

Resume: William J. Chapman

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INDEPENDENT WORK Summary – Recent independent work includes the following:

- (a) Continued development of a single-page Ajax web application for browsing and streaming collections of media libraries, with client-side code written in JavaScript supported by the Dojo toolkit, and server-side code and utilities written in Python.
- (b) Development of a PC-based, networked, embedded system emulation written in Visual C++.

PROFESSIONAL EXPERIENCE Summary – Mr. Chapman has 39 years of professional experience in system engineering, software development, digital electronics design, and field engineering. Areas of expertise include real-time embedded systems analysis and design, software development & software engineering, hardware/software & machine-to-machine interfaces, and interface specification and design. Domain knowledge includes air-defense command & control, passive radar warning receivers, and ASW/oceanic systems.

EDUCATION – Graduate Studies in Engineering and Computer Science, 1985 - 1995
B.S. Electrical Engineering, 1966, USC, Los Angeles, CA

EMPLOYMENT –	2005 – Present	Unemployed
	2004 – 2005	L-3 Com GSI, Senior System Engineer
	2004	TYBRIN Corporation, Consultant
	1998 – 2003	COLSA Corporation, System Engineer
	1985 – 1998	EER Systems Inc., Department Manager
	1973 – 1985	Litton Data Systems, System Engineer
	1966 – 1973	Bendix Electrodynamics, Engineer

INDEPENDENT WORK

mp3srv – Streaming Media Web Application – April 2005 through Present

mp3srv (in development) serves personal libraries of media files via the internet for streaming, and provides a powerful browser-based client interface utilizing Ajax technology. The current generation utilizes the Apache web server with the mod_WSGI (Python) adapter and can be deployed on a Windows or Linux host. Name-based virtual hosting is utilized to provide administrators with as many sub-domains as they require, with each sub-domain (v-host) serving a subset of libraries to a subset of users. The browser-based client interface is built using JavaScript and Ajax supported by the Dojo toolkit. All client-server interactions are asynchronous and utilize the XMLHttpRequest (XHR) object. The media libraries are configured for serving through a Python utility that builds **sqlite** databases of the libraries' meta-data. Advanced client-side meta-data-based browsing is then possible with minimal server interaction. In addition to hierarchy-based directory browsing, multi-level cascaded meta-data filtering allows drill-down to desired library contents. Floating divisions are used to provide comprehensive, on-demand information on selected library items. Powerful random and/or recursive playlist generation controls are provided. Extensive and open-ended support for library item “decorations” – including cover art, and other graphics – is provided. **mp3srv** also includes a publish-subscribe feature that allows any pair of **mp3srv** hosts to implement – based on bilateral trust – a publish-subscribe relationship enabling the subscriber's home users to access the publisher's libraries – via proxy – without user accounts on the publish host. A full suite of

PROFESSIONAL EXPERIENCE (Continued)

client-based Administration tools provide remote virtual-host management, publish & subscription management, library configuration, user management, and item decoration management.

v73 – Embedded System Emulation – June 1999 through March 2005

v73 is an embedded system emulation of the TSQ-73 Missile Minder Command & Control system for air defense. v73 was developed independently by Mr. Chapman, from 1999 – 2005, and is the intellectual property of the author.

v73 is an emulation of the TSQ-73 Missile Minder Command & Control system that utilized standard (COTS) PC components & interfaces, and is implemented in Visual C++. v73 fully supported all Missile Minder hardware & software architectures. The input to v73 is an executable file of system software produced by a PC-based cross-development tool. v73 would execute existing Missile Minder software baselines with no code changes required, and incorporated all its architectural features. A single, complete v73 system would consist of Automatic Data Processor (ADP), Display (Console and Status Panel), Data Communications (tactical data links), and Radar Interface components.

v73 provided an ideal platform for Missile Minder system upgrade and growth, opening new evolutionary pathways for system enhancement. Advantages of v73 over alternative upgrade approaches included:

- The ability to fully utilize existing software baseline on day-one, with no code changes;
- Utilization of only COTS PC hardware & interfaces;
- Full compatibility with existing TSQ external system interfaces;
- Open-ended growth and expansion potential for hardware and software;
- Major logistics savings;
- Modern, IP-based communication architecture;
- Includes COTS 1200 baud FSK modems as required for existing asset interfaces.

