

David Roggendorff

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David.Roggendorff@BonnVie.com or David.Roggendorff@TBE.com

EDUCATION

MSE – SE and CS, UAH, Huntsville, AL, August 1982
BSEE, Kansas State University, Manhattan, KS, May 1960

PUBLICATIONS

“Architecture Level Software Safety and Reliability Analysis: Capabilities of MetaH” - Army Missile Command (AMCOM) Software Engineering Directorate (SED), October 1998

“Understanding the Domain of the Army's CTS” - Add instruments to the Contact Test Set (CTS) to reduce a several-hours field test to less than an hour - AutoTestCon, IEEE, October 1995

"Potential Applications of IEEE Standards to IFTE" - AutoTestCon, IEEE, October 1994

“An Application of Simulation Stopping Rules to the Data System Dynamic Simulator” - A thesis describing a spectrum of nine rules to observe steady state and stop the run. Autocorrelation and Batch Means were demonstrated - UAH, Huntsville, AL, May 1982

EXPERIENCE SUMMARY

Mr. Roggendorff has worked on a broad range of assignments in systems, hardware and software systems from real-time to database as team leader, supervisor, project leader, and program manager. Coordinated and developed plans, scopes of work (SOW), schedules, work breakdown structures (WBS), costs, contracts, procurements, and budgets. Performed analysis for domain-specific software architecture, concept and technical proposal development, requirements definition, decomposition, traceability, design and test, integration and support, verification and validation. Coordinated and developed specifications, programmer's and user's manuals, software and hardware test plans, and other documents. Has written and presented several papers on these topics with three published. Developed automatic test equipment, test program sets, board testers, training systems, models and simulations, real-time systems, artificial intelligence systems, interactive electronic technical manuals (IETM), and missile launch support equipment.

On a DoD MDA contract, worked on test and evaluation of Ground-based Midcourse Defense (GMD) System Test & Evaluation (STE).

On Army contracts, worked on development (including FMS) and PDSS of IFTE ATS (including its Electro-Optical Augmentation) and GETS1000 for Kiowa Warrior, TOW, Army TACMS, ASAT, PATRIOT, and HAWK. Also assisted two IEEE SCC20 standards consensus subcommittees for automatic testing.

On Navy contracts, developed the CASS ATE for avionics and Nuclear Submarine Fire Control Systems. On an Air Force contract, performed testability analysis and test design of nuclear-hardened memory modules.

On NASA contracts, development of DSDS and GSE/ESE.

On a commercial contract, developed test policy and procedures on Year 2000 (Y2K) compliance assessment of hardware and software.

SECURITY CLEARANCE

- SECRET (Active) - December 2007 – Current

SKILLS

Engineering - Systems Modeling

- Performed an SAE Architecture Analysis & Design Language (AADL) study researching architecture design issues.
- Developed software modeling and testing for the Generic Test Set.
- Directed five engineers in a six-month hardened flight core memory testability analysis and test requirements definition contract on time and within cost.
- Investigated artificial intelligence recognition methods and developed the concept to integrate the processes of designing the built-in test hardware in conjunction with the functional hardware of electronics equipment. Developed software models to simulate computers for data systems. Made the customer presentations of simulation concepts and design reviews.

Engineering - Systems Analysis

- Gained Program Process and Procedure understanding by attending various team technical, schedule, and peer review meetings for SOW and ECP activities and reviewing reports.

Engineering - Requirements Analysis

- IFEA - Evaluated and reported results on a worldwide analysis tool for sensor / missile engagement. This evaluation shows that small differences in the sensor coverage of the RV and process timing make IFEA a demonstrable candidate for pre-PMT analyses, aiding feasibility planning for PMT test and analysis requirements and to reduce extraneous PMT Test Cases/replications allowing resources for better use to reduce Test Case failures.

Engineering - System Engineering (SE)

- Provided an evaluation of MetaH modeling language and system analysis tool. Modified a missile G&C model to test software safety capabilities of the MetaH system analysis tool.
- Provided year 2000 (Y2K) compliance inventory, assessment of hardware and software, and development of test policy and procedures. Provided communication with customer organizations.
- Using formal methods, performed top-down domain analysis for the Generic Test Set, developing a VXI hardware and A Broad Based Environment for Test (ABBET) architecture including legacy software.
- Acronym DB - collected abbreviations and acronyms with their term expansions, along with term definitions and descriptions to learn more about the system and its development and test processes.
- GRAM - developed an extension to the test development process. The extension estimates temporal weather conditions. This included specifying the appropriate formulas and equations. It involved using applications to establish each parameter for any geodetic location.

