HIMANSHU SINGH

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Objective: Challenging career in Computer Science Research & Development empowered with innovations.

Total experience: 12+ years

Positions: Software Engineer, Entrepreneur, IT and Software Trainer

Summary: Computer science R&D and innovation is my love, objective and profession. I'm a software engineer, entrepreneur and software trainer. Presently, I'm full time employed as a 'C/C++ Trainer' in HCLTech, Bengaluru. As my entrepreneurial effort I'm also trying to bring my own innovative electronic product in the field of Power Electronics. My professional qualification is B.Tech. Computer Science & Engineering. I also earned, professional certification in Basic Electronics and Robotics. Natural interest in my field, helped me to do innovative and worthful work in my academic, for my organizations and personally. My natural bend towards academics/theory, computer science R&D, innovation and having a specialist / niche work experience is my key strength. My current focus areas are Computer Science R&D, C/C++, Desktop Application Software, Electronics and Robotics. As appreciation of my worthful work, I also had few awards in hand.

Computer Science Concepts & Technologies I worked during my academic (A), professional (P) and personal employment (E) period:

C (A,E)	C++ (A,E)	C# (P)
x86 Assembly Language (E)	PowerShell (E)	Basic Electronics (A,E)
Robotics (A,E)	Data Structures (A,P,E)	Algorithms (A,P,E)
Object-oriented programming (OOP) (A,P,E)	Multithreading (A,P,E)	Asynchronous Programming (A,P,E)
Software Design Patterns (A,P,E)	GUI Software Design Patterns. E.g. Model–view–viewmodel (MVVM) (A,P,E)	Graphics Programming (A,E)
Custom Controls (P)	Windows Forms (A,P,E)	Windows Presentation Foundation (WPF) (P)
.NET Framework (A,P,E) Extensible Application Markup Language (XAML) (P)	Common Language Runtime (CLR) (A,E) Extensible Stylesheet Language Transformations (XSLT) (P)	Extensible Markup Language (XML) (A,P) Microsoft SQL Server RDBMS (P,E)
Oracle RDBMS (P)	FxCop and Stylecop static code analysis tools (P)	ReSharper productivity tool for .NET developers (P)
Python (E)	Linux (E)	Bash (E)

Visual Studio Code (E)	GNU Make	GNU GDB

Awards & Achievements:

- **Certificate of Achievement (2023):** The achievement certificate is given to celebrate remarkable educators. Awarded by: HCLTech, EdTech dept., Bengaluru. Date: Sep 5, 2003.
- **SHRISTI 2003 Award:** All India first prize from IIT Roorkee, Roorkee for my innovative computer security software named **Mouseguard©**. Award was given to this software for its innovation and promising use in computer security field. In this software I have invented a new technique of passwords entry in Windows XP known as 'Mouse Passwords' and invented a new dynamic encryption algorithm known as 'Himanshu's Encryption Algorithm'. Software implementation was done in C programming language. My this work is copyrighted. Award given by: IIT Roorkee, Roorkee. Dated: 12 April, 2003.
- **Client Focus Delivery (CFD) Appreciation (2008):** The appreciation letter awarded in individual category with citation from the client for:
  - Ahead of time delivery with no bug in first release after continuous production run for 2 months.
  - Delivering extra highly intuitive and feature rich supporting utility for better management of the application, in my saved time, apart from the time spent for regular assignment.
  - Client: British Telecommunication (BT) Health, London. Person Name: Rollene Dupreeze. Date: Mar 2008.
- **SILVER SQUAD AWARD (2007):** The award is given for 'Best Team of The Year'. Organizer: Geometric Ltd., Pune Date: Dec, 2007.
- **KUDOS AWARD (2007):** The award and citation letter given in individual category to software developer for his outstanding performance in a project. Organizer: Geometric Ltd., Pune Date: Mar, 2007.
- **VISHWAKARMA AWARD 2004:** The Award given to 'Best Engineer' among all the competing engineers from all over India in various streams of engineering who posses best technical skills, best communication skills tandem with good moral behavior. Organizer: IIMT Meerut, U.P. Date: 21 March, 2004.
- **BYTE AWARD 2004:** The award given to 'Best Software Developer' in a programming competition who is capable of writing successful solutions in form of a computer algorithms / programs for a presented set of logical or mathematical problems in least spent time. Organizer: IIMT Meerut, U.P. Date: 21 March, 2004.

Recommendations:

- *"I worked with Himanshu on one assignment, and was completely impressed with the level of maturity and his burning desire of churning out quality in his output. He has amazing tenacity - does not shy away from asking questions. He also ventures into unexplored territory in terms of technology and process - to achieve better results, without losing sight on the objectives of having a timely deliverable. His listening quality and enthusiasm to learn is going to take him miles ahead of his peers at every level. I wish him all the best..."* Vishal Mehta, CEO at IDYeah Creations
- *"Himanshu is an aggressive professional who has the fire in his belly to conquer the world with his technical abilities. I have seen very few people like Himanshu who are clearly focused in their career and know they have to achieve in life...My best wishes to him..."* Milind Datar, CEO's Office of Strategy Management at Geometric Ltd.
- *"Himanshu - very hard working, focused, technically strong, result oriented, good listener, soft*

spoken. Himanshu is very strong technically, especially he has a strong hand over Macros, VBE, C# etc.. this is as the domain I was related to, I am sure his liking towards the new technologies must have made him expert and strong in many other technologies.. Wish him good luck.." Neelesh Shekdar, Executive - Resource Manager, Geometric Software

- *"Dear Himanshu, I hope this email finds you well. As we are nearing the conclusion of the training program, on behalf of all who had the privilege of enrolling in the Graduate Accelerator program I wanted to take a moment to express our heartfelt gratitude for the incredible guidance and support you have provided us throughout our journey. Your unwavering commitment to our growth and development has truly made a significant impact on our professional lives. Your insights, wisdom, and encouragement have been invaluable to us. Your willingness to share your expertise and experiences has not only broadened our horizons but also inspired us to reach for greater heights. Your mentorship has not just been about imparting knowledge, but about instilling confidence and nurturing a sense of belief in our abilities."* Hansika Thathsarani, Software Engineer, Market Services - MIT, London Stock Exchange Group (LSEG), Sri Lanka
- Reference: LinkedIn profile

Professional Experience

Company: HCL Tech, Bengaluru, Karnataka, India (Mar. 2023 – Till date)

