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Executive Summation

- An astute medical professional with **more than 37 years'** experience in Healthcare Informatics, Hospital Management and as a Consultant Family Physician.
- Adjunct Professor, Chitkara Business School, Chitkara University, Punjab.
- Expert on EHR Standards, Telemedicine and Health Data Science.
- Head of Delegation to ISO TC215 (Health Informatics), Bureau of Indian Standards (since 2022).
- Convener, AYUSH Informatics Working Group, Health Informatics Sectional Committee, MHD 17, Bureau of Indian Standards (since 2022).
- Member, Health Informatics Sectional Committee, MHD 17, Bureau of Indian Standards (since 2007).
- Member, Project Review Steering Group (multiple), MeitY, Government of India.
- Member, Working Group for R&D in Information Technology, Department of Electronics and IT, Ministry of Communications and IT, Government of India.
- Clinical Informatics Consultant, Karkinos Healthcare Private Limited (2021 – 2024).
- Member, EHR Standards for India Committee, Ministry of Health & Family Welfare, Govt. of India (2010 – 2016).
- Head of Health Informatics (Retd.), Tata Consultancy Services (2010 – 2017).
- External consultant for e-Governance in Healthcare projects to National Institute for Smart Government, Hyderabad (2008 – 2010).
- Vice-Chairman Election Commission (2017 – 2020), IMA Haryana State.
- Honorary State Secretary (2015), IMA Haryana State.
- President (2010 – 2011), Indian Association for Medical Informatics. Also, Secretary (2006 – 2009), Treasurer (2004 – 2006) of the same association.
- Secretary (2010 – 2013), Indian Medical Association, Faridabad Chapter.
- Practicing General Medical Practitioner.
- Authored "Introduction to SNOMED CT" (ISBN 978-981-287-895-3), published internationally by Springer™ in January 2016.
- A keen planner, strategist and implementer with skills in devising and effectuating business plans, aimed at enhancing the functioning of the organisation, achieving business targets, developing products to provide effective solutions to healthcare industry, and improving process efficiency.
- Strong project management expertise in the field of testing (verification and validation), development of end-user manuals, customer-software engineer relationship management particularly during implementation phase
- Strong domain expertise in the field of general medicine and healthcare, coupled with insightful experience of serving as functional architect for the development of software products.
- Thorough knowledge of the SDLC entailing requirement analysis, requirement finalization, design, development, testing, troubleshooting and implementation.
- A skilled analyst with a flair for understanding exact process requirements and accordingly designing technology-based solutions and processes.
- Possess extensive knowledge and experience in Information Modeling for Semantic Interoperability, Telemedicine and medical informatics, particularly electronic health records, evidence-based medicine, clinical decision support systems, clinical analytics and automated treatment protocol planning using machine learning algorithms to support personalized medicine.
- An effective communicator with strong relationship management, leadership, team management and coordination skills, coupled with a detail-oriented approach.

Academic Qualifications

- Fellow of College of General Practitioners, Indian Medical Association, HQ Chennai, 2015 (Honorary).
- MBA (International Management) from European University, Antwerp (Belgium) in 1997.
- Advanced Diploma in Hospital Administration from Institute of Health Care Administration, Chennai, India in 1996.
- MBBS from Calcutta University, Kolkata, India in 1986 – ex-alumni Medical College, Bengal.

Competency matrix

Managerial

- | | | |
|---------------------------------|------------------------------|----------------------------------|
| -Strategy Planning | -IT Operations Management | -Resource Planning/ Optimisation |
| -Designing Product Roadmap | -Organisational Visioning | -Brand/ Image Building |
| -Business Process Reengineering | -Process Set up & Management | -Compliance / Process Controls |
| -Project/ Program Management | -Business Analysis | -Solutions Architecting |

