Shoban Jayaraj

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Have been with the IT industry since June '95 with over twenty nine years in architecting and managing multiple projects and functions in domains like printing, semiconductor, telecom, automation, industrial, and workflow.

Professional Experience

HCL Technologies, Chennai (Dec 2002 - Till date)

Extensively managed programs and technically contributed on the Office Automation (Office & Production Devices), Semiconductor (ATEs, Ball bonders) and Industrial (Frequency Convertors) domains.

Software Development Support
Domain: Semiconductors (Jan 2024 - Till date)

Group manager managing over 110 members placed at multiple locations covering QA and SW development for multiple divisions spanning India (Chennai, Bengaluru, Mumbai, Pune), US and Canada. Have been responsible for handling the operational aspects of running the project covering forecast, billing, fulfillment and customer connect.

Streamlined the recruitment process and **improved selection rate of candidates by 3 times**.

Digital Software Solutions
Domain: Office Automation (Jun 2017 - Dec 2023)

Served as the lead for tracks spanning a total of 45 – 65 members covering development, sustenance and enhancement of printer drivers, content management system, logs aquisition & analysis, **LIDAR based AI model training and inference, AR / VR solution** that used object and state detection, enterprise / clould based print solutions, enhancements of a public print kiosk, a playstore equivalent for printers and associated QA activities.

Front-ended the Six sigma and value added initiative for the account by tracking targets and **achieved over 150% of targets**. Encouraged and filtered ideas for patent filing and **improved the selection ratio by 70%** (of which I was the primary applicant for 3 ideas). In addition, I also guided teams on evaluating new concepts on emerging technologies such as AI / ML, AR (Hands free AR, Synthetic image generation), NLP etc.,

Timeline

2024 · · ·	Achieved 150% Value add and Six Sigma initiative targets **Patent Granted** - Using LIDAR To Define Printable Area For Document Printing
2023 · · ·	Developed & showcased a hands free AR / AI based guidance system Key member of patent review board and improved selection rate by 70%
2022 · · ·	Devloped R / Python based Knowledge Management Capability assessment and analysis tool - recognized as a Six Sigma project
2021 · · ·	Prototyped 3D / AR app - enabled winning an AR application dev contract
2020 · · ·	**CMMI Appraisal Team Member (ATM)** - Took part in CMMI assessment and achieved Level 5 for group
2017 · · ·	Poster presentation for TUG - 'Application of Big Data Analytics in the ATE domain'
2014 · · ·	SME for OOAD UML, Design Patterns, Requirements Management - Trained over 500 members (>250 hrs.) since 2008
2011 · · ·	UI mockup of the NUI application using Qt/QML over the weekend as a PoC
2010 · · ·	PoC on production printer simulator frontend using Qt/C++ which kickstarted taking up the work
2001 · · ·	ezTest prototyped as a personal initiative and became a line of business
1998 · · ·	Developed a proxy server for shared internet browsing using Java adopted within org
1997 · · ·	Implemented a sliding window content renderer for content of arbitary length

ATE Instruments Program
Domain: Semiconductors / ATE (Jun 2017 - Dec 2018)

Served as the group manager for the software design and development of components covering AC, DC, RF instruments and supported the team technically as well as taking care of customer connect, commercials as well as team management.

Started as a team of 4 members working for a single instrument, and grew this to 17 members spanning six different instrument and support projects.

We also started the **'Instrument Incubation Program'** to scale up both new joiners and lateral hires to enable instrument development quicker both in terms of knowledge and enabling support tools.

64 bit Migration
Domain: Semiconductors / ATE (Feb 2016 - Jun 2017)

Served as the program manager interacting with the different groups at the client side to migrate the existing ATE SW application (12M LOC) from 32 bit to 64 bit to bridge over the 4GB RAM limit.

Supported in porting the software from obsolete technology, evaluated 3rd party components and recommended replacements, conducted performance evaluation and implemented optimizations while running in the 64 bit environment, validated all features against the requirements and ensured conformance to both the 32 bit and 64 bit environment and support end-user issues during alpha and beta testing and final release.

