SEVIM F. ABLAY, P.E.

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OBJECTIVES

To leverage my extensive & diverse experience in RF, hardware & software development lifecycles, R&D, as well as in Systems Engineering. To embrace and learn new and relevant technologies. Salary negotiable.

SUMMARY

Wireless Systems & Electronic Engineering / Embedded Software/ Intellectual Property
Experienced Systems Engineer in customer & product requirements, design & validation, customer field trials, and product compliance. Background includes basic & applied technical research, research lifecycle management, product design & development, and System Simulation/Modeling. An analytical and innovative technologist who is adept at practical problem-solving and who leads from the front and utilizes direct communication and action, both as a team-player and as an individual contributor. Successful record of technical innovation, design, quality and profitability across a number of industries including consumer electronics, and wireless. Named inventor on thirteen (13) issued US utility patents covering Trunking, Land Mobile Radio and Intelligent Network technologies. Creation of software programs for Koyo Programmable Logic Controllers (PLC's). Closed Loop Control Systems, AC & DC motors, actuators, sensors, controllers, basic electricity, signal conditioning, factory automation, process controls, Relay and Ladder Logic Diagrams.

PROFESSIONAL EXPERIENCE

DeVry University, Chicago **2010-Present**
Five colleges, all centered on career success. Degree programs are designed to meet the needs of today's fastest-growing industries and to prepare students for careers in business, engineering, healthcare, technology, media arts, and education.

Adjunct Professor, Electronics & Computer Technology dept, Chicago, IL (2010- present)

Teach courses including: "Mechatronics". Instruct in the creation of software programs for Koyo Programmable Logic Controllers (PLC's). Lecture on Closed Loop Control Systems including: AC & DC motors, actuators, sensors, controllers, basic electricity, signal conditioning, factory automation, process controls, Relay and Ladder Logic Diagrams. Experienced in preparing courses and developing lab materials.

Sevim F. Ablay, P.E. & Associates, West Dundee, IL **2008-Present**
Consulting Engineering and Intellectual Property Services
Expertise in Systems Engineering, embedded SW development (C & assembly, HCS12, MC68xx), Context-Aware computing & Location-based services, DOORS, ConOps, mfg. introduction, CAE tools (Code Warrior IDE, SPICE, BONeS, OPNET, COMNET II.5), Public Key Infrastructure (PKI), QFD, 6-Sigma tools, product design, IP portfolio development, TRIZ, patent infringement, reliability analyses, FCC type acceptance (conducted and radiated emissions), EMC, and EMI Susceptibility.

Motorola, Schaumburg, IL **1976 - 2008**
A leader in R&D and in the design & manufacture of high technology, wireless communication products for industrial, commercial and consumer markets.

Distinguished Member of Technical Staff, Networks Research Lab, Schaumburg, IL (2006 – 2008)
Performed basic & applied research in Multimedia, Edge Networking, Autonomic Networking, Peer-Peer, 4G Wireless Internet and IP Multimedia Subsystems. Created & socialized Technology Roadmaps for research planning and alignment with Motorola business unit needs.

- Researched & prepared a detailed presentation outlining research project opportunities for Multimedia in 700 MHz spectrum, to position Motorola as a leader in future Public Safety markets.

- Wrote a DARPA RFI Response advocating Cognitive Radio research in Autonomic Networking, Policy-based Network Management, reasoning and ontologies to address the "September 11" interoperability problem of reliably-connecting multiple analog, digital, trunked & conventional radio systems as well as IP networks, over-the-network encryption and firewall services to provide an appropriate level of security, and the elimination of central points of failure.
- Influenced Motorola technical direction to significantly enhance future cell phone capabilities by writing and internally socializing a white paper for "Peer Group Formation" to encourage the development of peer gaming features as now found on the Motorola RAZR V3i.
- Created the most comprehensive, detailed and broad scope roadmaps in Motorola Research history by synthesizing, organizing, delegating and managing technology roadmaps for research planning and business alignment using product lifecycle management process, PLM, and by leveraging the Sopheon Vision Strategist roadmap tool. Analyzed & summarized the overall research capabilities of Mobile Internet technologies to Motorola businesses for incorporation into Mobile Device product roadmaps.
- Key contributor to strategic initiative for Cellular 4G Wireless Internet by creating requirements, use cases and selection criteria, and identifing research differentiators, & critical success factors.
- Enabled easy cellular point-of-sale transactions by solving the technical issue of how to allow multiple trust levels for members of Wireless Internet Peer-Peer communities by researching and writing a document for Single Sign-On Techniques.
- Wrote a White Paper that identified the key architectural functions in Real-time Services over IP, SIP and IMS focus areas that were included as elements of Motorola's Architecture.