- **Project: C/C++ Corporate Training, LSEG, Sri Lanka**
  - The project trained professionals to design and develop an 'Algorithmic Trading' platform in C/C++, focusing on DevOps Basics, RDBMS, and SQL using Oracle. The Cap-stone Project, involving the Threading Library, was successfully developed by all 25 candidates, and a demo was given to the client management team.
  - **My learnings:**
    - Key technical skills that are involved in concept, design and development of this project:
      - Acquired knowledge of new concepts in C++11.
      - Helped software trainees in developing a multi-threaded C++ algorithm trading application meeting the client's requirement of a responsive user interface and having improved performance on modern multi-processor systems. This provided an opportunity to enhance my skills in C++11 multi-threading.
      - Applied appropriate data structures in C/C++ while designing the 'Algorithmic Trading' application. Proficiency in C/C++ data structures was essential to efficiently store trading data in terms of memory usage, time performance, and code simplicity. Trainees were given the freedom to choose any data structure that would yield satisfactory results. As a result, various data structures such as STL vectors, maps, lists, and red-black trees were successfully implemented in this C/C++ training, showcasing the application of different data structures based on individual understanding and preference.
  - **Client:** London Stock Exchange Group (LSEG), Sri Lanka
  - **Responsibility:** C/C++ Trainer
  - **Team size:** 3
  - **Audience size:** 25
  - **Audience level:** Professional
  - **Environment**: GNU gcc (C compiler) and g++ (C++ compiler), Visual Studio Code,
  - C++11, C/C++ Data Structures, Ubuntu Linux, GNU MAKE, GNU Debugger (GDB)
- **Project: C/C++ Corporate Training, HCL TechBee Batch**

- The training project involved a challenging role as a trainer for HCL TechBee program-pass candidates, who undergo 12 months of training and are dipped into full-time jobs at HCLTech. The audience was Class XII passed students with little programming background. To succeed, the trainer had to create a strong computer programming foundation and teach C and C++ concepts in a simplified manner. The training involved assessments, including the final international IKM programming assessment. The remaining 17 students passed the exam and successfully deployed in various HCL projects. The trainer was supported and mentored by supervisor Mr. Sanjeev Misra
- **My learnings:**
  - Key technical skills that are involved in concept, design and development of this project:
    - I had the chance to lead a C/C++ training session for bright young individuals with little to no prior programming experience. One crucial aspect that was emphasized during the training was the importance of understanding the C/C++ build process. While Integrated Development Environments (IDE) software simplifies the build process by automating tasks such as compiling and linking, it is essential for new learners to grasp the customization and learning of this process. This skill is vital for professional C/C++ software development as it enables the creation of final executable files of desired sizes and eliminates unnecessary libraries. The training included a dedicated session on teaching this fundamental C/C++ skill, where I also gained insights into working with tools like GNU MAKE for build automation and GNU Debugger (GDB) for debugging C/C++ programs.
- **Client:** HCL, Engineering and Research Services (ERS) division
- **Responsibility:** C/C++ Trainer
- **Team size:** 3
- **Audience size:** 19
- **Audience level:** Freshers, HCL TechBee batch
- **Environment**: GNU gcc (C compiler) and g++ (C++ compiler), Visual Studio Code,
- C++11, C/C++ Data Structures, Ubuntu Linux, GNU MAKE, GNU Debugger (GDB

- **Project: 'DupFinder-v1.0 C++' Application Development**
  - The HCL training department had a need to create a C++ software that would assist them in gathering new multiple-choice questions (MCQs) from trainers for their online assessment platforms. However, they encountered a challenge when they discovered that trainers were also submitting duplicate MCQs. The task of identifying these duplicates was difficult due to the sheer number of MCQs and the complexity of the scenarios. Nevertheless, the project was successfully completed, and the software was able to detect duplicate MCQs. The HCL training department received the software, along with comprehensive user manual documentation, enabling them to utilize it with minimal external assistance.
  - **My learnings:**
    - Key technical skills that are involved in concept, design and development of this project are:
      - I was fortunate enough to be given a significant opportunity in C/C++ software development, as my supervisor and HCL management acknowledged my valuable skills in innovation, research and development in cutting-edge technologies, as well as my expertise in C-family of languages. Additionally, I had the chance to expand my knowledge and experience by working with new C/C++ technology, specifically in handling Excel files using C/C++. During this time, I had the opportunity to utilize the 'openxlsx' library.
  - **Client:** HCLTech

- **Responsibility:** C/C++ software developer
- **Team size:** 3
- **Environment**: GNU gcc (C compiler) and g++ (C++ compiler), Visual Studio Code,
- Ubuntu Linux, GNU MAKE, use 'openxlsx' open-source library (link)

- **Other Projects:**
  - **'C Socket Programming' new training content design and coding** of associated practical examples
  - **'Speedo-Meter Dial Control' GUI development in QT/QML**
  - **Designing guide sheets C/C++ programming problems** associated to HCL programming assessment 'CodingLab' platform.

Freelance Corporate Training, Self-funded Computer Science R&D, Entrepreneurship (Feb. 2010 - Apr. 2011, Jan. 2012 – Feb. 2023)

- **Freelance Corporate Training (C, C++, PowerShell, Python Programming Languages)**
  - IT and Software online trainer at MindMajix Technologies. I teach C, C++, Python, PowerShell and Robotics.
  - Corporate trainer having following work experience:
    - Training course name: PowerShell, client: Capgemini (India), training period: Mar 3, 2022 – Mar 7, 2022, training mode: VILT, client rating: 4.2 / 5
    - Training course name: C and C++, client: Light & Wonder Inc. (formerly Scientific Games Corporation, SG, India), training period: Sep 26, 2022 – Oct 7, 2022, training mode: Classroom, client rating: 4.31 / 5
    - Training course name: C and C++, client: Wipro Limited, Electronic City, Phase 1, Bengaluru (India), training period: Nov 2, 2022 – Dec 7, 2022, training mode: Classroom
    - Training course name: C and C++, client: REVA University, Yelahanka, Bangalore (India), training period: Dec 7, 2022 – Dec 9, 2022, training mode: Classroom, client rating: 4.37 / 5
    - Training course name: C Programming, client: REVA University, Yelahanka, Bangalore (India), training period: Jan 16, 2023 – Jan 23, 2023, training mode: Classroom
- **Self-funded Computer Science R&D**
  - Computer Science R&D and innovation is my objective and profession. I treat and hence understand computers as an unison product of hardware and software, that is able to accomplish our miraculous tasks by beautiful combination of both. I really wanted to reach a point in my life where word computers and computer science makes clear sense to me for doing a true innovation. To do so, I really wanted to learn hardware side of computers also. This inspiration identified me that I had a skills gap that can't be fulfilled from my present job roles & responsibilities which were purely on software side. It clearly identified me, in a bid to pursue my objective, future-proof my career and upskill I must need some time off work to focus on myself. I worked focused and hard during this time. It was a time that prepared me to take on new challenges. Now that I've finished my upskill path at acceptable level, I've been looking for a new position in which I can use these new skills.
    - Computer software and hardware concepts / technologies I researched and learned during this time:
      - x86 Assembly Language
        - I learned from book 'Assembly Language Step-By-Step', 1st Edition by Jeff Duntemann.