-Team Management

-Mentoring & Training

-Best Practices Implementation

Functional

-Software Development

-Requirement Analysis

-Implementation

-Product Enhancement

-Pre-sales Consulting & Support

-User Requirements Specifications

-Product Testing

-Technical Troubleshooting

-Marketing

-Key Account Management

-Client Support

-Quality Assurance

Domain Expertise: Medical & Healthcare systems, Medicine Practice, Hospital Management, Healthcare Informatics, Health Data Science (Clinical Data Analytics), EHR Standards, 21 CFR 11, FDA regulations for Medical Devices, Functional (Healthcare) Architecture, Digital Health, Electronic Health Records (in all aspects), Clinical Decision Support, Evidence Based Medicine, Healthcare Semantic Content, Knowledge Discovery in Clinical Databases, Application of Machine Learning In Automating Care Delivery Processes, Telehealth, Personalized Medicine and Wellness Management, SNOMED CT, LOINC, HL7 FHIR, openEHR, Information Modelling for Semantic Interoperability, Digital Health Information Standards.

Employment Scan

Since Sep'17 with Bhattacharyas Clinical Records Research & Informatics LLP as Founder & CEO,

- Designing innovative EHR and Telehealth solutions.
- Conducting research in clinical records and its contents – clinical data analytics.
- Capacity building in healthcare informatics.
- Consulting in information modelling, data standards, data normalisation (SNOMED CT & LOINC).
- Consultant Clinical Informatics, Karkinos Healthcare Private Limited (2021 – 2024).

Aug'10 – Aug'17 with Tata Consultancy Services as Head – Health Informatics,

- Head of Health Informatics Practice.
- Providing domain consultancies to both internal and external clients.
 - Provide domain knowledge and understanding to pre-sales and delivery team members.
 - Assist in designing proposed solutions during the RFI, RFP and Project Bidding process to the appropriate teams.
 - Advising on eHealth and mHealth strategies.
 - Writing whitepapers on various health informatics aspects including clinical analytics and clinical big data analytics.
 - Designing, as functional architect, EHR/EMR and Clinical Information Systems.
 - Domain training for IT engineers.

Jan'10 to July'10 as Consultant for eHealth – Independent

- Providing consultancies in the field of eHealth in all its aspects.
- Assisting clients in the following areas on a turn-key basis.
 - Facility Computerization – Enterprise (end-to-end)
 - Clinical Transformation (in all aspects)
 - Conducting As-Is Study, Fixing To-Be Goals and Formulating To-Be Processes including Business Process Re-engineering
 - Software Evaluation (including verification and validation)
 - Augmentation of current systems and Implementation of new systems.

Since Aug'08 as External Consultant for e-Governance in Healthcare Projects

- Involved in helping in development of strategy, functional architecture, and implementation plan for eHealth projects.
- Involved in reviewing and fine-tuning the “AS-IS”, “TO-BE Process” and RFP documents for implementation of eHealth plan.
- Ensuring adherence to established standards and guidelines in the plan.
- Acting as the primary eHealth Expert to the project team.

Jan'07 to Jan'10 with Karishma Software Ltd., New Delhi as Vice President (Clinical Services)

- Leading the organisation to establish it as a major player in clinical services, along with the implementation of well-defined processes for product enhancement.
- Involved in institutionalizing a clinical technology workflow in the product line across all product verticals, with the aim of delivering clinical information process in the healthcare IT solution.
- Engaged in promoting the brand image of the organization by projecting it as a “professional and progressive healthcare IT company” in the market.
- Have been actively supporting the team and encouraging its growth by extending adequate mentoring support.
- Distinction of successfully managing the design & development of various clinical informatics modules, including clinical scoring, clinical guidelines, nursing flowsheet, clinical data warehousing and data mining.

