Achievements Curriculum Vitae
Khalid Sherdil (PAS)
(21 April'1970-22nd May'2020)

EDUCATION

All But Dissertation (ABD), PhD Program in Computer Science
Univ. of Western Ontario, London, Ontario, Canada
Department of Computer Science, Middlesex College   Cum. Grade 98.0%

M.Sc. in Computer Science (Feb. 1995)
McGill University, Montreal, Quebec, Canada
School of Computer Science   Honors, G.P.A. 3.64

B.S. in Electrical Engineering (May 1993) and B.S. in Computer Sciences (May 1993) Dual Degree Program for
Computer Engineering
Washington University in St. Louis, Missouri, USA
Sever Institute of Technology   Distinction, G.P.A. 3.63

B.A. in Physics (May 1991)
The College of Wooster, Ohio, USA Deans List, G.P.A 3.84

A' Levels & O' Levels (Dec '87 and Dec '85)
Cambridge University Syndicate, UK
Aitchison College, Lahore   1st Division

LANGUAGES

English, Urdu & Punjabi

EMPLOYMENT (PhD Research Work)

Software Engineer, Royal Bank of Scotland – Sempra Commodities, Stamford, CT (Jan. 2008 – Aug. 2009)
As part of PhD research, worked in a team of 5 persons to develop a real-time Energy Trading Risk Management System, which uses live data from Intercontinental Exchange (ICE) and Reuters. Application calculated Greeks (Cross Gammas, Thetas, etc.) and forward price curves for over 2500 markets/products. Project required hands-on expertise on GigaSpaces (distributed grid & caching), Tibco EMS, Hibernate & JPA, Seam with JSF/Facelets, AJAX, J2EE, EJB3, VBA/Macros, C#.Net, Spring, Java NIO, SSL.

Senior Associate, Sapient, New York, NY (Jul. 2006 – Jan. 2008)
As part of PhD research, worked for Sapient on I.T. consultancy projects with different clients. Successfully completed following projects:

Citadel, Chicago, IL (Jul. 2007 – Jan. 2008)

Developed a mortgage application processing system which incorporated Service Oriented Architecture (SOA) to integrate Java based web front-end with a .NET application. Front-end utilized JBoss Seam, JSF and Ajax4jsf. J2EE based middle-tier used Hibernate and SQL-Server for persistence whereas Web Services were deployed for connectivity with .NET application. System was developed on Rational Application Developer, and hosted on JBoss Application Server running on Linux. Rational Rose and ClearCase were used for design and repository. The SOA architecture provided extensibility to include ESB and UDDI.

Tullett Prebon, Wall St., New York, NY (Feb. – Jun. 2007)
Worked on TradeBlade, the fully electronic inter-dealer trading system, to reduce the latency in trades-processing from 600 ms to 100 ms (on average). Solution included developing a simulator for algorithmic and broker-based trading involving multiple products (Treasury, Repo, etc.) and numerous instruments (such as 2 or 5 year fixed income). Runs involved 30 concurrent users from different companies executing Bids/Offers/Trades of varying probability distributions. Project involved core multi-threaded Java, Swing based GUI, and Service Data Objects (SDO), besides an exhaustive documentation of JUnit tests for verification of trading rules. Environment included IntelliJ IDEA with BEA WebLogic Application Server.

Louis Dreyfus Energy Systems, Wilton, CT (Jul. 2006 – Jan. 2007)
Developed an Energy Trading Risk Management (E-TRM) system which displayed Risk Positions in a Pivot-Grid, giving traders different options for Basis/Index risk analysis. Front-end was developed in C# on .NET, using the Pivot Grid component from DevExpress. It integrated with the IBM AS400 backend through a Web Services middle-tier, implemented in Java/J2EE. The Service Oriented Architecture (SOA) approach used IBM WebSphere Application Server with IBM DB2 connectivity. Application design was implemented in UML using Rational Software Architect (RSA/Rose). The application has successfully replaced the risk management system earlier used by traders.

Doctoral Research Fellow, Sun Microsystems, Santa Clara, CA (Aug. 2004 – Feb. 2006 part-time)
Worked with Sun's Santa Clara and Toronto offices on Outage Risk EvaluatiOn (OREO) project, to predict escalation of defects in various products (e.g., Solaris) using Artificial Intelligence techniques. Work involved using Service Oriented Architecture (SOA) to find ways of distributing the prediction results to Sun's clients at Customer Networked Services (CNS) business unit.