- C++
  - Doing again for mastery and need in computer hardware research.
- Basic Electronics
  - Self-learned and improved theoretical electronics concepts. I learned from my academic textbooks, authoritative reference books and online.
    - Getting Started in Electronics by Forrest M. Mims
    - All About Circuits (electronics fundamentals education website, link)
    - mjlorton by Martin Lorton (electronics fundamentals education channel, YouTube, link)
    - EEVblog by David L. Jones (electronics fundamentals education channel, YouTube, link)
    - And from few important other resources...
  - Took hands-on lab professional training in basic electronics with A+ grade form prominent institute in Delhi - Fast-Tech Pvt. Ltd., Institute of Advance Technologies, H-2 1st Floor, Hudson Line, Delhi-09. Training period: 7-Oct-2015 to 10-Jan-2016.
  - Took professional training in Robotics. Earned 'Fabro Advanced (Robotics)' certification from Jay Robotics Club, 20/9, 3rd Floor, Janaki Complex, Sardar Patel Road, Adyar, Chennai, Tamilnadu - 600020. Training period: Jan 2016.
    - Computer Science R&D work and innovation is my key strength. Current example in Robotics field:
      - This innovation is in Edge Avoiding Robot design. Through this innovation I'm able to develop 'Extreme Case Edge Avoiding Robot'. Conventional edge avoiding robots based on IR sensor usually have approximate mechanics for IR sensor placing. This results edge avoiding robot having trajectory in which some space tolerance has to be considered along edges; in order to avoid robot failure / falling error cases arising specifically due to approximate mechanics applied for IR sensor placing. After analyzing and understanding the loop holes in the edge avoiding robot building process, I used mathematical (quantitative) approach to precisely tackle this approximation related error in the robot design. Developed a mathematical formula to precisely find the exact position of the IR sensor based on mechanical parameters of the robot. After incorporation of this formula in robot design the new innovative Edge Avoiding Robot amazingly runs almost at edge of the surface with no marginal space left at the edge and never-ever fall downs. Thanks to the mathematics field at work! My devised formula applies to build any size of edge avoiding robot. Verdict: After using devised formula, design time is reduced and motion precision is increased.
    - Given seminar on basics of Robotics field to a group of complete degree college students on occasion of Republic Day on 26-Jan-2018 in Saheed GuruDutt Singh Degree College, Gadhiha Pratap Pura, Bah Dist., Agra, U.P. Certificate is rewarded for this seminar for being informative and useful to students by the principal of college.
- PowerShell
- Python

- **Entrepreneurship**
  - As part of my entrepreneurial effort I'm trying to bring my own innovative electronic

product in field of Power Electronics.

Company: Nagarro Software Pvt. Ltd., Gurugram, Haryana, India (Oct. 2011 – Dec. 2011)

- **Project: Abu Dhabi Paid Parking Management Solution (CPMS) Handheld Software (CPMS)**
  - This project involved design and development of a handheld computer application software acting as a client. A client is a piece of computer hardware or software that accesses a service made available by a server in client-server model of a distributed application software architecture. In this project, client software accesses a service made available by a CPMS back end / server. In this project, CPMS back end / server is to help the department of transport, Emirate of Abu Dhabi, to manage their Parking services at a central level. The project aims to do design and development of a handheld computer application software (client) for automating the Parking System and allowing the users to define the process workflows so that the efficiency of the Parking Management System can be increased. This application software will also assist in the day to day functioning of the operations and help schedule staff deployment.
  - **My learnings:**
    - Key technical skills that are involved in concept, design and development of this project are:
      - Embedded System application software development for Windows Embedded Compact 7 platform.
      - Object-oriented programming (OOP), software architecture and design, GUI Architectures, UML
      - This was my first role as a software architect. I was responsible for the application software architecture and design. So, I learned a lot and had a practical knowledge about software architecture and design while working on this project.
      - Able to work on niche set of technologies involving Embedded System application software development for Windows Embedded Compact 7 platform.
- **Client:** The department of transport, Emirate of Abu Dhabi.
- **Responsibility:** Software Architect, Programmer.
- **Team size:** 3
- **Environment:** Windows Embedded Compact 7 real-time OS, C# programming language, .NET Compact Framework (.NET CF) 3.5, Microsoft Visual Studio 2008 IDE

Company: Barclays Capital Services Pte Ltd., Singapore (May 2011 – Jun. 2011)

- **Project: It was a short-term abroad opportunity in Singapore.**
  - I worked as a Senior Application Analyst at the client office. Though, I was offered a project in my specialization area only i.e. desktop application development in .NET platform using C# and WPF but due to short nature of this opportunity I gained more as my personal development / soft skills in comparison to few worked on technical skills.
- **My learnings:**
  - Key technical skills that are involved in concept, design and development of this project are:
    - Learned Perforce version control software.
    - Able to get exposure to do software development in Citrix Application Virtualization environment thus got the practical hands-on experience on a promising 'Application Virtualization' software technology while working on this project.
  - Personal development / soft / professional skills:
    - Learned team building skills across cultures.

        - Knowing how to work together with others to overcome a challenge is one of the most important professional skills a person can have. The difficulty always comes when group members have really different ideas on how a problem can best be solved. These differences in opinion and methodology can be even more pronounced when you throw cultural differences into the mix. Learning how to work through these differences and solve a problem as a team in a foreign office is a professional lesson I leaned while working with people from other countries in Barclays Capital which had a unique and longstanding value in my personal and professional life. In this regard, this helped me in increasing my cultural awareness, tolerance and cultural sensitivity.
        - Able to understand the importance of both listening and observing during this international work experience.
        - Lived, traveled and learned about the diverse culture of Singapore.
- **Client:** Barclays Capital Services Pte Ltd., Singapore.
- **Responsibility:** Senior Application Analyst
- **Team size:** 3
- **Environment:** C# programming language, .NET Framework, Windows Presentation Foundation (WPF) graphical user interface (GUI) software framework part of .NET Framework, use of GUI software architectural pattern like Model–view–viewmodel (MVVM), Extensible Application Markup Language (XAML) user interface markup language, Microsoft Blend for Visual Studio (formerly Microsoft Expression Blend) user interface design tool, Microsoft Visual Studio IDE, Perforce version control software, Citrix application virtualization software.

