ELIE I. MOURAD
3838 Lockhill Selma #726, San Antonio, TX 78230
Phone: 210-479-5987
Work: 210-925-3489 Fax: 972-671-9232
web: mptcore.com/eim.pdf *e-mail:* elie.mourad@mpt.com

Certificate in Object Oriented Programming	*University of California Santa Cruz Extension*		*1997*
Ph.D. in Electrical Engineering	*New Jersey Institute of Technology, Newark NJ*	*GPA 4.0*	*ABD*
M.Sc. in Electrical Engineering	*Polytechnic University, Brooklyn NY*	*GPA 3.7*	*1986*
B.Sc. in Electrical Engineering	*Tulane University, New Orleans LA*	*GPA 3.1*	*1985*
B.Sc. in Computer Engineering	*Tulane University, New Orleans LA*	*GPA 3.7*	*1985*

2002-Date	***Senior Telecom Network Engineer***	***Northrop Grumman/TASC***

AFIWC/IODE

- Principal contractor to the Air Force Information Warfare Center's (AFWC) Telecom Switch Security Assistance Program (TSSAP)
  - Explore, document and demonstrate security concepts and technologies within the converged network DOD roadmap (Circuit-switched, VoIP and VoP)
- Design, develop and prototype tools for the Defensive Counter Information Division (Technology Exploration Branch)
  - Key developer for the VoiceGuard framework, a telecom cPCI core appliance for monitoring applications
  - Develop the network management infrastructure as well as the secure streaming media overlay
  - Performance analysis and unified infrastructure middleware development using realtime ORBs for language independent CORBA architecture (Java & C++)
  - Encryption, compression and pattern recognition applications using the TMS320C62x
  - Implement proprietary demodulation techniques for captured fax and modem communications

2000-2002	***Senior Software Architect***	***Lucent Technologies***
		Inter Networking Systems

ATM / ACCESS

- AnyMedia Access System platform software architect
  - Duplex COMDAC switchover implementation for AAL5
  - AAL5 UTOPIA MPHY AAL5/AAL0 design and implementation using the PowerQuicc ATM Core architecture:
    - FIFO queues, UBR VBR Traffic pacing, ISRs & interrupt queue management, DPRAM Memory mapping
    - ATM OAM F4/F5 I610 design and implementation
  - Port and Implement Trillium ATM stack IWF for xDSL line card
  - Work closely with HW team to confirm interoperability using different CPUs
- Investigate MPLS/GMPLS edge traffic Interworking inclusion for next gen architecture
- Lead the system's software architecture of the PathStar access server product line. PathStar is a next-generation, carrier-grade, packet-based, Class 5 switch for converging voice and Internet Protocol

- C-PCI distributed bus architecture
- Inferno OS kernel development
- Packet handler & Line card OS
  - DMA queues between cards
  - Interface tables and ports
- Routing & IP Telephony
  - H323
  - Static
  - RIP
  - OSPF
- Operations, Administration, Management & Provisioning features (OAM&P)

IP / ADSL / ATM / POTS / Access

1999-2000	*Principal Engineer*	*Marconi Communications*
		Access Systems North America

ATM / ADSL / Access

- Responsible for developing the ATM layer management in the Common Controller Unit (CCU) the distribution of ATM traffic over ADSL between the central office and the remote end user
- Coordinated with the ADSL line card group the scheduling, shaping, cascading and classes of service implementation
- Characterized the database and other performance issues
- UML (RationalRose) design and modeling of the ATM architecture (which uses Infineon core chipset)
- Coordinate with the Italian team parallel development
- Create a common ATM software architecture to combine Copper solution, Fiber to the Home and Multiplexing system into one software model
- Deployment platforms were based on pSOS and PowerPC

1997-1999	*Senior Project Engineer*	*ADC Telecommunications*
		ATM Systems Division

ATM

Connection Management

SNMP

Integration

- Responsible for the development of ADC Telecommunications Cellworx Service Transfer Node which combines SONET and ATM functionality in a dual protected ring topology.
- Each network element supports a wide variety of access cards: OC3, OC12, OC48, DS/E3, ADSL, DS1 circuit emulation and Frame Relay.
- Developed and implemented intra- and inter-shelf Connection Admission Control guidelines including QOS requirements and to make sure the total bandwidth usage does not exceed the physical limit of the ring.
- VP and VC cross connects for VCI/VPI concentration and translation
- Traffic control and policing.
- Software and Hardware redundancy and recovery including port level port protection
- 1+1 and 1:N switchover protection groups
- System timing for the bus clock reference
- Deployment platforms were based on embedded PowerPC with Windriver vxWorks operating system
- Development platforms were based on Object Oriented Methodology using ROOM techniques with Objectime.
- Developed the SNMP Agent code which included support for the standard MIB tables (ATM Forum, ADSL Forum) as well as custom MIBs.
- This includes support functionality for configuration management, fault management, event management, performance management, security management, network data collection and usage data collection.
- Identified database requirements for all persistent data.
- Assisted the Network Management group in the implementation of SNMP agents and MIB objects
- Approved the system integration test plans

1996-1997	Manager, Software Development Enterprise Switch Group	Connectware Inc. ATM Systems Division An AMP Company

ATM

- Responsible for the development of Connectware's ATM enterprise switches (OC-3, OC-12). Duties included: Project management and technical lead of the engineering team and interaction with third party vendors. Responsible for the software architecture documentation.
- Responsible for the implementation of the latest ATM Forum's UNI, PNNI and ILMI specifications
- Provide signaling support for the Applications Group (CIP, LANE), Network Management Group (SNMP agents, MIB objects), SONET line interface and chassis management
- Deployment of Trillium Q.93B, Q.SAAL and PNNI stacks

