

## Ronald Dale Schatte

(View my Premier [MyModelPlan](#) Application)

### Personal Data

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Websites:

<http://www.linkedin.com>

<http://www.texas4000.org>

<http://ron-schatte.com>

<http://mymodelplan.com>

### Education - College

Southern Illinois University (SIU)  
Carbondale, Illinois  
B.S. major Mathematics, minor Geography  
Graduate Teaching Assistantship at SIU

### Education - Technical

See Technical Education summary

### Recognition's

Twice elected SMTS - Senior Member, Technical Staff of Texas Instruments Inc.

### Career Objective

Desire contract work in software engineering development or implementation of Client/Server Applications. Interested in projects using object technologies as standalone and/or web applications with access to relational databases on both Windows/NT and Linux/UNIX.

I help develop and support a major Cancer Charity website for <http://www.texas4000.org>. Also, I support software components for NOAA's <http://www.weather.gov/iscs> system.

Also, I developed my personal MyModelPlan MySql Application with JSP, ASP, ASP.NET, PHP, and now RoR and cakePHP.

Ideally, I am interested in RubyOnRails (RoR) projects since re-engineering of RoR sites is one of my specialties now. I know how to solve RoR performance issues in production. Also, I know how to easily convert RoR sites to the alternative cakePHP 1.2 framework technology. However, I am also interested in other projects in JAVA, C, and C++ on Linux.

I have gone full circle with all the Web technologies. I can demonstrate the MyModelPlan Application on the various environments.

I work best from my Home Office Lab (**Houston, Texas**) where I would need to spend 90% of the time but with some onsite visits to gather and refine requirements and weekly Yahoo IM sessions.

I have worked totally from here for my work for Verizon Business (Windows VPN and Linux SSH) and TEXAS4000 (GoToMyPC) the last 4 years. Verizon people and systems are all over the world. The TEXAS4000 people are in Austin and now the deployed system is in St. Louis.

## **Experience Summary**

Open Systems technologies on Windows/NT or Linux/UNIX. Have many years of experience in complete life cycle software development using various languages (ALC, C, Java, etc). Have proficiency in Dynamic HTML Web Application development with the following:

- Client side technologies of HTML, XHTML, and JavaScript.
- Server side technologies of ASP, ASP.NET, PHP, JSP, and RubyonRails.
- Development/Deployment on Apache PHP Web Server, Apache Tomcat Web Server (or any J2EE server) and Microsoft IIS 5.1.
- Have experience in SOAP and Web Services with Apache/Axis integration into JSP application.

Total of 35+ years of full time onsite experience in software development and implementation of System Infrastructure and Applications running on both Legacy Mainframes and Open Systems Server platforms.

- 18+ years experience as an Infrastructure and Application Programmer using Assembler, C, C++, Smalltalk, Java, and various other languages on the NT and many UNIX platforms.
- Have extensive experience in the Business-to-Business (B2B) software area using EDI formats over various communications protocols.
- Have extensive experience in Relational Database Applications accessing the RDMS using static and dynamic SQL.
- Have extensive experience in communications protocols and TCP/IP layers.
- Have extensive experience in application/system performance measurement and tuning including integration and regression testing.
- Have 2 years experience in pure Object Oriented technology environment using the SmallTalk language. Worked with VisualWorks for GUI and GemStone for OODBMS.
- Major contributor to massive re-engineering projects using Computer Aided Software Engineering (CASE) software. Involved with projects through the complete application life cycle.
- Helped develop the CASE software called Information Engineering Facility (Composer 3) used to build client/server applications on Legacy/Open Systems (MVS/UNIX, DB2, ORACLE, INFORMIX).
- 19 years as IBM Systems Programmer using Assembler Language Coding (ALC) on various IBM mainframes.
- Worked on IBM Beta Legacy subsystems at several large IBM accounts, expert in JES/BDT systems.
- Was the Architect/Major developer of software that became the IBM MVS/BDT subsystem.
- Have extensive experience in IMS/DB2 environments.