Company: Nomura Services India Private Limited, Mumbai, India (Oct. 2009 - Jan. 2010)

- **Project: Tigris FX Risk GUI.**
    - Tigris FX Risk GUI is Nomura next generation FX Forwards Risk Reporting application software. The project requirements were highly challenging as per GUI development perspective. Application GUI has to take care of presenting complex data of 8 different modules into Single Window and at the same time making frequent user tasks easy and more interpretable in comparison to using usual application which has separate windows for different functionalities. This objective can be compared to much like that is achieved in Microsoft Visual Studio IDE GUI. Surely, it needed some extra efforts in developing advance GUI features and controls that are not available in the existing WPF GUI software framework. Tigris FX Risk GUI is front end part a.k.a client of highly complex distributed software. It consisted of RSG (Risk Generation Service) and RAS (Result Aggregator Service) services which both fetches data from a Risk API deployed on a server. This client is implemented as WPF based desktop application software. This client application software main requirement was to display a large amount of information, simultaneously allow easy drill-down into that information in same window and perform scenario analysis. So, this client application needed better GUI library and innovation in GUI programming to view complete trade and risk information in a single view / window. At the same time displayed information should be easy to interpret. Back end uses Solace middleware computer software. Solace is an Event Broker implemented as message-oriented middleware (MOM) and used in Event Driven Architecture (EDA) based applications. Solace is used in this project to push real time FX risk updates and topics which were consumed by Tigris FX Risk GUI Client using Solace message passing mechanisms.
- **My Learnings:**
    - Key technical skills that are involved in concept, design and development of this project are:

        - I was involved in designing, developing and integrating 'Order Blotter Module' using C#, WPF and MVVM into existing application. The blotter area is split into two parts. A module for the grid hosting the trades and second part for the custom trays. The blotter grid hosts ticking trade information. The work involves creating 'Custom WPF Grid View' and 'Custom WPF Tab Control' that should fit complete trade and risk information visually and functionality wise in single screen of Tigris FX Risk GUI client application.
        - I was involved in designing, developing and integrating 'User Configurable Trade Trays'. These were trade specific trays created by the user based on his/her preferences. Custom trays were created using user actions like by first selecting a trade and then using right click context menu option for creating custom tray for it or by simply doing drag-drop of a trade to a custom tray panel. Drag-drop functionality was accomplished by subclassing the existing WPF control like ListView into its derived TrayListBox subclass.
        - Coding in C#.
        - WPF custom control development.
        - Performance enhancements using multithreading.
        - Unit testing of assigned modules.
        - Technical documentation.
- **Client:** Nomura Services India Private Limited, Mumbai, India.
- **Responsibility:** I was Senior Developer IT - Fixed Income Technology division. I was responsible to do software design and development of assigned modules.
- **Team size:** 14
- **Environment:** C# programming language, .NET Framework, Windows Presentation Foundation (WPF) graphical user interface (GUI) software framework part of .NET Framework, use of GUI software architectural pattern like Model–view–viewmodel (MVVM), Extensible Application Markup Language (XAML) user interface markup language, Microsoft Blend for Visual Studio (formerly Microsoft Expression Blend) user interface design tool, Microsoft Visual Studio IDE, Apache Subversion (SVN) and its client TortoiseSVN as version control software, Atlassian Jira bug/issue tracking and agile project management software, NUnit unit testing framework, NCover code coverage tool, CruiseControl software for continuous integration (CI), Multithreading, Object-oriented programming (OOP).

Company: Sapient Corporation, Noida (India) (Dec. 2007 – Sep. 2009)

- **Projects**
    - **Project I: GTS Equity GUI Software Framework**
        - The GTS Equity software framework program is in the process of conceptualizing a new equity trading client application software, which eventually will replace OTS and OTSfW. The need was do design and develop a software framework for GUI needs providing generic functionality that can be selectively changed by additional user-written code, thus providing application-specific GUI software.
        - **My Learnings:**
            - Key technical skills that are involved in concept, design and development of this project are:
                - In this project, I was involved in design and development of two modules:
                    - GTS Equity GUI Software Framework part for 'Preferences Management' module and,
                    - GTS Equity GUI Software Framework part for 'Microsoft Enterprise Library

Validation Application Block extension work' module.

This software framework is aimed to be generic enough to support all GUI requirements for developing future version of application-specific GUI software. The software framework supported software development for application software based on WPF, .NET Framework 3.5 and Java web services in Service-oriented architecture (SOA). The project was for client that was a leading Investment Management provider. It was the most complex project I worked on, in terms of the number of components and cutting edge technologies involved.

- Developed advanced 'Data Validation Component' as part of GTS Equity GUI software framework by extending and customizing the Microsoft Enterprise Library Validation Application Block.
- Worked on 'Action Processing', 'Services and Messaging, 'Authentication and Authorization and 'User Preferences' modules of GTS Equity GUI Software Framework.
- Learned use of FxCop and Stylecop static code analysis tool for code quality improvement.
- Learned software design fundamentals of my assigned modules.
- Coding in C#
- Performance enhancements using multithreading.
- Unit testing of assigned modules
- Defect prevention, bug (defect/error) tracking and bug fixing activities
- Software testing of assigned modules
- Technical documentation

- **Client:** Wellington, Boston, USA.
- **Responsibility:** I was on technical specialist role in Sapient as Senior Associate Platform L1 (.NET). I was responsible to do software design and development in .NET platform for assigned modules.
- **Team size:** 10
- **Environment:** C#, .NET Framework 3.5, Windows Presentation Foundation (WPF) graphical user interface (GUI) software framework part of .NET Framework, Java web services in SOA architecture, Microsoft Visual Studio 2008 IDE, ReSharper productivity tool for .NET developers, FxCop and Stylecop static code analysis tool, NUnit unit testing framework, NCover code coverage tool, CruiseControl software for continuous integration (CI), Multithreading, Object-oriented programming (OOP), Microsoft Enterprise Library Version 4.0, use of Multi-monitor support feature in application software development.

- **Project II: SSdev PMO phase III**
  - The purpose of the BT Healthcare SSdev PMO phase III project is to deliver set of advance Microsoft Excel macros that supports reporting and tracking tasks of BT Healthcare NHS Program. The scope of BT Healthcare is whole UK and the purpose of the project is to integrate and centralize the nationwide medical information under one roof. Seeing the size of the project, the project was divided into number of small sub - projects under different project managers (PMs). Each project is tracked through its plan and a centralized reporting body is created to track the progress of the project. The reports are in form of analytical data, graph, charts with advance formatting for better visualizations. For the easiness to PMs w.r.t. to technology usage and cost effectiveness, the reports are designed in Microsoft Excel using macros and its built into macro programming language called Visual Basic for Applications (VBA). Leveraging the

expertise in Microsoft Excel macros and Visual Basic for Applications (VBA), we are able to design in Microsoft Excel spreadsheet, BT Healthcare SSdev PMO phase III project reports with following features:

- Highly robust with auto maintenance feature. At start, application software detects missing libraries, files and prerequisite user inputs ensuring application software starts in a stable state before running.
- Highly automated.
- Complex data analysis. The systems get inputs from different type of tools 'StarTeam', 'Clarity' in diversified formats (Microsoft Excel files, text files) and then this input data is synchronized finally into consolidated Microsoft Excel reports for further analysis.
- Uses, innovative 'Template Framework'; that had cut the development time to minimum. There after developers had to just configure the template to create their new report in a different formatting.
- Good data visualization.