The program consisted of over 20 members from the software team interacting with equal number of engineers from the client organization and SV of similar strength located in three different geographical locations and time zones. Was responsible for coordination, tracking of the milestones and progress, identifying and evaluating risks, productivity measurements and actions, reporting to different levels of sr. management on the progress and challenges. We had completed the program successfully 2 weeks ahead of schedule. This was recognized and **awarded as a best project executed at this scale** within the group.

PCSW for configuration & commissioning
Domain: Industrial / Power Electronics (Aug 2011 - Feb 2015)

Served as the architect for designing the PC Software framework, built to be extensible and portable to help the client to adapt to their various products. The framework allowed for a service-oriented-architecture with heavy emphasis on **Natural UI (NUI), scalability and robustness**. One realization of the framework which we designed was to manage motor control devices.

Started as a team of 4 members when the requirements were analyzed and grew to 40 members from different functions (Testing, automation, UxD) collaborating using Agile Scrum. Initially functioned as a technical manager / architect and as the team grew, primarily focused on the technical aspects of the project.

Production Print and Office Simulator
Domain: Office Automation (Apr 2009 - Jul 2011)

Responsible for developing projects support applications to improve the efficienc of the QA department (man power, cost, time reduction). This included developing simulators (for Production, Office Printers), test automation framework (to test MIB, WebServices capabilities of the printer) using C++, Qt on Windows and porting Windows based simulators to Linux.

We showed an **improvement of 17% over manual testing process** and increased test coverage to 14.7 times of original.

The program consisted of multiple teams / projects totaling strength of 18 to 8 members working off India and Japan. I am responsible for customer connect, financials and overall team management (estimation, tracking, performance evaluation, corrective actions, improvements etc).

Digital Development Support
Domain: Semiconductors / ATE (Jan 2009 - Mar 2009)

Providing development and sustenance support for High Speed Memory testing capability scheduled for the release of the latest version of ATE.

Was responsible for a team of 7 members, managing the projects and serving as the client interface for the project.

Checkers Maintenance
Domain: Semiconductors / ATE (Feb 2008 - Dec 2008)

The Test Development Engineering (TDE) Indian team is responsible for the maintenance programs for the different lines of ATEs, as well as developing new test programs and tools for DC and AC instruments

The team has been able to perform well above the stipulated productivity goals in sustaining the software and had constantly improved the productivity year on year.

My responsibility is to manage the team of 11 - 8 members, maintain customer connect, handle contractual activities like generating SOWs, billing, monitor the performance of the team and suggest improvement initiatives.

Application Shmoo
Domain: Semiconductors / ATE (Jan 2007 - Nov 2008)

Shmoo plots are graphical charts that display the response of electrical components or systems by varying a range of conditions and inputs like voltage, amplitude, current etc. This is used to observe the operating ranges of a device.

Was responsible for managing a team of 2 engineers to implement the plotting capability. We are responsible for designing, coding, testing and verification of the various generations of the application.

Analog Tools Program
Domain: Semiconductors / ATE (Mar 2006 - Nov 2008)

This program involved the team to provide development support and sustenance of all analog tools of the ATEs. This involved me and my team to develop a code generator that tracks user's changes to debug displays for over 32 instruments, signals / PSet (parameter set) editor, the Characterization Editor that allowed the user to graphically create characterization schematics to test a device, execute the tests and visualize them as a 'Shmoo' plot.

The Tester State Service which provide parametric enumeration support of instrument capabilities which can be queried programmatically. It also provided support for a wizard to generate scaffolding code in DotNet to enable parametric support for new instruments.

My responsibility was to manage the specified programs with the team varying from 3 to 12 engineers, serving as the single point of contact to the customer, collaborating with other functions like software verification and test team, automation team and the process compliance team. I had also contributed technically in most of the projects.