EMPLOYMENT (Public Sector)

Secretary, Industries, Commerce & Trade Punjab, and Secretary Labor & Manpower, Balochistan Government of Punjab, Lahore, Pakistan, (June. '16 – Dec. '16) Government of Balochistan, Quetta, Pakistan, (Mar. '13 – Jun. '13)
Acted as Secretary for B-TEVTA (Balochistan Technical Education and Vocational Training Authority), and headed the Technical Training Directorate of province, overseeing 25 Technical Training Institutes, some in collaboration with GTZ/GIZ (Germany) and NAVTTC (National Vocational and Technical Training Council). Acted as Member of Board of Directors of the EOBI (Employees Old-Age Benefit Institute), overseeing investments worth Rs. 263 billion. Also acted as Member of Governing Body of the Workers Welfare Fund (WWF), and Chairman of Workers Welfare Board (WWB) Balochistan, overseeing a fund of over Rs 100 billion. As administrative head of the BESSI (Balochistan Employees Social Security Institute), supervised the working of the Commissioner BESSI for providing Social Security to entire Labor work force of the province. Also headed the Directorate of Labor and Registrar of Trade Unions, handling critical labor and miners strikes in interior Balochistan.

Director General, Information Technology, Balochistan, Project Director, Safe City Project, Quetta/Gwadar (Nov. '13 – May '16)
As head of the technical wing of the province, led the implementation of projects worth over Rs 3 billion including the Counter-Terrorism Project of Quetta Safe City (Security & Video Surveillance), Quetta Secretariat Red Zone security, Gwadar Safe City, and Land Revenue MIS. Implemented Balochistan Intranet, and Video Conferencing amongst 32 districts.

Director General, Provincial Disaster Management Authority, Punjab, Project Director, Model Villages Project Government of Punjab, Lahore, Pakistan, (Sep. '10 – Mar. '12)
As Head of Disaster Management, handled 13 disasters including the worst ever 2010 Floods of Pakistan and disbursed compensation worth $550 million in form of debit cards. Also covered the Turkey Earthquake 2011, Sindh Floods 2011, Balochistan Floods 2012, Dengue Epidemic 2011, Sialkot Tornado 2011, etc. As PD of $20 million Model Villages Project, constructed from scratch 22 villages in flood areas. http://pdma.punjab.gov.pk , http://modelvillages.punjab.gov.pk , http://www.artspak.com/dengue.php

Additional Director, Chief Secretary Office (Provincial Information Analysis Unit), Punjab Implementation & Coordination (I&C) Department, Govt. of Punjab (Nov. '09 - Sep. '10)
Developed province wise Key Performance Indicators (KPI) and Process Flow Charts for each department of the government. Developed software based dashboard for monitoring the KPIs for selected departments. Assisted the Chief Secretary in utilizing the information obtained from the 36 districts towards policy planning, such as in post 18th Amendment restructuring, Counter Terrorism, Business Process Re-engineering, etc.

Deputy Secretary, Information Technology Dept. and Chief of Section for I.T., Planning & Development Dept.Governments of Punjab, Lahore, Pakistan, (Jul.'01– Jun. '03)
Promoted E-Governance in public sector, so as to improve internal efficiency and enhance services delivery. Implementing IT projects worth $10 million, related to departments such as Environment, Law & Justice, Education, Finance, Finance, Agriculture, Food, Taxation, etc. Dealt with Foreign Donor Agencies for grants for mega-projects.

Deputy Secretary, Agriculture Dept. Government of Punjab, Lahore, Pakistan, (Jun-Dec '03)
Coordinated with Agricultural Field Formations of Extension, On-Farm Water Management, Tube-Wells, Machinery, Research, Seeds, Fertilizers, Pesticides, Pest-Warning, Economics and Marketing, etc., in Pakistan's largest province Punjab, which houses over 20 million farmers. Worked on mega projects with the World Bank and Asian Development Bank for development in agriculture sector. Helped manage the departmental staff of 43,000 in 34 districts of the province.