▪ **My Learnings:**
- Key technical skills that are involved in concept, design and development of this project are:
  - Advanced Microsoft Excel macros development using Visual Basic for Applications (VBA). While taking care of complex client requirements and in order to solve them implementing advanced solution for them I got expertise in Microsoft Excel macros.
  - Able to design highly robust cost effective solution in record time. The solution also won Client Focus Delivery (CFD) appreciation letter in individual category with citation from the client stating "Ahead of time delivery with no bug in first release after 2 months continuous production run." I'm also able to deliver a extra highly intuitive and feature rich supporting utility for better management of the application, in my saved time, apart from the time spent for regular assignment.
- Personal development / soft / professional skills:
  - Able to improve my hard work importance understanding and doing skill.

▪ **Client:** BT Health, London, UK.
▪ **Responsibility:** I was on technical specialist role in Sapient as Senior Associate Platform L1 (.NET). I was responsible to do software design and development in Microsoft Excel using macros and its built into macro programming language - Visual Basic for Applications (VBA) for assigned primary modules.
▪ **Team size:** 5
▪ **Environment:** Microsoft Windows, Microsoft Excel macro programming using its built into macro programming language - Visual Basic for Applications (VBA).

◦ **Project III: KCL Web Application**

▪ King's College London (informally King's or KCL) is a public research university located in London, United Kingdom, and a founding college and member institution of the federal University of London. KCL is one of the oldest universities in England. This project was a web application software development for KCL admissions requirements. The KCL web application for admissions had two parts:
- My Application: Students and Agents interface to web based admission system enabling them to enroll into various programs.
- My Selection: Staffing interface to web based admission system enabling staff to do

various activities involved in candidate selections.

The solution was decided to develop a web application in .NET platform using ASP.NET server-side web-application framework, C# programming language, Microsoft SQL Server as relational database management system (RDBMS) and SITS (a proprietary relational database of KCL) to import KCL data. The solution uses NHibernate as an object-relational mapping (ORM) software framework for mapping an object-oriented domain model of web application to used relational database. The project used Agile software development paradigm and its Sapient's S/A 3 software development methodology.

- **My Learnings:**
  - Key technical skills that are involved in concept, design and development of this project are:
    - I got my first work experience of Agile software development paradigm using its Sapient's S/A 3 software development methodology.
    - I got my first work experience as a role of Technical Team Leader leading the team of 4 developers.
      - As Technical Team Leader I had following project technical responsibilities:
        - Software development effort estimation.
        - Software design and development of my assigned modules.
        - Take up the responsibility of the entire project.
        - Carefully analyze the project and rectify the errors found in the process.
        - I have to undergo the process of analysis in order to fulfil the requirement of system wide.
        - Developing the detailed design structure after understanding the requirements and the design.
        - Implementing the best practices and coding standards of the project.
        - Reporting for all the weekly tasks in form of accurate and detailed reports.
        - To keep a check on the whole system, conduct the testing and integration testing for the entire system.
        - Working on identifying the project risk and planning mitigation action with the Project Manager (PM) at project level.
        - As Technical Team Leader I learned to be proactive while reacting to the surprises and should have written explanation for the same.
        - I also have to assist and guide the Project Leader / Project Manager (PM) / Business Analyst (BA) in project coordination.
        - I had to ensure that team is working as per the listed procedures.
        - I had also need to work on constantly increasing the productivity of the team and reducing the waste on the other end.
        - I had also need to inspire all the other team members, as Technical Team Leader is the one who is looked upon by all the members.
  - Personal development / soft / professional skills
    - As Technical Team Leader I had following project general responsibilities:
      - I learned that I need to be flexible enough and be adaptable to the changing and varied work settings.
      - I learned to carefully analyze the details of all the work.
      - As a Technical Team Leader I will be the interface between the team and the

management.
        - As Technical Team Leader I understood that its important to be firm but equally have a ability to too understand other team members viewpoint and situation. I also need to have tolerance. Admitting my mistakes is also equally important.
        - I understood in order to lead the team successfully it is important me to set targets and expectations for the team.
        - I understood that I should have enough knowledge about the web designing too in order to involve with the web designing team.
        - I understood that I need to abide by all the project and company guidelines and standards and to ensure that even the team members are doing so.
        - I understood that I should be fulfilling all the commitments by timely delivering the deliverables.
        - As a Technical Team Leader I was maintaining the account of time and also reporting regularly of my own work.
        - As a Technical Team Leader I need to ensure fair tasks assignments where people are assigned with the task as per their skills and personal preferences.
        - As a Technical Team Leader I need to constantly motivate and encourage team to give their best, especially during the time when they are pressurized with high targets.
        - As a Technical Team Leader I need to make myself completely aware with all the technologies thoroughly especially the ones associated with web application software development which is under construction.
        - As a Technical Team Leader I need to share the success and failures with the team.
    - **Client:** King's College London (KCL), London, United Kingdom.
    - **Responsibility:** As Technical Team Leader I was responsible for leading this project software development team. I was also responsible to do software design and development of my assigned modules.
    - **Team size:** 11
    - **Environment:** C# programming language, .NET Framework, ASP.NET server-side web-application framework, Microsoft SQL Server 2005 as relational database management system (RDBMS) and SITS (a proprietary relational database of KCL) to import KCL data, Microsoft Visual Studio 2005 IDE, Apache Subversion (SVN) and its client TortoiseSVN as version control software, Sapient in-house bug/issue tracking and agile project management software, NUnit unit testing framework, CruiseControl software for continuous integration (CI), Object-oriented programming (OOP), NHibernate as an object-relational mapping (ORM) software framework, software design patterns, Extensible Markup Language (XML), Hypertext Markup Language (HTML), Cascading Style Sheets (CSS), JavaScript programming language.

Company: Geometric Software Solutions Co. Ltd., Pune (India) (Oct. 2006 – Dec. 2007)

- **Projects:**
    - **Project I: UNF Export**
        - This project is a enhancement work of renowned Tecnomatix application software. It is used for Manufacturing Planning, Manufacturing Simulation and Manufacturing Production. In general, it is a Manufacturing Process Management (MPM) application software. It is built on another renowned larger scope Teamcenter application software

which is a suite of product lifecycle management (PLM) computer software applications. Tecnomatix was originally created by Tecnomatix Corporation which was acquired by the UGS Corporation Siemens AG, and today the Tecnomatix solutions are available from Siemens PLM Software which is a business unit of Siemens AG, Munich, Germany. Teamcenter application software was originally created by UGS Corporation, a company which later became Siemens PLM Software. The purpose of the UNF Export project is to deliver a set of application software and libraries that will need to do three things:

- Parse Tecnomatix imported data.
- Understand semantics of this imported data based on digital manufacturing/PLM business data and rules and then,
- Finally generate two kinds of outputs:
  - Files to be consumed by CATIA v5. CATIA (computer-aided three-dimensional interactive application) is a multi-platform software suite for computer-aided design (CAD), computer-aided manufacturing (CAM), computer-aided engineering (CAE), PLM and 3D, developed by the French company Dassault Systèmes.
  - Excel reports describing changes / suppression / enhancement present in input data. XSLT (Extensible Stylesheet Language Transformations) computer language is used for transforming imported Tecnomatix data in form of XML documents into other XML documents. These XML documents are XML based file formats of Microsoft Excel file which later can be opened and edited in Microsoft Excel spreadsheet application software. Need was to show output in Microsoft Excel application software because end user was more familiar to this software usage. Based on the complexity and hierarchical nature of Tecnomatix XML based data; recursive algorithms are applied to simplify code and multithreading is used to increase the responsiveness of the system. For its outstanding work UNF Export project team won SILVER SQUAD AWARD in 2007. The award is given for 'Best Team Of The Year' by our organization Geometric Ltd., Pune.