## Development experience

Architect/major developer of software products with my innovations for:

- Verizon Business (last 3 years) - Support of production Socket and Tar processes (C code) for the <http://www.weather.gov/iscs> system. Developed and support customer production reports using Linux scripts and C programs in support of NOAA/ISCS system.
- Texas4000 (last 3 years) - Development and support for production of Ruby on Rails code for the <http://www.texas4000.org> website. Developed CACHING enhancement in summer of 2006 which prevented shutdown of website on the Bluehost hosting company. In 2007, developed code changes for conversion to RAILS 2.02 after Bluehost total shutdown of the website. Then developed code changes and moved site to SC server running on Windows Server 2003 R2. Recently made changes with GUI upgrades to the site. Added much new functionality for Contacts for the various activities. Developed and implemented all of the RoR code upgrades.
- Investwell's Miner software - The MINER (VB.NET) program provides the Appraisal District Data Mining capability. This software gathers (or mines) real property appraisal information from various county databases and produces a Tab Separated Output file suitable for import to the MS Excel program.
- Xtria's Encompass System - Developed the Single Sign-On (SSO) capability for the Encompass Product for X Client Applications. Implemented the Encompass SSO capability with X session Record/Play (XRP) software. The Encompass System was a superset of the Tarantella Enterprise 3 Product which is a Java based system for Internet Browser access to corporate applications.
- Peregrine's ASP System - Developed API scripts and UNIX shell scripts for Peregrine's Atlanta Application Service Provider (ASP) system using Trusted Link Enterprise (TLE) EDI System.
- Harbinger's Trusted Link Enterprise (TLE) EDI System - Developed (contract) a new FTP server component of TLE System contained in the TLE 4.3 Product. Developed/ported the TLE 4.1 and 4.2 UNIX and NT Communications Gateway Products.
- TI's Semiconductor Factory WORKS and DSMS Applications (CIM) - Developed program models used to isolate performance problems in both GemStone OODBMS and SUN Solaris. Created Transaction Statistics collection methods (coded in C for efficiency) as VisualWorks and GemStone SmallTalk Primitives.
- TI's PEER1 Express Buy Procurement Application using TI's Composer 3 product - Developed Server Diagram Tracing Extension to standard Composer 3 Client/Server Product. Developed Catalog item image display feature in Windows client application and Background Processing server application (Composer 3 Model).
- TI's UNIX Electronic Data Interchange (EDI) System - Developed Communications Gateway Architecture and Communications Gateway Daemon.
- TI's UNIX IEFAE Runtime and Transaction Processor - Architect/Major Developer of IEF Application Execution Facility (AEF or IEFAE) software including AEF Async Daemon (AEFAD) product which is now the Transaction Enabler (TE) product. This included software components required to run ORACLE and INFORMIX UNIX applications.
- MITEK's MVS-UNIX Communications Connectivity Products - SNA 3270 and SNA 3270 API, SNA-TCP mapper, FTP and TELNET on MVS/TSO, etc.
- ARAMCO's Reservoir Modeling and Seismic Processing Applications - Developed copy software for 1-inch seismic field tapes and technical design to run large reservoir models on MVS.

- TI's Legacy System Bulk Data Transfer (BDT) Subsystem - Architect/initial developer of BDT/370.
- TI's Legacy System Job Entry (JES) Subsystem - NJE, SO, and Output Service Performance enhancements.
- OMNIS's Online Platform Extension System (OPLEX-I) - Architect/Major Developer of OPLEX-I.
- TI's and LTV'S Remote Job Entry (RJE) subsystems - Multi-leaving RJE for STR and BSC communications.
- McDonnell's Remote Job Entry (RJE) subsystems - First programmable RJE on S/360 Model 20.

## Experience History Summary

Present - January 2006

Texas 4000 For Cancer  
 901 S. Mopac Expressway  
 Barton Oaks Plaza One, Suite 300  
 Austin, TX 78746  
 (512) 329-1908

Independent Contributor

- Development and Support for production of RubyOnRails code for the <http://www.texas4000.org> website. Developed CACHING enhancement in Summer of 2006 which prevented shutdown of website on the Bluehost hosting company. Recently developed code changes for conversion to RAILS 2.02 after Bluehost total shutdown of the website. Then developed code changes and moved site to SC server running on Windows Server 2003 R2. This work has been completely a donation of my services for the charity cause.

Present - August 2005

Verizon - MCI  
 1901 10th Street  
 Plano, TX 75074  
 Main phone 972.578.7160

Independent Contractor

- Support production Socket and Tar processes (C code) for the <http://www.weather.gov/iscs> system. Developed customer production reports in Linux scripts and C programs in support of NOAA/ISCS system. However, now the number of hours is less than 10 hours per month. Additional work is in doubt and waiting on NOAA approvals.