Distinguished Member of Technical Staff, Applications Research Lab, Schaumburg, IL (1997 – 2006)

- Advanced Motorola's competitive position by writing an Edge Networking White Paper, which recommended functional architectures and technologies by which Motorola could be a significant player in the value chain.
- Co-architected a solution for Emergency Alert notification via cell phones (could have been used at Virginia Tech) by leveraging existing and modified cell phone and location server technology.
- Created a prototype of Multimedia (video & imaging) presentation techniques for CGISS Public Safety dispatcher & mobile end-system applications by leading a technical team of technologists & ethnographers, researching & providing architecture recommendations.
- Team leader, Architect & Researcher for a research team in Context-Aware Computing (2000-2002). Requirements for a generic Software Toolkit. Manage technical requirements & architecture efforts.
- Technical requirements formulation for generic Telematics Communications Unit. Lead Architect for Telematics Informations Systems group in 1998; a team of 8 engineers. 3 patent filings. Familiar with In-vehicle Data Bus. Liaise with General Motors, AMIC standardization activity (2001) and Consortium.

Principal Staff Engineer, System Architecture Group, Schaumburg, IL (1992 – 1997)

- Authored a Circuit Data Standard for APCO Project 25 to allow public safety companies to build standardized, interoperable data solutions.
- Determined the long-range direction & migration of LMPS Systems Architectures to Intelligent Networks, including the role of Rapid Service Creation Environment. Led 2 teams making recommendations for a Services Processing Architecture and formal requirements capture method using SDL-based (Z.100 standard) methodology; later became part of DOORS tool.

Senior Staff Engineer, Trunked Systems Engineering, Schaumburg, IL (1986 – 1992)

- System architect for a nationwide WAN of Motorola Trunked Radio Systems providing two-way text & data messaging.
- ***Design the high-level network topology, radio air-interface specifications & protocols, and specifications for LORAN-C vehicle location subsystem.***
- Simulation modeling & performance evaluations; analyzed packet data traffic using CAE tools (BONeS, OPNET, CACI "COMNET II.5); optimize network topology & operation. Queueing models.

- SLOTTED ALOHA-based signaling protocol designer/ implementor for Motorola TYPE II Trunking, 900 MHz. Software architect & coder for Central Site Controller (multiple M6809-based uP). Directed 3 software designers. C-language & Structured Architecture & Design of software & hardware.
- Test customer beta-site systems:
  - ***Determine cause of in-band EMC interference at California mountain-top Trunked Radio sites (later determined to be US Navy shipboard radar operating while in Pacific coastal waters).***
  - ***Initial units shipped exhibited a high receiver "false-unsquelch" rate. The 12.5 kHz, 900 MHz channels (vs. 25 kHz at 800 MHz) were found to have less available noise power due to narrower bandwidth. Redesigned Inbound Recovery Board, High-Pass Filter squelch circuitry.***
  - ***Determined that site grounding was inadequate (no halo or rod system) to get conductivity < 5 ohms.***
- Responsible for operating software, MC6803-based for 800 MHz mobile phone. ***Develop hardware & analog circuit controller interfaces & dual-modulus VHF PLL frequency synthesizer***. Target uP programming, system emulation.

Staff Engineer, Base Station Engineering, Schaumburg, IL (1982 – 1986)

- ***Responsible for design of microstrip-based, broad band, fixed-tuned receiver injection multiplier having a 960 MHz output. Performed receiver spurious emission and performance testing per FCC std's.***
- ***Responsible for design of two, multi-stage 850 MHz microstrip RF amplifiers for 30 Watt & 70 Watt applications. Performed pre-compliance FCC testing for radiated and conducted spurious and harmonic emissions at test range.***
- ***Designed & tested a 15 Watt RF Intermediate PA for driving a paging base station tube amplifier at 900 MHz. Performed pre-compliance FCC testing for radiated, conducted spurious and harmonic emissions at test range.***
- Design/build ATE equipment & write FORTRAN test software. Technical direction for 3 junior engineers.

Senior Design Engineer, Secure Communications Dept., Schaumburg, IL (1979 – 1981)

Design secure version (12 kbps CVSD) of 150 & 450 MHz tactical, portable NarrowBand FM voice channel repeaters for Federal government agencies.

