded Colloborative projects
  + Integrated echo-electro Cardiogram
  + Classification of atherosclerotic carotid plaques using Ultrasound imaging
* 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 MR images 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

***Bigdata analytics and NLP***

* Domain expertise and management of research projects
  + Content summarisation
  + Singing voice detection
  + Keyword based customer sentiment analysis through Blueport portal
  + Semantic web search engine for natural language query over WEKA
* Definition and Drafting research project proposals
  + Automated Echocardiographic image analysis and mining over Bigdata
  + Big data analytics for the classification of tumors from the Brain MR images

***Image & Signal processing and computer vision***

* Domain expertise and solution architecture for research projects
  + Quantification of coronary angeography
  + Face detection and recognition
  + Warping of face contours and blending with beard styles
  + Implementation and porting of JPEG 2000, DVC-pro, DVCAM standards
  + Motion stabilization and rendering of Colposcope video
  + 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
  + Super value ECG from concept to prototype
  + ECG data compression for Transfer & storage in Health records
  + Scan conversion & image rendering for Lowcost Ultrasound decoder
  + Respiration rate measurement in Neonatal ICU based on camera images
  + Dose optimisation in IMRT plan
  + Exploration of Single channel EEG over MSP430
  + EEG based TV control through eyeball movement
  + Porting Face detection algorithms to NetX Board
* Definition and Drafting research project proposals
  + CMUT ultrasound probe
  + Feasibility study of Prostate elastography with harmonic 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 image based Brachy therapy plan software (TG-43)
  + Principle component analysis(PCA) based registration of PET/CT images for the preclinical Platform, Imalytics
  + Image registration in wavelet domain (with Image processing CoE, MSR school of advanced studies)
* Instrumental to establish image processing research Lab (CoE) in collaboration with JSS medical university

## EMPLOYMENT DETAIL

**Philips Innovation campus: Senior Domain Specialist Nov’06 – Till Today**

***Responsibilities:***

* Technology & Innovation management at CTO office
* Domain expertise for projects on machine learning, multimedia, image processing, healthcare, web-technologies & connectivity
* Active research & mentoring of resources for Projects & prototypes
* Approval of algorithms, research methodologies, project plans, strategies, clinical studies and workflows
* Representation of organisation in international forums
* Development of University relation, Clinical relations, industry & innovation ecosystem, centre of excellence (CoE)
* Funding proposals for product features, differentiators and new business development
* Development of new competencies, best practices, IP, Patents and publications across the organisation.
* Coaching the project groups on new technologies through guided workshops, tech talks and interventions

**Celstream technologies: Delivery & Practice Head Sep 04- Nov 06**

***Responsibilities:***

* Practice development: DSP and Multimedia, Content management and security
* Business creation and customer facing
* Program management
* Delivery management, Knowledge and best practice management across the organisation

**Tata consultancy services: IT Analyst Apr 03- Sept 04**

***Responsibilities:***

* System architecture, algorithm development, Integration and implementation of critical modules
* Review and approval of design and test Strategies
* People management and mentoring

**U & I System design: Solution Architect Nov 99- Apr 03**

***Responsibilities:***

* Solution architect: algorithm development, end to end system design and development
* Project execution –Multimedia and Mobile handsets
* People management
* Program management

**Golden valley Institute of technology : Faculty – Electronics & communication Sep 95 - Nov 99**

***Responsibilities:***

* Research and development
* Teaching and consultancy
* Computer lab administration & Infrastructure development

**UVCE: Faculty – Electronics, communication & computer science Dec 93 - Sep 95**

***Responsibilities:***

* Research and development
* Teaching and consultancy

## EDUCATION & CREDENTIALS

***Phd:***

* Title: “Compact architecture for the analysis and processing of subnet signals using differentiators as building blocks”.
* Institution: University Visveswaraiah college of engineering
* Domain: Machine learning, Distributed computing, Big data analytics, QoS, Traffic shaping, content search, web services, work flows, fleet management, Signal Processing, web technologies and Computer networks

## Achievements

***Patents on web technologies:***

* Relevance based scalable QoS for Video Content
* Relevance based scalable security for Video Content
* Revenue model for optimal content transfer for enhanced user experience

***Scholarships & Awards:***

* Merit scholarship from the Govt. of India & award from the Govt. of Karnataka for standing first to 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 & “2000 outstanding intellectuals of the 21st century”, International Biographical center, UK,

***Keynote speeches, sessions chaired:***

* Delivered 8 keynote speeches & 4 chief guest speeches in various conferences
* Session/program/panel Chair for 25 international conferences
* Conducted 6 workshops

***Publications:***

* About 135 papers in international conferences and journals
* Book “Web-Based Supply Chain Management and Digital Signal Processing: Methods for Effective Information Administration and Transmission”, IGI publisher, USA, 2009
* Book “Big-data informatics over quantum computers”, IGI publisher, Proposal accepted;

## Academic relations and networking

* Advisor for 12 doctoral research scholars from 4 universities of India(2010-)
* Visiting Professor; B.M.S. College of Engineering (2002-2004), UVCE (2000-2001)
* Advisor, syllabus search committee, M.S.R School of Advanced studies (2001-2004) and PESIT(2011)
* Advisor for BMS college of Engineering in Biomedical instrumentation projects and establishment of CoE in sensors and point of care devices (2013-)
* Advisor, Faculty development programs, AMC engineering college( 2010-)
* Adjunct professor, MIT, Manipal (2013-)