March 2005 - April 2005

Investwell  
 1702 N. Collins Blvd. Suite 100  
 Richardson, TX 75080  
 Main phone 972.889.7323

Independent Contractor

- Developed the MINER (VB.NET) program which provides Tax Appraisal District Data Mining capability. This software gathers (or mines) real property appraisal information from various county databases and produces a Tab Separated Output file suitable for import to the MS Excel program. The MINER software automates the web page interface for each county using a County Dialog/HTML mined field definition file created in XML format.

August 2003 - June 2003

Xtria  
1301 Lookout Drive, Suite 1000  
Richardson, TX 75082  
tel: 972.792.6300

Independent Contractor

- Developed the Single Sign-On (SSO) capability for X Client Applications for Xtria's Encompass Product. Implemented the Encompass SSO capability with X session Record/Play (XRP) software. This program binary runs between the Encompass Tarantella X Protocol Engine (TTAXPE) binary and the X Client Application binary. Developed Encompass Expect scripts to launch and manage XRP as independent process on the Encompass Linux system.

June 2001 - March 2001

Peregrine Systems (now Inovis)  
2425 North Central Expressway  
Suite 900  
Richardson, TX 75080  
Main 972.643.3000  
Fax 972.479.9779

Independent Contractor

- Developed API scripts and UNIX shell scripts for Peregrine's Atlanta ASP system using Trusted Link Enterprise (TLE) EDI System running on SUN Servers.

October 1999 - August 1999

Harbinger  
2425 North Central Expressway  
Suite 900  
Richardson, Texas

Independent Contractor, TLE Communications System

- Developed and ported a new FTP server component of Harbinger's Trusted Link Enterprise (TLE) System contained in the TLE 4.3 Product. This included the development a common source base for all UNIX (AIX, HP-UX, and Solaris) and NT platforms. This TLE FTP server allows standard FTP clients anywhere on Internet to access TLE mailboxes.

April 1999 - January 1997

Harbinger  
2425 North Central Expressway  
Suite 900  
Richardson, Texas

Lead, TLE Communications System

- Developed and ported major components of Harbinger's Trusted Link Enterprise (TLE) System contained in the TLE release 4.1 and 4.2 Product. This included the development a common source base for all UNIX (AIX, HP-UX, and Solaris) and NT platforms. Protocols included Async, Bisync, SNA, MQSeries, TCP/IP, and custom interfaces.

January 1997 - December 1987

Texas Instruments  
Center I  
Dallas, Texas

Senior Member, Technical Staff

Semiconductor Group & International - Open Systems Infrastructure Operations & Support - Jan 97 - Jan 95

- Performance Analysis of TI's Semiconductor Factory WORKS and DSMS (CIM) client-server applications implemented in VisualWorks SmallTalk (GUI) and GemStone Database (OODMS) and being deployed on SUN servers in SC TI semiconductor plants (FABs) worldwide.
- During System Integration Test (SIT) testing, identified major concurrency problem in GemStone OODBMS system that limited scalability of Distributed Reporting 2.0 (DR) Application.
- Created Transaction Statistics collection methods implemented as SmallTalk User Primitives for both Gemstone and VisualWorks SmallTalk. Allows measurement of applications performance.
- Developed C program models of WORKS and DR applications used to isolate performance problems in both GemStone OODBMS and SUN Solaris.
- Identified GemStone OODBMS problem which prevented Distributed Reporting 3.0 (DR) and new WORKS version application deployment. Identified and isolated SUN NPI FDDI problem. Also identified and isolated SUN Solaris Memory Management Performance problem with large virtual memory address spaces.
- Created Performance Measurement and Analysis ToolKit (PMAT) for management of SUN server system resources. Collect, process, chart, and create WEB pages of performance data from System Integration Tests (SIT) and selected factory (FAB) production.

Enterprise System Division - Procurement and EDI Systems - Dec 94 - Jun 93

- Assisted with design and development of TI's initial UNIX Electronic Data Interchange (EDI) product. Developed major components of UNIX EDI Communications Gateway and supported implementation of UNIX EDI Management System (IEF ORACLE Application). Later ported these products to RS6000/AIX and PC/SCO UNIX.
- Assisted with the development and implementation of the PEER1 Express Buy ORACLE Application using the Composer 3 Client/Server Architecture. Added capability to Composer 3 Client Application to display catalog images (pictures). Developed Composer 3 development environment extensions (BIT and Server Diagram Trace) which greatly reduced Composer 3 Application development cycle time.