- ***Performed static discharge testing on completed units***
- ***Performed pre-compliance FCC Transmitter type acceptance testing for both VHF & UHF models, analyzed results, made necessary design changes and submitted filings.***

Engineer 1, Applied Technology Dept., Schaumburg, IL (1976 – 1979)

Design/develop 150 & 450 MHz tactical, portable Narrowband FM voice channel repeaters for Federal government agencies. ***Design calculations, implementation, test and release (from initial concept through prototype & customer acceptance) of:***

- audio & control circuits (CMOS),
- ***High power RF amplifiers (40 Watt, VHF; 30 Watt, UHF)***
- ***Tested, analyzed and identified that EMI from Switch-mode Power Supply (SMPS) was cause of (approx. 20 – 28 dB) receiver desensitization. Determined that SMPS was both radiating and conducting EMI via its case and via its AC input leads. Improved case shielding and feedthrough capacitors added to AC inputs were required to solve EMI problem.***
- ***RF duplexer filters & transmitter RF harmonic filters***
- ***Performed pre-compliance FCC Transmitter type acceptance testing for both VHF & UHF models, analyze results, make necessary design changes, re-test, and submit filings.***
- Create End-User manuals

FORD MOTOR COMPANY, Dearborn, MI (1973 to 1976)
Design Engineer, Dearborn, MI (1973 to 1976)

- Lab design, engineering specification formulation, and field test of deluxe automobile radios, including:

- AM/FM/Stereo plus 2/4-channel 8-track (QUAD) tape radio,
- AM/FM/Stereo plus 8-track tape radio, and
- first Ford Citizens Band radio chassis

- ***Design, perform and supervise EMI susceptibility testing (Ignition Noise, Alternator Whine, Load Dump, etc). Part of team to implement cost-effective fixes for vehicle noise suppression. Evaluate effectiveness of fixes via in-vehicle testing.***
- ***Design, perform & supervise EMI susceptibility testing of above radios to out-of-band emissions from 2-way radios at VHF & UHF.***
- Perform reliability analyses, FMEAs & track warranty performance of released designs.

GENERAL AVIATION EXPERIENCE

- Product R&D
  - RNAV: Loran-C subsystem design for two-way radio system (see Motorola experience, above)
  - Requirements Capture: SDL-based (Z.100 standard) methodology; later became part of DOORS tool.
  - FCC Type Acceptance for VHF, UHF radios (see Motorola experience, above)
  - Perform circuit reliability analyses, FMEAs (see Ford experience, above).

- FAA, Federal Aviation Administration
  - Pilot for Airplane Single Engine Land (Certificate# 2827033). Instrument-rated, 230 hours total time.
  - Basic Ground Instructor, Private Pilot and Recreational Pilot
  - Instrument Ground Instructor, Private Pilot and Recreational
  - Advanced Ground Instructor

- FCC: Advanced Class Amateur License (WB8BHN)
  - Design, build & test Amateur Radio transmitters, receivers, antenna's; HF, VHF, UHF

- Yankee Air Museum (Ypsilanti, MI)
  - Restoration and upgrade of North American Aviation, B-25 ("Mitchell") Bomber, cockpit wiring and avionics upgrade for GPS (RNAV).

EDUCATION / CERTIFICATIONS

- M.S.E.E, Illinois Institute of Technology, Chicago, IL, 1982
- Completed Courses in M.S.E.E., University of Michigan-Dearborn; 1974 - 1976
- B.S.E.E. with Honors, Trine University (was Tri-State University), Angola, IN, 1973
- P.E.: Licensed in Illinois (062-054874) and in Michigan (6201051872)

TECHNICAL SKILLS

Radio Communications Systems (including transmitters, receivers, antennas, and controllers), IP Networks (TCP/IP, UDP, and other), Video processing systems (including encode and decode CODEC applications), Motorola Trunked Systems, IP Multimedia Subsystem (IMS) & Converged Services Framework (CSF), Encryption Systems; Public Key Infrastructure (PKI), CAE tools (Code Warrior IDE, BONeS, OPNET, CACI "COMNET II.5); FMEA; DOORS, SDL, UML, QFD, ConOps, 6-Sigma "Green Belt", tools & methods; Sopheon "Vision Strategist" Roadmap tool; C+, Freescale HCS12, MC68xx assembly, SPICE, FORTRAN, FCC type acceptance, EMC, EMI Susceptibility, IP portfolio development, TRIZ. Koyo Programmable Logic Controllers (PLC's); DirectSOFT programming tool. Closed Loop Control Systems, AC & DC motors, actuators, sensors, controllers, basic electricity, signal conditioning, factory automation, process controls, Relay and Ladder Logic Diagrams.