Call Control

- Implementation of ITU Q.2931 and Q.2971 call control support for SVCs (point-to-point and point-to-multipoint connection) in AAL5 environment
- QOS and Traffic Management issues, NSAP addressing guidelines
- Assisted the Network Management group in the implementation of SNMP agents and MIB objects

PNNI Routing

- Worked on development of static and dynamic routes within single peer group
- Crankback and alternate route selection
- Supervised the integration of the hardware and software, interoperability with other vendors ATM switches
- Analysis of ATM traffic and load generation using Tekelec and Adtech
- Approved the system integration plans
- Contact point for ATM Forum's B-ICI/PNNI Interworking and VTOA

1992-1996	Senior Software Engineer	Harris Corporation Digital Telephone Systems Division

Wireless

- Analyzed the requirements for the Harris Broadband PCS product line
- Investigated the signaling requirements between Harris PBX and the 1.9GHz base stations
- Developed a redundant download of the DSP code to the base station
- Designed and implemented the FCC UTAM disablement and activation procedures
- Developed the administration and user Interface for the WireFree product

SS7

- Analyzed the message flow requirements for SS7 integration into the H20-20
- Developed the ISDN User Part administration and diagnostics
- Integrated the ISUP requirements with current Harris database architecture
- Integrated R2 signaling requirements into SS7
- Investigated ANSI and CCITT requirements

India Joint Venture

- Responsible for training BPL engineers in the Harris switch architecture including:
  Controllers, Drivers, User Interface, Features, Database, Timing, Redundancy, Systems issues and SS7
- Described the guidelines and rules for concurrent development in India
- Reviewed requirements and specifications for the Enhanced Accomodator Features

1990	Research Consultant	Polaroid Corporation, Microelectronics Laboratories

Charge-Coupled Devices

- Modeled and optimized Frame Transfer imaging devices using TMA Cande
- Identified tradeoffs in 2-D models based on process variations
- Study used to implement high resolution, million pixel color still imagers

1987-92	*Research Assistant*	*New Jersey Institute of Technology / David Sarnoff Research Center*

HDTV & CCD
- Modeled HDTV-capable imaging devices using 2-D simulations and visualization tools
- Static and dynamic solutions using PiscesIIb and SupremIV. Incorporated a photogeneration model.
- Developed NJIT-CDI, a modified version of Suprem-III for automatic simulation of SCCD and BCCD devices (potential profiles, electric fields, pinning voltage and carrier density profile)
- Developed solutions for key CCD device structures
- Investigated CCD patents and recent advances in electronic imaging

1986	*Software Consultant*	*Mepa France*

Financial Systems
- Designed and implemented multi-currency brokerage system
- Developed architecture for high volume transactions on Unix hosts using client/server methodology
- Time domain models were developed with the business analysts and IT, resulting in reduced complexity

Publications　　E. I. Mourad and R. D. McGrath, "Two-dimensional Analysis of an Unpatterned p-well Charge-Coupled Device with Vertical Antiblooming Structure for Frame Transfer Imagers", submitted to IEEE Trans. Electron Devices

Honors and Memberships　　Phi Eta Sigma, Tau Beta Pi, Pi Mu Epsilon, IEEE

Programming Languages	**Low level**	**3GL**	**4GL**	**Network Programming**	**Protocols**
		C	C++	IPC	Internet RFCs
	PL/M	MicroFocus	JAVA (J2EE,	Pipes	ITU-T Specs
	Intel 80x86	COBOL	Server side	Queues	Bellcore Specs
	MC680x0	Fortran	intelligence)	Threads	TCP/IP
	PowerPC	Pascal	Object Oriented	BMC Peer	ASN.1
	Gdb/Dbx	Basic	COBOL	SNMP	OSI

Development Tools

Objectime (Realtime Object Oriented Modeling)
EST visionCONTROL visionNET
ISI pRISM+
Cygnus cross-platform development tools
Sparcworks, sccs, rcs, clearcase
SSI Softprobe
Intel I2ICE
System Architect (Process Modeling, Entity Relationship Modeling, Real Time Systems, Structured Design)
Installshield, Windows Registry, Windows DLL 16/32bit

Operating Systems	**Unix + POSIX**	**WebServer/AppServer/Other**
	VxWorks	Apache
	pSOS	Tomcat
	Lynx/POSIX	iPlanet
	MicroC/OS-II	JDBC
	Solaris (Sparc, X86), CDE	PHP
	HP-UX	DOS, Windows, OS/2
	SCO Opendesktop	Windows 95/NT (Intel, Alpha)
	Linux	VMS

Lucent Inferno & Plan9	Novell Netware 3.x, 4.x	

Visual Programming	Languages	Report Writers
	MicroFocus Dialog System	Borland ReportSmith
	Borland Delphi	Crystal Reports
		Concentric System R&R Report Writer

CAD & Visualization

Suprem III, Suprem IV, Pisces II, TMA Cande, SPICE, VALID, Magic, Khoros, NCSA

Groupware

Lotus (Notes, Smartsuite), Microsoft (BackOffice, Office), Framemaker, Microsoft Project, Adobe Persuasion
HTML/cgi/perl, TCL/TK (Unix/Windows)

Databases	Non-Relational	Relational	Transaction System
	C-ISAM	Embedded SQL	CICS
	Btrieve	Microsoft SQL Server	
	ODBC	Informix	
		XDB/DB2	