TI Software - IEF Development - May 93 - Dec 87

- Completed Beta support tasks related to delivery of IEF 5.1 UNIX Target products to Road and Traffic Authority in Sydney, Australia and to the US Army HOMES project in Washington, D.C. This activity included many onsite customer support visits. The RTA project was completed successfully and the RTA DRIVES Application won the National Australian Quality Award.
- Received corporate level recognition (second time), Senior Member of Technical Staff, for success of RTA Project.
- Designed and developed major IEF Application Execution Facility (AEF or IEFAE) extensions which allow IEF built applications to execute in high volume UNIX environments. These extensions included the AEF Async Daemon (AEFAD) Product and a re-engineered Profile Table Manager implementation. Ported these IEFAE enhancements to many UNIX platforms including the IBM RS6000, HP/9000, and Fujitsu systems. These enhancements became an integral part of the IEF 5.1 UNIX Target product. The AEFAD server component is integral part of the Composer Client/Server Product.
- Developed and documented the initial approach to an IEF UNIX ORACLE Target implementation. Designed and developed the interactive IEFAE which allows IEF Application Execution in the native UNIX interactive environment. The IEFAE facility also provides the IEF Application Development environment including the Diagram Test/Tracing Facility. The IEFAE facility includes an MVS/IMS/TSO style application interface and an IBM 3270 terminal presentation facility. Exported various IEFAE components to TI's internal Distributed Application Architecture (DAA) group.
- Ported major components of IEF MVS/DB2 Application runtime environment to the IEFAE runtime environment. This involved manually translating to "C" language various IBM ALC Service routines including the Terminal Mapping Service (TMS) and the IEF Profile Manager. This code was then ported to OS/2 and became an integral part of the IEF 4.2 OS/2 workstation product.
- Designed and developed an IEF MVS/TSO Application Execution facility (called TSOAE) which allows IEF MVS/DB2 Application execution in the native MVS/TSO interactive environment.

December 1987 - October 1985

Mitek Systems (now OPEN-CONNECT)  
2711 LBJ Freeway  
Dallas, Texas

Senior Systems Engineer

Research and development environment utilizing microcomputers to build SNA and TCP/IP connections between IBM mainframes and various other micro and mini computer systems connected via an Ethernet LAN. Duties involved design and development of major components and user interfaces in each of Mitek's SNA Network Server products.

- Ported CSI's SNA 3270 and 3770 emulation packages written in "C" language to SUN, APOLLO, and other workstations running UNIX (V and BSD 4.2). Designed and developed Application Program Interfaces (API) to these emulation packages. Coded interfaces using BSD 4.2 sockets and TCP/IP protocols on the Ethernet LAN.
- Designed and helped develop the MVS/TSO implementation for the TCP/IP FTP and TELNET Client protocols which provide TCP/IP functions across the SNA network. Was involved in the design and development of the VM/CMS implementation of these products.

September 1985 - July 1981

Arabian American Oil Co. (ARAMCO)

Exploration and Petroleum Engineering Computer Center  
Dhahran, Saudi Arabia

Technical Consultant/EDP System Specialist

Hardware/Software environment in the oil industry's largest geoscience processing center in the world included IBM 3033AP, 3033MP, AND 3081 running MVS, JES2, TSO, AND VM/CMS and a CRAY supercomputer. Installed with these mainframes was a large variety of both on-line and off-line state-of-art graphics data display hardware and large inventory of systems and applications software packages. Duties were mostly project leadership although filled various line management positions either temporarily (sometimes two months to cover annual repatriation vacations) or permanently. Involved in the following major projects:

- Organized, managed, and performed detail tasks during EXPEC geoscience center startup including installation of new MVS base and migration of large group of scientific users from an existing EDP center. System was operational less than 2 weeks after hardware was installed.
- Helped establish MVS/TSO system tuning and performance measurement methodology. Used techniques to solve initial performance problems. Later developed a workload management strategy. Implementation of the strategy proved to be highly successful. Participated in the annual workload management/capacity planning cycle.
- Participated in Model 204 relational DBMS analysis, evaluation, and documentation as member of the Model 204 Pilot Project. Provided Model 204 consulting during implementation phases.
- Group leader of MVS/TP group which successfully stabilized MVS while migrating from 3350 to 3380 DASD, updated the MVS service level, and installed new functions. Project leader for initial implementation of VM/CMS.
- Project leader for handling special system requirements of Reservoir Modeling and Seismic Processing applications. Planned and coordinated the installation of seismic graphics display system called CRYSTAL. Provided innovative solutions to large memory requirements of reservoir models like ALPURS. Developed special software to read old one inch seismic field tapes and copy to modern half inch tapes. Assisted IBM with hardware/software fault analysis in the 3838 array processors and 7350 Advanced Image Processing System (AIPS).
- Helped develop the installation plan and strategy for MVS/XA and IBM 3090 mainframe.