Assistant Commissioner, City Government Murree and Administrator, Municipal Committee Murree Government of Punjab, Pakistan, (Jul. '00 – Jul. '01)
Handled management of complex issues such as clearance of land-slides and snow, mountain traffic management, building construction control, wild life protection, forests conservation, tourism promotion, water supply, international protocol, etc. Resources include a budget of Rs. 60 million with a staff of 475 persons, spread over 15 union councils. Recent projects include installation of a wireless communication system, development of a modern recreational park, formation of a Cyber Café and Floral Shop, 24 hours

guaranteed water supply through water browsers, construction of Cricket Ground & Summer Sports Resort, Murree cultural festival and handicrafts exhibition, etc. Also directly supervised 13 middle schools, 2 industrial training centers and 6 dispensaries.

Assistant Commissioner, Lahore Cantonment, Government of Punjab, Lahore, Pakistan, (May '98 – Jul. '00)
Government's prime official for an urban area with a population of over 2.5 million. Duties involved supervision in operation, and implementation of development works in the sectors of Education, Health, Police, Civil Defence, Local Councils, Water Supply/Drainage/ Sewerage, Traffic, Urban Affairs, etc.

Positions/Membership

Managing Director, Pakistan Administrative Service Alumni Research Center (PASARC) www. Pasarc.org www.PASA.org.pk www.CivilService.org.pk
The research center formed by the officers of the Pakistan Administrative Service. It has conducted projects for DFID and USAID, such as the implementation of the Shiekhupura Hospitals MIS

Director, Shahid Javed Burki Institute of Public Policy at Netsol (BIPP) www.sjbipp.org
Institute conducts research and has published the annual State of the Economy Reports for past 11 years

Founder, Lahore Center for Peace Research www.LCPR.pk
The institute works towards peace in the region through diplomacy, conflict resolution and seminars

Fellow, "LEAD: Leadership in Environment & Development" An independent NGO formed by the Rockefeller Foundation LEAD International, London, UK (April '04). Chosen in the 10th Cohort of 200 Fellows from 80 countries in 12 regions of world, for one of the most active Networks of individuals and NGOs committed to Environment & Sustainable Development. Program comprises a two year part-time field/academic training spread over five countries followed by a life-long association of all LEADERS to initiate projects on various emerging issues challenging the Earth.

HONORS AND AWARDS

- Eta Kappa Nu, Electrical Engineering National Honor Society
- Tau Beta Pi, Engineers' National Honor Society, USA
- Golden Key, National Scholastic & Achievement Honor Society Eliot Honors Convocation Award, Washington Univ. (May 1993) Academic Achievement Award, Coll. of Wooster (1988 - 1990)
- Full Doctoral Scholarship, Univ. of Western Ontario (2004-07)
- Ministry of Science & Technology Graduate Scholarship, McGill Univ. (1993-95)
- CSS Examination, 3rd in Pakistan, topped in Physics, International Relations, Statistics (1995-96)
- Best Teaching Assistant Award, 2006 (Award of $500 given by the Dean of Faculty of Science)

BOOKS

- **"Dengue Prevention & Control:** The Lahore Model of Success," Khalid Sherdil, Faran Naru, Ahmad Rajwana Amazon Create Space publishers, Seattle, WA, USA- Primary author of the

research book describing empirical scientific study with GIS analysis of how Punjab Government controlled its worst ever epidemic, Dengue. Book available online through Amazon (in North America/Europe) and Pakistan at http://www.artspak.com/dengue.php

- **"The Indus Valley:** History, Heritage, Haecceity," Khalid Sherdil Currently under publication
  A 225-page photographic book depicting the history and rural life of Indus basin ranging from Kalabagh to Rajanpur. It depicts a pictorial overview of the Indus Valley culture along with maps of 40 empires which ruled it.