Each v73 component resides on a PC: either together with other components; or separately, in a cluster of networked PCs. This distributed architecture enabled tailored configurations to meet a variety of needs, including tactical, and development & test applications.

v73 development has ceased. A working prototype of the ADP, including integrated debugging tools, and the Console were completed; the Communications and Radar Interface components reached the design stage.

PROFESSIONAL EXPERIENCE

L-3 Com GSI – September 2004 through December 2005

Senior System Engineer assigned as the primary contributor to a study to identify and evaluate candidates for a Command & Control (C2) replacement system for the Royal Saudi Air Defense Force (RSADF). The study was performed for the U.S. Army, Aviation and Missile Command (AMCOM), Security Assistance Management Directorate (SAMD), located at Redstone Arsenal, Alabama, at the request of the RSADF. Upon completion of this study, and following its briefing to the RSADF senior staff in Riyadh by the U.S.G. in December, 2004, Mr. Chapman supported business development efforts to initiate a C2 Replacement program for the RSADF based on the “v73” solution recommended by the SAMD study. To this end, Mr. Chapman developed a program plan and supporting materials presented to the RSADF through L-3 Com GSI and an

PROFESSIONAL EXPERIENCE (Continued)

associated Saudi Arabian contractor. (Refer to the Independent Work Annex for a description of the v73 emulation system developed by Mr. Chapman.) (9/2004 – present)

TYBRIN Corporation – April through August 2004

Consultant assigned to Business Development proposal team for Weapon & System Integration Support Services (WSISS) re-compete at Naval Air Warfare Center, Weapons Division (NAWCWD), at China Lake, CA. (4/2004 – 8/2004)

COLSA Corporation – May 1998 through December 2003

System Engineer Lead for PATRIOT-HAWK Integration program for the Royal Saudi Air Defense Force, in Huntsville, AL, and Jeddah, Kingdom of Saudi Arabia (KSA), under contract to US Army AMCOM. Team accomplishments: successful development, integration, and Kingdom-wide testing of major tactical software/hardware upgrade, including development of new, PC-based segments, and establishment of Jeddah-based software sustainment facility. Personal accomplishments: (1) identification, analysis and solution of complex system integration problems, (2) establishment of debugging tools for L3050 assembly language development laboratory, (3) training of Saudi Officers in L3050 assembly and C++ programming languages. (5/1998 – 12/2003)

EER Systems Inc. – October 1985 through May 1998

Software Department Manager for the WSISS contract with NAWCWD at China Lake, CA, April 1996 thru May 1998. Responsible for the execution of Delivery Orders (DOs) for a broad range of software development tasks for F/A-18 and AV-8B Integrated Product Teams at China Lake, including software development of embedded systems, ground support systems, and information systems. Mr. Chapman also managed DOs for Configuration and Data Management, networking support, and Radar Warning Receiver testing support. Mr. Chapman managed an average total staff of approximately 50 persons, assigned to approximately eight DOs, supporting a variety of Task Teams within their associated IPTs. (1/1996 – 5/1998)

Program Manager for the THAAD Software Verification and Validation (V&V) subcontract with Lockheed Missile and Space Corporation, Inc. (LMSC), performed in Huntsville, AL. This effort focused on the Battle Management (BM)/Command Control, Communication, and Intelligence (C3I) segment that was developed utilizing object oriented analysis and design methodologies by LMSC's subcontractor, Litton Data Systems, for the THAAD Demonstration/Validation (DEM/VAL) program. For this project, Mr. Chapman managed an average staff of six computer scientists and engineers. (7/1993 – 8/1995)