- **My Learnings:**
  - Key technical skills that are involved in concept, design and development of this project are:
    - Software design of assigned modules.
    - Coding in C#
    - Designed robust set of application software and libraries using Object-oriented programming (OOP) programming paradigm, and recursion that allowed its seamless integration with exiting Tecnomatix application software data and modules.
    - Performance enhancements using multithreading.
    - Defect prevention, bug (defect/error) tracking and bug fixing activities
    - Software testing of assigned modules
    - Technical documentation.
- **Client:** UGS Corporation.
- **Responsibility:** Software Engineer. I was responsible to do software design and development in .NET platform for assigned modules.
- **Team size:** 3
- **Environment:** C#, .NET Framework, Object-oriented programming (OOP),

Multithreading, Microsoft Visual Studio .NET 2003 IDE, Tecnomatix application programming interface (API), Extensible Markup Language (XML), XSLT (Extensible Stylesheet Language Transformations), Altova XMLSpy 2007 XML editor and IDE.

- **Project II: Bench Profile & Universal Resource Deployment System**
  - It was an innovative Human Resources (HR) management information system (MIS). It was an in-house software developed by our organization Geometric Software Solutions Co. Ltd., Pune with goal of optimizing its Human Resource utilization ratio to its maximum. In general, in a corporate setting, the ultimate goal of the use of a management information system is to increase the value and profits of the business. This is done by providing managers with timely and appropriate information allowing them to make effective decisions within a shorter period of time. This application software was going to be used by human-resources department (HR department) of our organization. End user of this application software were primarily organization HR department management team including senior managers like board of directors and a chief executive officer (CEO) or a president of an organization. So, need for this project was unique, innovative and had high responsibility. Main requirements of this project were:
    - To show output in Microsoft Excel application software because end user was more familiar to this software usage. For the easiness to HR department team w.r.t. to technology usage and cost effectiveness, the solution was decided to be designed in Microsoft Excel using macros and its built into macro programming language called Visual Basic for Applications (VBA).
    - Design and develop full feature, effective and high performance HR MIS application software as it is was going to be used by senior management of organization who need to set the strategic goals of the organization and make decisions on how the overall organization will operate. So, in this project we had a challenge to cater a complex set of requirement using smaller technologies viz. Microsoft Excel macros and its built into macro programming language called Visual Basic for Applications (VBA).

    We had done rigorous software requirements activities in this project which were elicitation (gathering and discovery of requirements from stakeholders and other sources), analysis, specification, validation and management. Before this application software was developed situation was that complete organization HR department data was comprised of number of Microsoft Excel spreadsheets / worksheets with thousands of employee records. Each worksheet then had certain cells that were bounded either by the Microsoft Excel formula or a Microsoft Excel Macro procedure to give specific piece of information. But for all employees of the organization this each different piece of information was scattered around all the worksheets residing in different Microsoft Excel workbooks. Hence, HR personnel are facing problems to get the cumulative results in one place for each set of employee skill, his/her time duration in project and his /her deployment status that can help them in deciding the plans 52 weeks in advance for achieving best human resources utilization. So, at that time HR department was facing the problem of effective decision-making and planning with their existing HR department information system. Apart from segregated information, maintaining consistency of the related information was the big issue. Reason for arise in inconsistency in HR data in existing HR information system was that in order to update the single employee HR record, updates are needed in multitude of places because of scattered nature of information in the existing HR information system. So, due to related but segregated nature of data in existing HR information system a single error in update

in one place had a cascading effect in many places arising great amount of inconsistency in data which are very hard to detect and rectify manually without the use any automation technology. Leveraging the expertise in Microsoft Excel macros and Visual Basic for Applications (VBA), we are able to design and develop in Microsoft Excel spreadsheet Bench Profile & Universal Resource Deployment System project with following features:

- Highly robust and useable new HR department MIS application software. This HR department MIS then successfully used in our whole organization's HR department for its effective decision-making and advance planning work required for best human resources utilization.
- Highly automated.
- Complex data analysis.
- Very high in performance.
- Good data visualization.

- **My Learnings:**
  - Key technical skills that are involved in concept, design and development of this project are:
    - Advanced Microsoft Excel macros development using Visual Basic for Applications (VBA). While taking care of complex client requirements and in order to solve them while implementing a advanced solution I got expertise in Microsoft Excel macros.
    - For this project, I developed an innovative 'Metadata Algorithm' that had boosted the performance of the application software by manifold. Using this algorithm time for processing drastically reduced from 4 hours to 15 minutes.
    - For this project, I was single-handedly responsible for the complete software design and development. I was to successfully able to deliver this project. My hard work was recognized in form of winning Geometric KUDOS AWARD in Mar, 2007. This award and citation letter was given in individual category to software developer. Geometric given this award for promising and innovative functionalities of developed HR department MIS that helped the organization in increasing the value and profits of the business w.r.t. its HR department people, process and technology.
  - Personal development / soft / professional skills:
    - Able to improve my hard work importance understanding and doing skill.
    - My this project work experience was more than coding. Because of my work profile as a software engineer I was usually involved with software development technical concepts. Though, I had not much alignment to management side but in association to this project successful development, I had a chance to work closely with very good people associated with organization management, its technology and processes. I especially want to mention the name of my project manager here Mr. Milind Datar, CEO's Office of Strategy Management at Geometric Ltd. who has helped me in all ways in every phase of this project and making me learn each not acquainted HR department management related details by giving his extra time and efforts. Hence in this project, I learned organization HR department related concepts and able to make good relationship with my organization HR department.
- **Client:** Geometric Software Solutions Co. Ltd., Pune
- **Responsibility:** Software Engineer. Primarily, I was responsible to do software design

and development in .NET platform for assigned modules. But, specifically for this project, I was responsible to do complete application software design and development in Microsoft Excel using macros and its built into macro programming language - Visual Basic for Applications (VBA).

- **Team size:** 3
- **Environment:** Microsoft Windows, Microsoft Excel macro programming using its built into macro programming language - Visual Basic for Applications (VBA).