PUBLICATIONS

- Baja Line (Garhi-Shahu) Gas Leakage Crisis by Khalid Sherdil, Dr. Iftikhar Ahmed (National Institute of Public Administration) with a Team of 22 researchers July-Dec. 2000, Vol. 37, No. 2

- Pakistan Administration: A Journal of the Pakistan Administrative Staff College, Lahore, Pakistan

- The Menace of Beggary: An Empirical Survey in Lahore by Khalid Sherdil, Dr. Pervaiz Ahmed (Government of Pakistan) with a Team of 26 surveyors Winter (Oct.-Dec.) 1998 Journal of Rural Development and Administration Pakistan Academy for Rural Development, Peshawar, Pakistan

- The Conservancy Triangle: Agriculture, Irrigation and Food by Khalid Sherdil, Dr. Maqsood Ahmed (Ph.D., Japan), with a Team of 3 Field Agriculture Officers Technical report for the LEAD International

- Paper for the 'LEAD Associate Project 'Presented at the 10th LEAD Convocation Conference

- Sustainable Agriculture and the Global Food Economy: Going against the Grain? 15 - 20 April 2004, Imperial College, Wye/Kent, UK

- The State of the Economy: Pakistan's New Political Paradigm – An Opportunity to make the most of CPEC. 11th Annual Report 2018 Contributing Author. Burki Institute of Public Policy http://www.sjbipp.org/publications/AR/reports/AR-11-18.pdf

- The State of the Economy: CPEC Review and Analysis. 10th Annual Report 2017 Contributing Author. Burki Institute of Public Policy http://www.sjbipp.org/publications/AR/reports/AR-10-17.pdf

- The State of the Economy: Technology and Development. 8th Annual Report 2015 Contributing Author. Burki Institute of Public Policy http://www.sjbipp.org/publications/AR/reports/AR-08-15.pdf

PUBLICATIONS (I.T)

- Differentiating Web Service Offerings, Halina Kaminski, Khalid Sherdil, Hanan Lutfiyya, Nazim Madhavji, Mark Perry

- International Conference on Information Society, iSociety-06, Miami, USA, Aug. 7-10, 2006

- ACCA: An Architecture-Centric Causal Analysis Method, Zhenyu Wang, Khalid Sherdil, Nazim Madhavji 5th Working IEEE/IFIP Conference on Software Architecture, WICSA-05, Pittsburgh, USA, Nov. 6-9, 2005

- Architectural Problems Analysis through Evolutionary Traceability Maps, Zhenyu Wang, Khalid Sherdil, Nazim Madhavji
- Presented at "Workshop: From Requirements to Architecture," IBM CASCON-04, Toronto, Canada, Oct. 4-7, 2004

- Human-Oriented Improvement in the Software Process, Khalid Sherdil, Dr. Nazim H. Madhavji 5th European Workshop on Software Process Technology, EWSPT-96, Nancy, France, October 9-11, 1996

- A Contingency Based CMM for Developing Countries, Dr. Syed Zahoor Hassan, Khalid Sherdil Pacific Asia Conference on Information Systems (PACIS-97), Brisbane, Queensland, Australia, April 2-5, 1997

- Position Paper: Personal 'Progress Functions' in the Software Process, Khalid Sherdil, Dr. Nazim H. Madhavji Proceedings of the 9th International Software Process Workshop, IEEE ISPW-9, Airlie, Virginia, USA, October 5-7, 1994

- Pakistan as a Median-Point for Central and South Asia: Issues and Challenges faced by Software Companies, Dr. Syed Zahoor Hassan, Khalid Sherdil, Omar Rashid Malik, 8th International Conference of the Information Resources Management Association, IRMA-8, Vancouver, British Columbia, Canada, May 18-21, 1997

- A Methodology for Conducting Case-Studies on Software Development Projects, Khalid Sherdil, Dr. Syed Zahoor Hassan 1st International Conference on Management and Business, ICMB-96, Lahore, Pakistan, June 3-5, 1996

- "Progress Functions" in the Software Process, Khalid Sherdil 1st International Conference on Management and Business, ICMB-96, Lahore, Pakistan, June 3-5, 1996

RESEARCH PROJECTS

- Doctoral Research, Dept. of Computer & Environmental Sciences, Univ. of Western Ontario, Canada (Jan. 2004).Designing a Cloud based architecture of a system involving Big Data for Early Warning in any 'Complex Adaptive System' using a Swarm Control System, modeled by a Multi-Agent System. A prototype is being developed in domain of Energy-Trade Risk Management (E-TRM), using Gigaspaces Cloudify running on HP's Cloud.