Awarded 5/5 on customer satisfaction and awarded the HCL GoldLine award for successful completion of the program. Was appreciated by the client on my ideas and initiatives of creating reusable components, thus saving time in their future projects

HVD, HDVS and Microwave – Autotest Development and Ownership
Domain: Semiconductors / ATE (September 2004 - September 2006)

The High Voltage Digital, High Density Voltage Source and Microwave are instruments that plug into the automated test equipments designed to test devices. This project involved us to own all auto-tests (75+) which include development of new auto-tests using VBA, Perl, C++/COM and CPPUnit to test the features of the instrument, extending existing tests for cover new features and monitoring and resolving auto-test failures. We had also resolved a few defects with the instruments sw.

My responsibility within the team is to plan, schedule and manage the team of 4 for development and sustenance of auto-tests. In addition to management, I am also responsible for process compliance and contributing to the technical aspects of development.

GUI Decoupling
Domain: Semiconductors / Wire Bonders (October 2003 - September 2004)

This project refactors the wire bonder tool by decoupling the domain specific workflow from the UI using the MVC approach. The goal of the project is to improve developer productivity, enable split development teams to work on the GUI and the application and provide a migration path to move to Windows XPE and .NET from vxWorks and X/Motif. With major feature enhancements happening in parallel, we chose to use an iterative approach that incorporates incremental features.

My role in this project was to help recommend the architecture, estimate, plan, architect and collaborate with the various teams in realizing the design. I also managed a team of four to complete the communication framework using C++, Visual C++, vxWorks.

Distributed Material Handling System
Domain: Semiconductors / Wire Bonders (January 2003 - October 2003)

A new feature request for the wire bonder suite of tools that aims to move away from the proprietary VME bus to off-the-shelf PC based systems via Ethernet. It allows multiple distributed modules that can be connected to the bonder tool. Each module is responsible for controlling a specific set of devices like sensors, steppers and solenoids. The project also implemented a custom distributed shared memory component to allow the components to talk with each other.

The project was developed using vxWorks on the x86 platform with the target being a stepper controller running on the Blackfin series of DSP processors by Analog devices. The stepper board was connected to the sensor and solenoids via a SPI bus. The project involved implementing a messaging layer between the host and the target in C++ and a distributed shared memory component that was used by the host and the target to send stepper commands.

Was responsible for architecting the host part of the system. Initially, the messaging layer was built on VC++ using POSIX and was later migrated to vxWorks. I managed a team of 4 members to implement the host part of the software. I was also responsible for providing on-site training and transition to the members of the Singapore division

Think Business Networks, Coimbatore **(Aug 1997 - Dec 2002)**

Digital Nervous System
Domain: Process Workflow (September 2002 - December 2002)

Managed the DNS project, a workflow automation framework that allows IT related processes to be automated. It aims at reducing the productivity dip that is caused by following the process manually by hand-holding the users on what needs to be done and how. Users can interactively model processes via activity diagrams, deploy them for instantiation, map the processes to the various KPAs defined by SEI CMM (for internal assessment), extract quality metrics etc.

My responsibilities were to manage a team of eight members and incorporate functionalities like CVS support for document archival, conditional branching and joining of activities within processes etc.

DNS was implemented on the .NET platform.

Test Automation Layer
Domain: Test Automation (August 2002 - December 2002)

Functioned as an architect to design and validate the Test Automation Layer (TAL) that allowed producing faster automation solutions by providing functional automation management and deployment tools on top of existing automation frameworks. TAL employs various test automation methodologies like CSDDT (Continuous Synchronized Data Driven Testing), Action / keyword driven testing to provide effective test automation solutions.

Real-time Fault Receiver
Domain: Telecom / Networking (Mar 2002 - July 2002)

Designed the system and managed a team of 4 for the project, a component add-on to our product, 'Think EMS' to provide the capability to minimize SNMP based trap loss by providing a real-time solution using RTJ specs.

This highly configurable system functions as a real-time component running on TimeSys Linux/GPL with Real-time Java extensions to capture UDP based SNMP traps and relay them back to the EMS for event correlation and consolidation. The RFR implements its own high performance customized persistence engine and provides a **20x performance boost** in handling SNMP TRAPS compared to the current EMS implementation.