◦ **Project III: TeamCenter X Web Services**

- Teamcenter application software which is a suite of product lifecycle management (PLM) computer software applications. Teamcenter application software was originally created by UGS Corporation, a company which later became Siemens PLM Software. Teamcenter community collaboration application software is a collaborative software or groupware that integrates the ad-hoc collaboration data and capabilities in Microsoft SharePoint with the Teamcenter application software, allowing to securely share PLM data across the organization intranet. This PLM capability allows to informally collaborate within smaller team, before promoting the formalized results of collaboration into Teamcenter. Formalized results of collaboration includes PLM data comprising of simple documents to rich 3D product data, design issues reviews and product concerns etc. In this project, it was the need to integrate certain Teamcenter Enterprise features into Teamcenter Community collaborative software. So, in this project we had to consume some Java based SOAP Web Services of TeamCenter Enterprise application software in .NET platform based TeamCenter Community application. A web service is a collection of open protocols and standards used for exchanging data between applications or systems. These systems can include programs, objects, messages, or documents. Software applications written in various programming languages and running on various platforms can use web services to exchange data over computer networks like the Internet in a manner similar to inter-process communication on a single computer. This interoperability (e.g., between Java and Python, or Windows and Linux applications) is due to the use of open standards. The basic web services platform is XML and HTTP. In case of SOAP web services it also includes collection of other open protocols and standards like SOAP (Simple Object Access Protocol), UDDI (Universal Description, Discovery and Integration), WSDL (Web Services Description Language) and sometimes JSON (JavaScript Object Notation) in place of XML. So, we have first developed a sample .NET client application software using C# programming language to access these Teamcenter application software provided Java based SOAP Web Services in .NET client application software then integrated this sample .NET client application software code with Teamcenter community collaboration application software. After completion of this project we are able to do the following things from Teamcenter community collaboration application software:
  - Create new business item.
  - Upload Files.
  - Check into vaults.
- **My Learnings:**
  - Key technical skills that are involved in concept, design and development of this project are:
    - Software design and development.
    - During this project, I had learned and got work experience about Web service, Component-based software engineering (CBSE) software engineering concept,

also called components-based development (CBD) and its derived Service-oriented architecture (SOA) software design concept. I learned that Software engineering practitioners regard components as part of the starting platform for service-orientation. Components play this role, for example, in web services, and more recently, in service-oriented architectures (SOA), whereby a component is converted by the web service into a service and subsequently inherits further characteristics beyond that of an ordinary component.
    - Coding in C#
    - One of the major achievements in the project was the development of innovative DYNAMIC INTERFACE in the designed and developed sample .NET client application software that was able to dynamically adapt and change. It is able to add / remove at runtime (execution time) any number of graphical widget (also called graphical control element or control) required by the sample .NET client application software.
    - Defect prevention, bug (defect/error) tracking and bug fixing activities.
    - Software testing of assigned modules.
    - Technical documentation.
  - **Client:** UGS Corporation, USA
  - **Team size:** 5
  - **Environment:** C# programming language, .NET Framework, Windows Forms (WinForms) GUI library, Java programming language based SOAP web services in SOA architecture of TeamCenter X application software, Microsoft Visual Studio IDE, Object-oriented programming (OOP), Extensible Markup Language (XML), Teamcenter community collaboration application software which was built on Microsoft SharePoint which in turn built on .NET platform.

Company: Innovative Consultancy Services, New Delhi (Aug. 2005 - Oct. 2006)

- **Projects**
  - **Project I: ARINC-Merger**
    - Aeronautical Radio, Incorporated (ARINC), established in 1929, was a major provider of transport communications and systems engineering solutions for aviation, airports, defense, government, healthcare, networks, security, and transportation. For this project we are involved with ARINC w.r.t. to its role as provider of transport communications and systems engineering solutions for aviation, airports. ARINC is known for publishing 'ARINC Standards'. But, ARINC is also involved in commercial activities. Both roles of ARINC i.e. publishing 'ARINC Standards' and its commercial activities are independent of each other. ARINC Industry activities involve three aviation committees: AEEC (Airlines Electronic Engineering Committee), AMC (Avionics Maintenance Conference), FSEMC (Flight Simulator Engineering & Maintenance Conference). The 'ARINC Standards' are prepared by the Airlines Electronic Engineering Committee (AEEC). In 'ARINC Standards' its '400 Series' describes guidelines for installation, wiring, data buses, and databases. In this project we are involved with 'ARINC standard' named 'ARINC 424'. 'ARINC 424' is an international standard file format for aircraft navigation data. While working in this project in our company Innovative Consultancy Services, we refer to two sources to know details / data about 'ARINC 424' ARINC standard. First source for 'ARINC 424' ARINC standard was a big reference book which we call in our organization as 'The Blue Book'. Second source for 'ARINC 424' ARINC standard was client provided relational database based on Oracle relational

database management system (RDBMS). This relational database is provided by our client IDS Ingegneria Dei Sistemi S.p.A., Pisa, Italy. This relational database in particular contains the data of Aero Control Division, Govt. of Austria, Austria. The aim of this project was software design and development of .NET platform based application software for standardization of client database w.r.t. 'ARINC 424' ARINC standard. So, first w.r.t. client provided database records, specific information is understood manually by reading carefully 'ARINC 424' ARINC standard from our organization provided 'The Blue Book'. Then it was decided to use Extensible Markup Language (XML) to create data structures containing data in form of XML documents for the 'The Blue Book' taken 'ARINC 424' ARINC standard specific information. The decision to use Extensible Markup Language (XML) was because it is a markup language that defines a set of rules for encoding documents in a format that is both human-readable and machine-readable, also XML emphasize simplicity, generality, and usability across the Internet. It is a textual data format with strong support via Unicode for different human languages. Although the design of XML focuses on documents, the language is widely used for the representation of arbitrary data structures. XML documents that contained 'The Blue Book' taken 'ARINC 424' ARINC standard specific information, were known as 'aircraft navigation data rules'. Then a 'Rules Engine' is created using C# programming language and .NET Framework classes in the namespaces that support parsing and writing XML, editing XML data in memory, data validation, and XSLT transformation. This 'Rules Engine' processes 'ARINC 424' ARINC standard representing 'aircraft navigation data rules' XML documents and standardize necessary client relational database records and fields.

- **My Learnings**:
  - Key technical skills that are involved in concept, design and development of this project are:
    - Software design of assigned modules.
    - Object-oriented programming (OOP) programming paradigm
    - I learned and got my first work experience on .NET platform and its included .NET Framework software framework, .NET Framework included large class library called Framework Class Library (FCL), especially I learned use of .NET Framework classes in the namespaces that support parsing and writing XML, editing XML data in memory, data validation, and XSLT transformation. In this project we used .NET Framework namespaces like System.Xml, System.Xml.XPath, System.Xml.Xsl. I learned and also got my first work experience of C# programming language.
    - I learned and got work experience in use of recursion in programming while developing 'Rules Engine' to parse 'ARINC 424' ARINC standard specific information representing 'aircraft navigation data rules' containing XML documents. Since, XML documents have a hierarchical structure and can conceptually be interpreted as a tree structure, called an XML tree, we are able to use recursion for code simplification and effectiveness in terms of performance. XPath (XML Path Language) a query language is used for selecting nodes from a XML document.
    - Defect prevention, bug (defect/error) tracking and bug fixing activities.
    - Software testing of assigned modules
    - Technical documentation.
- **Client:** IDS Ingegneria Dei Sistemi S.p.A., Pisa, Italy.