- Infra-Red Tympanic Thermometer, Dept. of Electrical Eng, Washington Univ. Sherwood Medical Co., USA (May - Dec., 1992) Successfully designed a prototype for an Ear Thermometer, which could accurately read human body temperature within one second. Project used Thermopiles, Black Bodies, Amplification Circuits, Automated Computer Data Collection, etc.

- Handwritten Character Recognition, Washington Univ. Kumon Machine Project, Japan (Aug. 1992 - May 1993)
- Work involved designing algorithms and programming in C++ language to implement a software package which could recognize human handwriting (numerals), written using Pen as User Interface.

- Weather Satellite Image Reception Antenna and Memory Reduction, Dept. of Electrical Eng, Washington Univ. (1992) Designed an Antenna to receive and capture weather images transmitted from a Satellite, and coded a compressor to reduce their size

- Progress Functions in Software Process, School of Computer Science, McGill Univ. Research Project with Software Engineering Institute, SEI, Carnegie Mellon Univ., USA Research Assistant (Sept. `93 - Jan `95)
- Worked in collaboration with Dr. Watts Humphrey (author of CMM), on Personal Software Process (PSP). Masters Thesis (Honors) research involved experiments related to Social Relations, including a study of 12 computer programmer subjects for one semester. Progress of subjects in Productivity, Quality and other factors was studied. Detailed experimental design, validation, statistical data analysis, etc., led to two publications in International Conferences.

- Evaluation Models for Software Industry, Lahore Univ. of Management Sciences Canadian International Development Agency (CIDA) Canada (Oct. 1995 - Nov. 1996)
- Studied Capability Maturity Levels (CMM) of local Software Firms, in a Scientific empirical study. Conducted research on Maturity Levels of Pakistan's Software Firms. Scientific study involved empirical and theoretical methods, leading to publication of three papers in International Conferences. Problems faced by Software Industry in other developing countries of the region were also compared.

E-GOVERNMENT PROJECTS

- Land Revenue Records LRMIS (1998-2004)
- Initiated the project for the computerization of Land Revenue Records and developed the first complete version of software with the private vendor AOS (Accountancy Outsourcing Systems), which is now used in the 85 Centers for conducting Mutations and providing Fards to the public.

- Traffic Challans Management System, District Lahore (1998-99)
- Project involved setting up an automated run-time system for 14 traffic courts, which try over 1200 traffic cases per day, at different locations of Lahore city. 19 Computer Operators were hired to enter the data. The project is being extended to use a WAN to share data with the Transport Department, Road Transport Authority, Police, Driving Licence Issuing Authority, Excise and Registration Department, Motor Vehicle Examination Authority, Environment Dept., Customs, etc. to comprehensively cover all aspects of Traffic offences.

- Water Billing System, Municipal Committee, Murree (2000-01)
- Automation of utility-water bills for over 200,000 consumers of district Murree. Software included data analysis features to calculate water loss. Developed in Oracle Developer 2000, system is in successful use for past 8 years.

- GIS & Satellite Imagery, Murree (2000-01)
- Project involved purchase of Satellite Imagery of 116 km2 of Murree District from American Ikonos Satellite, Digitization of British Maps of Murree, and their geo-referencing on the satellite imagery using sensitive Global Positioning System (GPS) equipment. Satellite Infrared shot of Deforestation of the region was also procured. Project aims at linking the Land Slide studies, Forest Encroachments & Tree Thefts, Hazard Maps, Land & Property Records, Health/Educational Institutions, etc.

- Fiber Optic Networking & MIS for Govt. Depts. (2001-2)
- Designed and implemented the Multi-Dimensional project, involving laying of Fiber Optic LAN with Cisco Switches in various departments of Punjab Civil Secretariat, formation of a 20 machine Computer Training Lab, design of syllabus, initiation of courses for senior government officers, and development of software for automation of Employees Performance Records, Government Residential Property Records, Transport Pool, etc.