July 1981 - July-1974

Texas Instruments Inc.  
Dallas, Texas

Information Services - Manager, IBM Operating System Development and Planning -  
Jul 81 - May 78

Hardware/Software environment included multiple large centers each having multiple IBM S/370 3033s (Dallas and Austin) running MVS, JES3, IMS, AND TSO; multiple smaller centers each having one or more IBM 4341s running the same software; and hundreds of RJE's (IBM, Brand X, and TI Distributed Processors).

- Supervised 5 senior systems specialists and programmers who evaluated, installed, tested, maintained, and modified MVS and JES3 and developed major subsystems to support bulk data transfer, remote job entry, and network job entry for nodes in the TI computer network.
- Was project leader for the conversion of the Dallas Center (6 - 3033s) from MVS 3.7 and JES3 2.1 to MVS 3.8 and JES3 3.0. This involved a matrix organization using resources (15 people) from development, support, operations, and production scheduling organizations.

Had responsibility for system build, TI modification conversion and integration via SMP4, integration testing, system testing on production configuration, and quality assurance.

- Was substrategy manager for development of long range plans and direction for implementation of IBM operation systems software for all MVS and JES3 nodes in the TI computer network. Developed key tactics that led to the development of TI's bulk data transfer (BDT) system which provides dataset to dataset data transfer between nodes (IBM and TI), remote job entry between IBM and TI nodes and network job entry between IBM nodes.
- Was project leader for the development of the BDT system. This involved a matrix organization using resources (10 people) from two development groups. BDT/370 was developed for IBM nodes and BDT/990 was developed for TI nodes.
- Was designer/architect of the overall BDT system. General and detail designer of BDT/370. Designed and personally helped develop the BSC multi-leaving link and SNA full-duplex session protocols used for communication between nodes. The BDT/370 system was purchased by IBM and was released as a program product called MVS/BDT.
- Received corporate level recognition, Senior Member of Technical Staff, for development of BDT system.

Information Services - Senior Technical Specialist - May 78 - Jul 74

- Contributed to the conversion of the Dallas Center (multiple CPUs, 150 RJES, etc.) from SVS and ASP3 to MVS and JES3. Converted and enhanced TI's RJE package (SIO) and other modifications. Made major performance modifications to JES3 output service which helped permit conversion after two failed attempts. Received financial award for the contribution.
- Contributed to the centralizing of TI's world-wide data processing into the Dallas Center by evaluating the design of TI's communications networking computer and developing a major modification to ASP3 that permitted the implementation of international RJE's with data integrity. Received financial incentive award for the contribution.
- Was a member of the committee evaluating the implementation of distributed computing at TI. Studied and presented IBM's implementation of SNA and it's implications in the TI environment.
- Contributed to the conversion of two centers (Dallas, Texas and Croyden , England) from OS/MVT and ASP2 to a new release of OS/MVT and ASP3. Converted TI's RJE and NJE packages and developed a major modification to ASP3 output service for simultaneous output (SO).

July 1974 - March 1972

LTV Arlington Computer Center (operated by University Computing Co.) Arlington, Texas

Senior Systems Software Consultant

Hardware/software environment included two IBM S/370 Model 165s running MVT, ASP3, IMS, TSO, and QTAM Data Collection System with a total network of 256+ ports.

- Designed and developed major modifications to ASP3 for improved core management within ASP3 and a multi-media output processor (MOPS) which supported any ASP or OS dataset (disk or tape) as input printer and printer or microfiche as output.
- Wrote hardware/software evaluation report on communications front-end processors (270X replacements). Evaluated IBM's 3705 emulator program versus CCI's CC-70 emulator program.
- Project leader (shared) for installation and implementation of triplex of CC-70 Communications Processors supporting the entire network. Provided ongoing support after installation.