EzTest
Domain: Internet / Web (July 2001 - September 2002)

Was responsible for the architecture and management of the EzTest project, a part of the Enterprise / University Information Portal project (E/UIP). EzTest features automated evaluation of candidates on selected skillsets aiding in recruitment and training assessment. EzTest used open-sourced software to reduce the cost of the product.

The assessment engine was marketed towards the educational, corporate and IT enabled services (call centers) segments. Incidentally, the assessment engine was started by myself as a personal initiative to help us with our recruitment efforts and was eventually adopted by the organization. The product was completed with a team of three members.

Nuera EMS
Domain: Telecom / Networking (June 2000 - July 2001)

Was one of the key members involved in the design and development of an EMS for managing and monitoring Remote Digital Terminals (RDT) manufactured by Nuera Communication Inc, CA, USA, for their customers AT&T. The EMS was designed to manage Fault, Configuration, Performance and Security (FCAPS) for the system. The RDT was responsible for enabling IP based voice and data communication within cable TV networks and interfaces with the external PSTN.

Was responsible for the design and managed a team of three to implement the Fault, Performance and Diagnostics servers for the system. The servers were based on a pluggable architecture supporting SNMP southbound and with northbound capabilities to talk to higher-level managers (like HP OpenView) via SNMP, RMI or e-mail.

zGenie
Domain: Internet / Web (October 1999 - October 2000)

Zgenie is a web community based information sharing tool that brings content to your desktop rather than wade through millions of non-relevant information available in the web.

Was one of the key architects of the system and managed the client side implementation of the application with a team of four. The client side implementation consisted of building COM based plug-in to Internet Explorer, a lightweight proxy server and a binary interception engine that allows the users to 'Alt+Click' on any text in any GUI based application and use it as a basis to pull information off the web. The application also supported the capability to update itself over the web. The product entered beta with 300+ users using the application. The product was developed with Microsoft Visual C++ 6, with MFC and COM.

The application suite was used to power our knowledge management tool 'ezInfo'.

WorldStreet Sales
Domain: Securities / Financial (August 1998 - September 1999)

WorldStreet Sales is a financial portal for the securities industry, capable of consolidating external information like stock quotes, news feeds, research articles from various sources like IDC, Reuters in real-time, there by allowing the sales team to provide timely advice to their clients.

My job, as a consultant was to analyze the performance of the system, identify the shortcomings and overcome the performance issues with better solutions. This involved developing solutions that required parallel generation of presentation data for portlets, dynamic caches to manage real-time quotes and database optimizations.

Was responsible for bringing back two projects to be developed offshore, one being a chart server capable of plotting financial charts using pricing information obtained from data-feeds maintained by Reuters and IDC. The other is responsible for uploading external IDC data-feeds into our database.

These projects made extensive usage of Java, RMI, JNI, and JDBC to achieve its goals.

NetExpress
Domain: Telecom / Networking (August 1997 - August 1998)

NetExpress is a 3-tired distributed system on Windows NT, for the management of complex services on Nortel's DMS 100 switches. Basically the system is responsible for service provisioning (Service Management System) in the DMS 100 switches and also acts as Operations Support Systems for the service providers. The system consists of thin clients spread across a WAN, being serviced by our set of server applications running on NT server with a backend ORACLE database. This system was developed entirely in Visual C++ involving rule based, network modeling and limited object database implementation.

Ceon (formally known as FirstTel systems) developed NetExpress for some of the largest Telcos in the world (Telstra, British Telecom and etc.).

Developed ASUBS (Automatic Service Unit Billing System), a billing system for the features (around 190 features) provided to customers in the DMS 100 switch. There was no proper system to produce the billing for the DMS 100 switches and this is the very first system that generated accurate feature based billing for DMS 100 switches. ASUBS is a rule-based system that features capabilities to add new billing requirements and modify the existing rule without changing the application.