TEACHING

- Course Instructor (Appointed), McGill Univ. (Winter '95) Software Engineering Course, CS334, Offer not availed

- Teaching Assistant (Computer Science) University of Western Ontario, Canada (2004 -) Lahore University of Management Sciences, (1995-96) McGill University, Montreal, Canada (1993-95)

- Teaching Assistant (Physics) College of Wooster (1988- 90)

CONFERENCES

- United Nations, Cancun, Mexico: Conference of the Parties (COP-16) of the "UN Framework Convention on Climate Change (UNFCCC)," Nov. 29- Dec. 10, 2010 Represented Pakistan at G-77 and COP-16 negotiations

- Harvard Kennedy School, Lee Kuan Yew School of Public Policy, NUS, Singapore: Conference by ASH Center for Democratic Governance, "Disaster Management in Asia," May 13 - 15, 2012 Gave a presentation on the 2010 Super Floods of Pakistan, and the construction of 22 Model Villages

- University of Beijing, China: "Climate Change & Energy: Impacts, Innovation and Interdependence," Nov. 7-14, 2009. A pre-Copenhagen session to chalk out strategy for NGOs on forthcoming UN Climate change conference

- Harvard University, Cambridge, USA: The 2nd Int. Harvard Conference on "Internet & Society," May 26-29, 1998

- Univ. of Guadalajara, Mexico,: "Crossing Water Thresholds: Future Challenges of Managing a Threatened Global Resource," 30th April – 10th May, 2003

- Asian Institute of Technology, Bangkok, Thailand: "Mega-cities and Rural Community Development", Sep. 14-21, 2003

- Imperial College, London (Wye/Kent Campus), UK: "Sustainable Agriculture and the Global Food Economy: Going against the Grain?" April 15-20, 2004

- Lahore University of Management Sciences, Pakistan: 1st International Conference on Management and Business, June 3-5, 1996

- LEAD Pakistan, Regional Conference: "Human Settlements: Nexus between Draught & Environment", Quetta, Balochistan July 13-17, 2003

VOLUNTEER WORK

- Rural Social Work, Jhodhu Dheer Village.A Project with Civil Services Academy, Pakistan, Apr. '98 Based on a year long Community Development and Rural Social Work Project, a team of 4 social workers made weekly visits to a remote village to identify and solve some of their problems through community participatory approach.

- PCOM Punjab Civil Officers Mess: Secretary, Aug. '02 – Dec. '03 Managed the day to day supervision of the largest Club of Pakistan's Civil Officers, reporting directly to the Provincial Chief Executive (Honorary President of Club). Responsibilities included arranging social events, formal government banquets, musical functions, fashion shows, plays, literary meetings, sport championships, etc., besides supervising the daily activities of sports, movies, catering, guest-house, etc. Managed a staff of 40 employees, a budget of $200,000, and infrastructure consisting of Tennis Courts, Guest Houses, Theater Halls, Play fields, etc.

CERTIFICATION COURSES

- LEAD International, Distance Learning Course "Effective Project Proposal Writing for Donor Agencies" Oct.-Nov. 2003

- Department of Communications Security, Cabinet Division, Govt. of Pakistan, Islamabad Cryptographer's Certification Course, March 24-28, 1998

EXTRA-CURRICULAR

- Lead Actor, Stage Drama, Neil Simon's "Bare Foot in the Park," Lahore Arts Council, '97
- Graduate Student Union Representative to Faculty Council, McGill Univ., `93-`94
- Secretary of Management Committee, Civil Services Academy, Lahore, Nov. '96 Feb. '97
- Editor-in-Chief, Ju Ambassadoro Magazine, Coll. of Wooster, `89-`90
- Editor-in-Chief, Aitchison Scientific Spring, `87 Columnist & Reporter, Weekly Wooster Voice, 88-90
- President, Pakistan Students Association, Washington Univ., `91-`93 Chairperson, International Students Association, Coll. of Wooster, `89-`90
- President, Physics Society, Aitchison Coll., `86-`87
- Captain, Chess, Civil Services Academy Chess Team, '97-'98 Manager, Mandarins Cricket Team, Civil Officers Club, '02-'03
- SPORTS
- Division A League Cricket: Montreal, Canada
- Daily Hobby Sports: Swimming, Tennis, Jogging
- Sports Travel: Witnessed three Cricket World Cup Finals: Lahore (1996), London (1999), West Indies 20-20 (2010)

TECHNICAL SKILLS

- **Languages:** Java, C, C++, C#, Pascal, Assembly, Ada, Prolog, LISP/Scheme, Visual Basic VBA, COBOL