- Pivotal in discharging summary module according to openEHR specifications
- Introduced RUP in the requirements analysis state and creation of SRS
- Successfully enhanced testing processes

May'05 to Jan'07 with GE Healthcare, Bangalore as Marketing Program Manager

- Driving marketing initiatives in India for Clinical Information Systems, encompassing:
 - Assessment of current and future market scenarios, and accordingly formulating marketing strategy, planning and providing requirements for the development of new modules.
 - Designing the overall product roadmap by developing business cases and user needs.
 - Obtaining approvals from the management for requirements for writing high level functional designs like product requirements for further use by analysts and designers as part of the SDLC.
- Handled key projects like Centricity 8.0, EHR – AE, Centricity group of products – mostly in areas of verification and validation as Team Leader, leading a group of 6 software engineers and testers
- Contributed to improving user requirement specifications through extensive end user consultations as well as discussions with engineering team for the entire GE Healthcare IT range of solutions; and also for resolving all implementation-related issues.
- Liaised with the development and testing teams for enhancing their abilities.
- Successfully handled deputation to USA for six weeks in 2005 for gathering insights to the US healthcare industry. This included visits to several health care providers across divisions like ICU, ED and Pharmacy to complete the study of the overall US healthcare industry.

Technical Environment: Centricity, Perinatal (QS™), Periop, Intraop, Anesthesia, Laboratory Information System (Ultra™) and CareCast™ from IDX Corporation (a recent acquisition of GE).

Dec'04 to May'05 with Oracle Corporation, Bangalore as Senior Product Analyst

- Actively contributed as Member of the Product Management Group as Senior Product Analyst & Business Architect for **Oracle Healthcare Transaction Base (HTB), Business Intelligence section.**
- Served as Product Manager (India) for Healthcare Systems, handling clinical aspects of the application complying with HL7 V3.0 RIM messaging standards with special emphasis on Clinical Document Architecture, Order Management and QA work involving the use of simulated live data.
- Major responsibilities included:
 - Principal business and software requirement analysis for healthcare providers (India-based).
 - Functional requirement gathering, analysis, design and documentation
 - Team Leader for Functional Designing

June'03 to Nov'04 with Satyam Computer Services Ltd., Hyderabad as Asst. Consultant-VBU-HIP (Healthcare Domain Expert)

- Functioned as Principal Business Analyst, Business Architect & Project Leader, Enterprise Testing, for **WEbers™**, a comprehensive patient administration, dental information and insurance management system, for Willamette Dental Management Corporation, USA. The client has around 52 dental clinics in the states of Washington, Oregon and Idaho, USA.
- As Domain Expert for healthcare provider segment, handled responsibilities in the areas of:
 - Business and software requirement analysis for healthcare providers.
 - Functional requirement gathering, analysis, design and documentation for clients.
 - Software testing, as Team Leader for the effort leading a team of 6 testers.
- Managed a team of 4 for the marketing of products to clients, based in USA, the Scandinavian Countries, and ASIA-PAC region.
- Generated revenue worth USD 1 million+
- Undertook mandatory study course for PMP certification from PMP authorized center.

Dec'02 to May'03 with iSOFT R&D India P Ltd., Chennai as Senior Clinical Analyst

- Acted as Functional Design Head for LORENZO™, with active contributions towards business and software requirement analysis for healthcare institutions.
- Lead the Indian team of Functional Designer in design, documentation, liaison with software engineers and internal customers efforts
- Handled the marketing of products to clients in UK, Australia, New Zealand, and Singapore.
- Merit of contributing to product development initiatives as **Domain Expert** for:
 - LORENZO™ (PSP-ready PAS-EPR System) – comprehensive patient administration and clinical data capture with analysis system. It is primary service provider ready built specially for NHS, UK as a part of NPfIT initiative of the British Government.
 - IPM™ (Patient information Management System)–Handles admission, discharge, transfer, etc.
 - ICM™ (iSOFT Clinical Manager)–Processes electronic clinical encounter data capture that are rule-based and integrated care pathway (ICP) guided.
 - IEPR™ (iSOFT Electronic Patient Record)–Web-based electronic patient record.
 - STOCCA™-Pharmacy inventory management system.
 - APEX™-Pathology information management system.