- Designed and developed major modifications to CCI's 270X emulator program for port sharing and switching between IMS, TSO, and ATS across multiple hosts. Also developed virtual multiplexor support allowing more than 256 ports with just one real multiplexor channel.
- Designed and developed a terminal independent programming package (TIP) for use by IMS transaction programs. This package preceded, but was comparable to, IBM's IMS Message Format Service. (MFS).
- Designed and developed a batch terminal simulator package used to test IMS transaction programs in a batch environment. This package preceded, but was comparable to, IBM's BTS.
- Developed some software components of UCC's IMS Data Dictionary package (UCC TEN) which preceded, but is comparable to, IBM's version.
- Helped install, test, maintain, and support MVT and ASP3 on the duplex configuration.
- Helped convert LTV's modifications from ASP2 to ASP3.

March 1972 - June 1970

Omnis Corporation and Insurance Systems of America (ISA)  
Dallas, Texas

Systems Consultant/Project Leader

Omnis and ISA were software companies developing and/or acquiring systems/applications software for the insurance industry.

- Provided product planning, marketing support, system installation, and enhancement development for a software product called On-line Platform Extension (OPLEX). ISA purchased OPLEX (including people) from Omnis.
- Designer/architect and project leader for the development of OPLEX. OPLEX was a highly sophisticated on-line system and at the time was comparable to IBM's CICS and IMS/DC and to other packages like INTERCOM and ENVIRON/I. OPLEX ran several years as a high volume OLTP for Mutual of Omaha.

June 1970 - March 1969

LTV Arlington Computer Center (operated by Computer Technology, Inc.)  
Arlington, Texas

Corporate Systems Consultant

- Helped install, test, maintain, and support OS/MVT and ASP2 on a triplex of IBM's S/360 Model 65s.
- Designed and developed an RJE package for ASP2 to support IBM 2780 hardware and S/360 Model 20 and 30 programmable terminals using BSC communications technique. This software included the ASP2 modifications and the workstation packages and a multi-leaving protocol for the programmable terminals.

March 1969 - October 1968

Texas Instruments, Inc.  
Dallas, Texas

Senior Systems Programmer

- Designed an interface into ASP2 for an RJE package (called SIO) to support S/360 Model 20s operating in multi-leaving mode using the STR communications technique. This package was developed jointly by IBM and TI.

October 1968 - March 1966

McDonnell Automation Company  
St. Louis, Mo.

Systems Programmer/Scientific Programmer

- Helped install, test, maintain, and support OS/PCP and ASP1 on a duplex IBM S/360 Model 75 and Model 50.
- Designed and developed RJE workstation packages for IBM S/360 Model 20s and 30s emulating IBM 1978 hardware terminals using the STR communications technique. These packages were built on IBM's early S/360 software systems of BPS and DOS.
- Helped install and maintain IBM's Remote Access Computing System (RACS).
- Developed batch programs written in FORTRAN and COBOL for scientific and commercial applications.

## Technical Education summary

Education - Open Systems

Solaris Network Programming (SUN)  
Solaris 2.x Internals (SUN)  
Solaris Disk Suite and SPARC Arrays (SUN)  
Xrunner/LoadRunner (TI)  
GEMSTONE Database Administrator (Gemstone)  
Basics of GEMSTONE 4.0 (TI)  
Introduction to OOP with SmallTalk (TI)  
Tuning ORACLE V7 Applications (ORACLE)  
HP-UX System Performance and Tuning (HP)  
DCE Application Programming (HP)  
C++ Programming (TI)  
Shell and C Programming (ATT)  
UNIX Concepts and Facilities (ATT)

Education - Legacy Systems

DB2 SQL Application Programming (TI)  
DB2 Concepts and Facilities (TI)  
SMP/E (IBM)  
MVS/XA Concepts/Facilities (IBM)  
JES2 (IBM)  
VM/CMS Installation (IBM)  
Model 204 DMBS Classes (CCA)  
Management of Software Engineering (Harvard Seminar)  
SNA Data and Flow Control (IBM)  
VTAM Coding (IBM)  
ASP3 to JES3 Transition (IBM)  
SNA Structure and Logic (IBM)  
MVS Structure and Logic (IBM)  
OS/MVT System Programmer (IBM)

ASP Systems Programmer (IBM)  
S/360 ALC Coding (IBM)  
FORTRAN AND COBOL (McDonnell Automation Co.)