    - **Java:** Worked on core Java technologies for 7 years, including multi-threaded applications, NIO, SSL (Secure Socket Layer), EJB, Swing GUIs, Hibernate persistence, JUnit, Log4J, JMS, JNDI, etc.
    - **J2EE & EJB:** Worked on JAX-WS for web services & JAX-B for XML processing, and with Enterprise Java Beans (EJB) for providing support to J2EE front-end technologies such as Java Server Faces (JSF)
    - **C# .Net:** Worked on two different projects (1.5 years) on C#. Integrated web services, DevExpress GUI tools, Excel DLL add-ins, etc.
    - **Excel/VBA:** VBA Visual Basic with Excel-Macros. XLOPER and DLL add-ins using C# .Net

- **Frameworks:** Spring, Seam, Hibernate, Struts, Seam, JSF, JSP, Facelets, RichFaces and Ajax4jsf.

- **Distributed Caching:** GIGASPACES XAP v6.0, on Openspaces standards

- **Cloud/Grid Computing:** Developed Spring based scalable Gigaspaces Processing Units (PUs) running on multiple CPUs in a Grid. Used the Cloudify private cloud for application hosting. Used HP's Cloud Platform As A Service (PaaS)

- **JVM:** Created two prototype Java Virtual Machines for a research project; one in Java (13,000 LOC project, individually) and one in C++ (16,000 LOC with 5 programmers)

- **Web Services & SOA:** Applied Service Oriented Architecture (SOA)using Sun's Web Services Developer Pack (WSDP). Fabricated Java applications into Web Services with WSDL over SOAP, and published them on IBM's UDDI Registry.

- **BPEL/Business Processes:** Hands-on experience on Business Process Execution Language (BPEL) using Oracle's SOA suite, IBM's Business Integration Server and Sun's NetBeans. Worked on invocation of web services from business processes

- **Software Design:** Model Driven Architecture (MDA/MDD), UML 2.0, using Rational Rose and Rational Software Architect (RSA)

- **Project Management:** MS-Project, JIRA and Source Forge. Requirements Engineering with Rational Requisite Pro.

- **Process Management:** Rational Unified Process (RUP) on RSA. Agile Processes (Sapient Approach S|A). Extreme Programming XP

- **Databases:** Oracle 10g, DB2, Informix, SyBase, MySQL, MS-SQL Server, FoxPro, MS-Access, WindowBase, etc.

- **Integrated Dev. Environments(IDE):** IBM Eclipse workbench on Rational Application Developer (RAD/RSA/WebSphere-Studio). Sun's NetBeans. Visual Studio .NET. Oracle JDeveloper and Oracle Developer 2000. IntelliJ IDEA.

- **Application Servers:** IBM WebSphere, JBoss, Sun ONE/Java Application Server, BEA WebLogic, Apache Tomcat

- **Operating Systems:** Unix, Linux, Solaris, MS-DOS, MS-Windows/NT, Apple O/S, X-Windows, NeXT, DEC VAX VMS, Novell

- **Web/Graphics Software:** MacroMedia Flash, Dream Weaver, Fireworks, MS-FrontPage, Net Fusion Objects, Adobe Photoshop, Print Master, Publisher, Corel Draw, Omni Page, MS-Visio
- Encryption/Security: Secure Socket Layer (SSL) using Java API. Course in Cryptography including PKI and RSA

- **Hardware:** Courses (with Labs) in Digital Computers' Design, Computer Architecture, Cisco CCNA, Motorola 68000 Microprocessor, Switching Theory, Semi-Conductors, VLSI, etc.

- **GIS:** Supervised projects using GPS (Global Positioning System), Geo-referencing, Surveying by Theodolite/Total-Stations (Sokia), RFID, ArcInfo, ArcView, Map Maker, AutoCAD-Map

- **Engineering Software:** LabView, Mathematica, VLSI-Magic, SPICE, Maple, Auto-CAD, etc.

- **Math/Statistics Courses:** Operations Research, Advanced Engineering Math, Analytical Geometry, Numerical Analysis & Quantitative Methods, Advanced/Applied Statistics, Advanced Multivariate Calculus, Differential Equations, Linear Algebra