Apr'02 to Nov'02 with Megasoft Ltd., Chennai as Manager-Solutions (ePharma & Health Care)

- Provided IT consultancy services to the healthcare industry, handling software requirement analysis and solution architecture development and design; as well as marketing, customer support (C & c) and account management.
- As Manager, lead the team dedicated for requirements management
- Actively contributed as **Domain Specialist** for:
 - Acceliant™ - 21 CFR 11 and FDA rules compliant clinical trial management solution
 - MedStudio™ - 21 CFR 11 and FDA rules compliant DICOM enabled image management solution
 - Hospital Management System – ongoing project that conforms to 45 CFR 160, 162 rules for HIPAA compliance
 - Active involvement in the HIPAA compliance initiatives
- Liaised with major client, Enmed®, sponsors of Acceliant™.
- Identified & developed Epidemiology department, Government of Singapore as a key account for the organization.

Medical Experience

Apr'99 to Apr'02 with Sudisa Consultancy Services, Faridabad as Management Consultant cum General Practitioner

- Played a major role in the design, development, implementation and training in Hospital Information Systems and medical informatics solutions.
- Carried out cost-based analysis of various departments & historical trend analysis of patients & service utilization.
- Handled the set-up of a telemedicine (referral) facility.
- Served as Domain Expert to a Delhi-based web-development company providing software solutions to the healthcare industry.
- Independently managed a clinic in primary care/ general medical practice.

Feb'95 to Mar'99 with Noble Hospital, Faridabad as Medical Administrator cum General Practitioner

- Designed, developed and implemented information systems for maintaining medical records, reporting, inventory control and billing systems.

Dec'90 to Jan'95 with Sudisa Consultancy Services, Faridabad as General Medical Practitioner

- Contributed to the design of medical record management systems.
- Functioned as Family practitioner, and also managed private business (clinic) unit in all its aspects.

May'90 to Nov'90 with Holy Family Hospitals, New Delhi as Junior Resident, Surgery

Dec'88 to Apr'90 with Sudisa Consultancy Services, Faridabad as General Medical Practitioner

Courses

- Certificate Courses in Novell NetWare Administration from DataPro, Faridabad, 1996, and UNIX, C, and ORACLE 8.0 with Developer 2000 (forms, reports and graphics) from STG, Faridabad in 1998.
- PMP Foundation Course as a pre-requisite for PMP Certification, Satyam Learning Center, Hyderabad in 2004.
- Coursera course on Statistics and Machine Learning in 2013.

Technical Proficiency

- Advanced knowledge of SNOMED CT.
- Administration of PCs and LAN systems
- Software development in FoxPro and Dbase III+
- MS Office Suite (Word, PowerPoint, Excel and Access) and OpenOffice
- Programming in web-based technologies like HTML, CSS, ASP, Java 2, JavaScript, VBScript, Perl, PHP, XML
- Knowledge of SQL (through PL/SQL), C, C++, Visual Basic, Oracle, MS SQL Server, MySQL, Novell NetWare networking, UNIX
- Working knowledge of R, Rattle (for data mining), Octave (FOSS alternative to Matlab), Python, GNUPlot
- Knowledge of Rational Unified Process (RUP), UML modeling (business modeling and drawing diagrams for use case, sequence, activity, object models), using Enterprise Architect™.
- Abilities in writing functional design documents (user requirements documents and software requirements specifications) as per the Rational Unified Process (RUP).
- System testing like UI testing, end-to-end testing, smoke testing, monkey testing, defect tracking using BugZilla.
- Exposure to:
 - Rational Rose, RequisitePro™ and Poseidon for UML.
 - Automated testing tools like Rational TestManager, Rational Performance, and Rational Robot.
 - Protégé – OWL designing interface.
 - Kermanog terminology server.

Professional Affiliations

- Life Member, Indian Association for Medical Informatics
- Life Member, Indian Medical Association
- Member, Medical Computer Society of India

➤ Member, Indian Medical Informatics Association

Personal Vitae

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