Project Leader for three functional disciplines within the U.S. Army Missile Command (MICOM) Software Engineering Directorate's (SED) Battlefield Automated Systems Engineering Services (BASES) contract: Interoperability Engineering and Test, Acquisition and Development Engineering Support (ADES), and Deployed Systems Software Verification and Test. Mr. Chapman managed a staff of approximately 60 engineering and computer science professionals, supporting approximately ten Contract Options, working on a variety of Army Battlefield Automated Systems. (6/1990 – 6/1993)

Lead System Engineer established, led, and managed the System Engineering Section of the Software Support Group at Fort Bliss, TX, - consisting of an average of six system engineers – that was responsible for AN/TSQ-73 software sustainment. Accomplishments: (1) supervised the system engineering leading to the development of software enhancements to the AN/TSQ-73

PROFESSIONAL EXPERIENCE (Continued)

system over three major version releases; and (2) planned, designed, implemented, and validated the AN/TSQ-73, Version 33, Central Processing Unit (CPU) Utilization Study. (10/1985 – 5/1990)

Litton Data Systems – December 1973 through September 1985

System Engineer responsible for AN/TSQ-73 software system engineering, development of L3050 debugging tools, and performing system engineering studies, at the Software Support Center, Fort Bliss, TX. Accomplishments: (1) the development of the Enhanced System Control Console (ESCC) for the Litton L3050 CPU used in the AN/TSQ-73 and TACFIRE systems, and (2) the development and testing of real-time, non-interference, state analysis capability for L3050 assembly language programmers based on the HP64000 Logic Development System. (1/1983 – 9/1985)

Lead Field Engineer responsible for a staff of three professionals supporting the MICOM Missile System Software Center at Redstone Arsenal, AL. His group supported fault-insertion testing of the AN/TSQ-73 system including the development of software to perform this function, and performed analysis and documentation of AN/TSQ-73 Maintenance and Diagnostic (M&D) software. He prepared AN/TSQ-73 system engineering studies on a variety of topics. (7/1977 – 12/1982)

Field Engineer responsible for supporting formal AN/TSQ-73 developmental and operational tests, performed throughout CONUS. (12/1973 – 6/1977)

Bendix Electrodynamics – January 1966 through December 1973

Electronics Design Engineer for threat analysis circuitry of passive radar-warning systems used in the Air Force F4D and Navy A6 Standard ARM aircraft, performed in Sylmar, CA. Lead design responsibility for threat simulators used for production testing and flight line checkout, and video simulators used in production testing and for intermediate maintenance. Supported multiple flight test efforts at NAS Oceana, VA (A6 Standard ARM), and Eglin AFB, FL (F4D), to validate threat analysis upgrades and modifications developed in response to current threat data. (7/1970 – 12/1973)

Field Engineer for radar warning systems, and on numerous Anti-Submarine Warfare (ASW) and oceanic systems, serving world-wide. (1/1966 – 6/1970)

COMPUTER SKILLS

Computers/OS	Languages	Systems/Packages	DBMS
WinXP, Win2000	Visual C++	Visual Studio 5/6/7	Access
Linux, Ubuntu	Python	Win32 API, MFC, .NET	SQLite
HP9000 Series	JavaScript, Dojo	Mathematica	
Macintosh	Ajax, DHTML	MATLAB	
Litton L3050	Ada	VISIO UML	
Z80, 8080	Assembly, various	Open Office	
	FORTRAN	MS Office	
	Excel Macros	Apache2	
	Pascal	mod_python	
		mod_WSGI	

PROFESSIONAL EXPERIENCE (Continued)

PUBLICATION

Chapman, William J. "Optimal Interceptor Allocation for Missile Defense Using the Genetic Algorithm," proceedings of the Fourth Golden West International Conference of Intelligence Systems, pp. 46 – 50, 1995.