COMMUNITY AFFILIATIONS

DeVry University, Industry Advisory Board, (2009 – present)

Tri-State University, Industry Advisory Board, Electronic & Computer Engineering Dept., (2001- 2009)

ADDENDUM

PATENTS & Invention Awards

- US 6,765,497 “Method For Remotely Accessing Vehicle System Information And User Information In A Vehicle”
- US 6,275,585 “Method For Reprogramming A Vehicle System Or A User System In A Vehicle”
- US 6,147,977 “Method and Apparatus for Processing Messages Based on Originator and Recipient Priorities”
- US 6,002,941 “Console-based Service Creation”
- US 5,970,416 “Provision Of Distributed Call Handling Over A Plurality Of Network Nodes”
- US 4,672,601 “Duplex Interconnect/Dispatch Trunked Radio System (1993 Regional Patent-of-the-year)
- US 4,837,858 “Subscriber Unit for a Trunked Voice/Data Communication System” (Personal Communications Sector: “2002 Patent of the Year”)
- US 5, 287,551 "Busy Call Back in Trunked Radio Systems"
- US 5,392,458 "Trunked Communication System with Variable Communication Capabilities"
- US 5,408,466 "Duplex Interconnect Trunked Dispatch Radio"
- US 5,408,683 "Method Of Anticipating A Communication Unit's Location In A Networked Radio Communication System"
- US 5,544,159 "Duplex Interconnect/Dispatch Trunked Radio" Performance Improvement”
- US 5,649,298 “RF/Wireline Dispatch Terminal for Improved Data Messaging”
- INVENTION AWARD - RF Contact Pad for 800 MHz RF Amplifier Circuit

PRESENTATIONS (Partial List)

- multiple, annual “Technology Presentations” to Motorola CEO office
- Ablay, S.F., Dertz, G. (1993): “Application & Telecommunication Service Description Methodology”. Internal Motorola Presentation
- Ablay, S.F. (1996) “Service Creation Environment”; Internal Motorola Presentation, July 02, 1996

PUBLICATIONS (Partial List**)**

- 2002 NIST proposal: “First Responder Wireless Bio-monitoring Proposal”, co-authored
- “Sensor Fusion for Context Understanding”; co-author; Oct 11, 2001
- APCO25 DATA Technical Description for Circuit Switched Services; co-authored
- Operating/Service Manual- DVP/Conventional Tactical Portable Repeater, 1979
- "Broadband, Fixed-Tuned Receiver Injection Multiplier For 900 MHz Paging Receiver"; May 1983
- "RF Channel Interface Specification for 896 MHz Trunking", October 1986
- "System-level DTMF Decode for Trunked Systems", April 1988
- "Acceptance Test Procedure for 900 MHz Trunked Radio Systems", November 1988
- "CSC-TDC Interface Specification for LinkNet (CoveragePLUS)", February 1989
- "Vehicle Location Requirements for CoveragePLUS System", April 1989
- "MESMR / MOSMR System Resource Utilization due to CoveragePLUS Subscribers", Feb. 1990
- Presentation: "CoveragePLUS Network Performance Modeling & Simulation", 1991
- "Competitive Manufacturing Cost Analysis for QUALCOMM Mobile Satellite Data Terminal", 1991
- "BONANZA System Architecture & Technical Description", February 1992

AWARDS

2002- Motorola Inc., Personal Communications Sector: “Patent of the Year”
1999- Motorola Inc., Distinguished Innovator Award (for 10 U.S. patents issued)
1998- Motorola Inc., CGISS Worldwide Employee Recognition Award (for APCO25 standards)
1995- SABA: Motorola Science & Advisory Board Associate (top 1% of all engineers)
1993- Motorola Inc., Land Mobile Products Sector: “Regional Patent of the Year”
1972- ETA KAPPA NU (National Electrical Engineering Honorary Society)
1972- “Who’s Who Among Students in American Colleges & Universities”, Tri-State University

PROJECT LIST: Radio Development Programs & Architecture
Motorola, Inc. & Ford Motor Company

- NYC Fire Department:: co-develop RF ID Smart Card detector for rescue at World Trade Center, September 11, 2001.
- CoveragePLUS Nationwide Network: Text Data Messaging, LORAN-C Vehicle Location Subsystem
- PrivacyPLUS1000-Duplex Trunked Radio
- Privacy Plus TYPE_II Trunking Protocol, co-inventor and implementor
- Microstrip, broadband, receiver injection multiplier with 960 MHz output
- High power 850 MHz & 960 MHz microstrip RF amplifiers
- Feasibility design of custom CMOS gate array IC, data detector & CVSD codec
- Tactical portable NBFM voice channel repeaters for Federal agencies (150 & 450 MHz)
- Ford AM/FM/Multiplex 8-Track Tape Radio
- Ford AM/FM/Multiplex QUAD 8-Track Tape Radio
- Ford Citizens Band Radio