Was also responsible for managing a team of 7 for a feature point release of NetExpress.

L-Cube Innovative Solutions, Chennai (Jun 1995 - Aug 1997)

Electronic Service Manual
Domain: Document Publishing (Jun 1995 - Aug 1997)

The Electronic Service Manual (ESM) helps in providing quick access of digitized documents to service personnels in troubleshooting complex machineries. It featured network decision trees to aid the personnel in zeroing on the problem, dynamic forms to report problems, an internal scripting framework, with support for rendering various types of documents like RTF, WordPerfect Documents, SGML and HTML. The ESM works as a standalone application and is also capable of collaborating with other users over the network. The latest incarnation was capable of generating Internet ready manuals dynamically for access over the web. ESM was developed using C++.

I functioned as a software engineer, responsible for implementing a display renderer capable of rendering complex documents with supports for tables, columns etc,. Was also responsible for developing the web-rendering engine that exports regular word processing documents as HTML to be accessible over the net.

I was also responsible for building the entire automated test framework, based on MS Test, an early version of Rational Visual Test.

Education

M.S., Software Systems

BITS Pilani (CGPA 7.94)

B.E., Computer Science

Barathiar University (74.77%)

Other Achievements

- **HCL Technologies**
  - Published a papers on **'Big data analytics'**, **'Machine Learning'** for the internal newsletters, paper presentation contest
  - Created proof of concept application on auto-test regression analysis using the ELK (Elasticsearch, Logstash and Kibana) stack which led to the focus of extending the same within the group for different projects for analysis.
  - Best project award (4), Goldline award (2) for successful execution and completion of projects.
  - Took up various additional roles
    - Served as **SKO (Senior Knowledge Officer)** for a semi group that I was a part of, promoting Knowledge Management Practices by encouraging team to share knowledge to our central repository.
    - **CMMI Appraisal Team Member** covering **'Delivery & Managing Services'** Capability area - Practice Area: Service Delivery Management & Strategic Service Management for level 5 certification.
    - **Editor & Publisher** for our quarterly Semi newsletter distributed to both HCL and customer.
    - **Six Sigma Semi SPOC** to monitor and drive the achievements of our yearly targets for 3 years and had exceeded the targets.
    - **Patent Reviewer** to streamline and be the first line of reviwing the parent applications by the team and guiding them to represent their ideas better. Improved selection rate next level by 70%

- **Think Business Networks**
  - Was part of the SEI CMM internal audit team
  - Served as a member of the Quality Improvement Team

- Responsible for 'Open Source Software' awareness which lead the organization to use both open source software as well as to contribute to the movement
- Served as the CTO, conducted many technology based team activities within the organization to create awareness of KM practices, reusability etc.
- Developed, as a personal initiative, EzTest an automated testing system to help us with recruitment activities. EzTest was adopted by the organization and was commercialized, targeting all universities, recruitment agencies, ITeS industries, training institutes and schools. EzTest was awarded the Quality Improvement Team's best corrective action project for 2001

Patents & Publications

- **Patent Granted** - Using LIDAR To Define Printable Area For Document Printing.
- **Patent Pending** - Methods and systems for adding annotations from a printed version of a document to a digital version of the document
- **Patent Published** - Method and system for arranging and printing pages according to search criteria
- Article on **'Database Abstraction using PHP'**, a web scripting language published in **Developer IQ, September 2002 edition**.
- Article on **'Static Generation of Charts for Web Servers on Linux'** – Published in the Linux supplement of **Developer IQ Feb 2002 issue**.

Certifications & Courses

- Generative AI Fundamentals (Google Cloud, 2023)
- Deep Learning Specialization (DeepLearning.AI, 2018)
- Machine Learning (Stanford University, 2018)
- BEC (Business English Certification) Level 2 (University of Cambridge, 2000)
- Sun Certified Java 2 Programmer (Sun Microsystems, 1999)

Hobbies

Photography | Game Jams | Reading | Productivity App Development | Blogging