- **Team size:** 3
- **Environment:** C# programming language, .NET Framework, Object-oriented programming (OOP), Multithreading, Microsoft Visual Studio IDE, Extensible Markup Language (XML), XPath (XML Path Language), Altova XMLSpy XML editor and IDE, Windows Forms (WinForms), Altova MapForce graphical data mapping application software, Oracle as relational database management system (RDBMS), .NET Framework classes in namespace System.Xml and its associated sub-namespaces to work with XML documents and data.

- **Project II: Altova MapForce XML Data Mapping R&D Work**
  - Altova MapForce is a graphical data mapping and transformation computer program. MapForce lets you map between XML, database, EDI, XBRL, flat file, Excel, JSON, and Web services and then transform data instantly. To do data mapping in Altova MapForce, we open information sources and targets, drop in data processing functions from the customizable libraries, and drag connecting lines between elements you wish to associate. The output of Altova MapForce data mapping between two XML documents (files) is a XSLT (Extensible Stylesheet Language Transformations) file. It was a R&D project work, in which we are required to open legacy but important Altova MapForce 2005 XML data mapping design files (*.mfd) in a higher version of this software i.e. Altova MapForce 2007, which was not possible normally because both versions of software were incompatible with each other. Since, no normal solution existed for this problem, it was a challenge and required a R&D work. MapForce saves data mappings as files with .mfd extension. Solution was devised to do Reverse Engineering of Altova MapForce 2005 and Altova MapForce 2007 mapping design files (*.mfd). As we know Reverse Engineering, also called back engineering, is the process by which a man-made object is deconstructed to reveal its designs, architecture, or to extract knowledge from the object. In this project we had done very careful Reverse Engineering of Altova MapForce 2005 and Altova MapForce 2007 mapping design files (.mfd) to reveal knowledge about differences between them. This is done by opening each Altova software version mapping design file (.mfd) in Altova XMLSpy XML editor and IDE as a XML document / file . After carefully understanding both software versions mapping design files (*.mfd) differences; we created a XSLT (Extensible Stylesheet Language Transformations) file that transforms mapping design file (*.mfd) of Altova MapForce 2005 as a XML document into mapping design files (*.mfd) of Altova MapForce 2007 as a another XML document. After this procedure, we are able to open our legacy and important Altova MapForce 2005 XML data mapping design files (*.mfd) in a higer version of this software i.e. in Altova MapForce 2007. This project had saved huge amount of efforts, time and cost of the client which was not possible otherwise by conventional means.
  - **My Learnings:**
    - Key technical skills that are involved in concept, design and development of this project are:
      - In this project I got a good knowledge and work experience on Extensible Markup Language (XML), XPath (XML Path Language), Altova XMLSpy XML editor and IDE, Altova MapForce graphical data mapping application software and especially in XSLT (Extensible Stylesheet Language Transformations) computer language.
      - As stated earlier, Computer Science R&D and innovation is my love, objective and profession. This project gave me a chance of a professional work experience in worthful Computer Science R&D and innovation work.

- Personal development / soft / professional skills / general responsibilities:
  - From this project I learned the importance of initiative taking especially in Computer Science R&D and innovation. When this problem is given to me by project manager, there existed no normal solutions to this problem in computer science study. I was single-handedly responsible for this project. Still my natural bend towards academics/theory, computer science R&D and innovation helped me to take the initiative for this project and complete is successfully.
- **Client:** IDS Ingegneria Dei Sistemi S.p.A., Pisa, Italy.
- **Team size:** 2
- **Environment:** Extensible Markup Language (XML), XPath (XML Path Language), Altova XMLSpy XML editor and IDE, Windows Forms (WinForms), Altova MapForce graphical data mapping application software.

Academic Experience

- **Technical Articles**
  - **Design Patterns nuff said!**
    - This articles tries to tackle most important problem in learning and using software design pattern correctly. The problem is that the developers often intentionally structure their code according to a software design pattern, as opposed to letting the software design patterns emerge organically. This article aims to find a solution to this problem and helps developers in using software design patterns correctly. Article is rated 4.85 / 5 on Code Project website. Code Project website is a community for computer programmers with articles on different topics and programming languages.
  - **Recursion made simple**
    - Recursive solution plays an important role in algorithm design when the problem in hand is inherently recursive in nature. If the solution implementation technology supports recursion then the gain in algorithm performance and solution simplicity is much higher in comparison to approaching the same problem with a conventional iteration based approach. Though, thinking recursively requires lateral thinking and usually needs investment of efforts and time in comparison to using iteration based approach. Hence, usually a recursive approach is kept aside in lieu of using iteration approach, though its advantage in applicable area is incomparable. So, this article aims to simplify the complexity of recursive implementations by devising a generic pattern for all inherently recursive problems. Using this article devised generic pattern, we can convert any problem which is inherently recursive in nature into its recursive algorithm or solution. Thus, this article aims to shift recursive solution designing from being an art to a method of science. Article is rated 4.60 / 5 on Code Project website.
- **Academic projects**
  - **Mouseguard©**
    - This is a innovative computer security software that was conceptualized, designed and developed by me. For its innovation and promising use in computer security field it won all India first prize named 'SHRISTI 2003 Award' from IIT Roorkee, Roorkee on 12 April, 2003. I was given this award for inventing a new technique of passwords entry in Windows XP named 'Mouse Passwords' and inventing a new dynamic encryption algorithm named 'Himanshu's Encryption Algorithm'. Software implementation was done in C programming language. Innovative computer security techniques used in this software provide high level security for secured messages

like military information. This work was done in my B.Tech. 3rd yr. My this work is copyrighted to protect its intellectual property rights.

- **Bomber**
  - A two player shooting game written in GW-BASIC programming language. My this software is exhibited in school computer exhibition on its Annual Day function.
- **Create**
  - Simple raster graphics editor for digital drawing. It used a moveable point, lines and arrow keys to draw. It was written in GW-BASIC programming language.
- **Text Plus**
  - A software that helps in making beautiful fonts in character based DOS mode. It was written in GW-BASIC programming language.

- **Education**
  - **B.Tech.**
    - I have Bachelor of Technology (B.Tech.) undergraduate academic degree in Computer Science & Engineering (CSE) branch from Marathwada Institute of Technology (MIT), Bulandshahr (U.P.) passing with first class having 73% in final year. Aggregate of all semesters is 68%. Year of passing is 2004. University is Uttar Pradesh Technical University (UPTU), Lucknow (U.P.).
  - **Class XII**
    - Passed in first class with 66% from Puranchandra Vidyaniketan, Kanpur (U.P.) in 1998.
  - **Class X**
    - Passed in first class, 79% from Puranchandra Vidyaniketan, Kanpur (U.P.) in 1996.