Test Planning & Evaluation

- Performed test routine specification, design, and evaluation for IFTE. Designed MS Word VBA to translate test instructions to a format acceptable to allCLEAR test flow diagrams.
- Performed planning and direction for the PDSS staff of ten engineers and computer scientists. The development software included Fortran, Ada, UNIX, and ATLAS.

Procedural Test Plan Design

- Acronym Lister - extended a Visual Basic for Applications (VBA) tool to assist development and verification of the layout and list of abbreviations and acronyms in Word documents. It saves many hours of frustrating time to make a more complete document.
- Checklist - while learning more about the system, its development, and test processes, assisted in the development of several types of checklists being established for peer reviews of test design documentation and scenarios.
- Provided backup and assistance in Test & Evaluation System Test Planning and Design for Pre-Mission Test (PMT) describing test objectives, test schedule, test organization, test resources, test cases, test execution procedures, and reporting activities.

Course Design & Development

- GRAM - developed a training package and a Detail Instruction (DI) document for developing various atmospheric parameters for several components. The training and DI provide specific applicable references that specify the appropriate formulas and equations. They described using applications to establish each parameter for any geodetic location.

Computer Aided Instruction (CAI)/Computer Based Training (CBT) Development

- Using Software requirements definition, developed Interactive Authoring and Display System (IADS) and HTML IETMs for two systems.
- Developed modifications to an Embedded Training System (ETS) including a programmed learning database. Extracted courseware from databases.

Engineering - Verification Requirements

- Directed a verification and validation (V&V) staff of fifteen engineers and computer scientists for several projects.
- Performed ATS software analysis and V&V on the Generic Test Set. Performed software V&V on a weapon system command and control system.
- Performed weapon command and control and missile software V&V of a missile system demonstration/validation phase using tools including MathCAD.

Proposal Preparation/Development/Management

- Project tasks adhered to Software Engineering Institute (SEI) Capability Maturity Model (CMM) Level III standards.
- Proposal Development - provided proposal support by preparing and delivering presentations for potential customers.

Automatic Test Equipment (ATE)

- Coordinated a multi-organization six-person team to develop application notes for an Automatic Test System.
- Coordinated a team to contribute to the development of IEEE standards for several areas in ATS development.
- Worked with other IEEE delegates toward establishing a consensus position on one standard. Balloted other standards.
- Developed, published, and presented an AutoTestCon paper on IEEE Automatic Testing Standards.

Skilled with These Tools:

- 4GL: VBA, Access, HTML, Interactive Authoring and Display System (IADS), Data Systems Dynamic Simulation (DSDS), toolSET Cleanroom Certify, MetaH
- 1-3GL: Basic, Fortran, ATLAS, UNIX, CLIPS; Intel assembly. Familiar with SQL, LISP, Ada, C, Oracle, RPG, and Cobol.
- Applications: Word, WordPerfect, PowerPoint, Excel, DrawPro, Project, MathCAD,
- Hardware: Wintel PC, Macintosh, Sun, VAX, HP1000, IBM-360, Mod Comp III.

PROFESSIONAL EXPERIENCE

- December 2007 – Present, Sr. Systems Engineer III, Teledyne Brown Engineering, Huntsville, AL
- September 1998 – December 2007, Project Leader, TAPS, Fayetteville, TN
- March 1993 – September 1998, Project Leader, SAIC, Huntsville, AL
- November 1992 – March 1993, Project Leader, EER Systems, Huntsville, AL
- February 1992 – November 1992, Senior Staff Engineer, EER Systems, Huntsville, AL
- February 1991 – February 1992, Senior Research Engineer, UAH Research Institute, Huntsville, AL
- December 1964 – February 1991, Engineer – Program Manager, General Electric, Huntsville, AL

PROGRAMS

- ATACMS (Army Tactical Missile System), Army - March 1997 to March 1998
- ATE (Automatic Test Equipment), Army & NAVY - January 1980 to September 1999
- CASS (Consolidated Automated Support System), NAVY - February 1986 to February 1990
- DSDS (Data Systems Dynamic Simulator), NASA – May 1975 to July 1978
- GETS (General Electric Test Set) 10, Army - July 1978 to March 1980
- GETS 1000, Army, FMS - January 1980 to February 1990
- GMD (Ground-based Midcourse Defense), MDA - December 2007 to Present
- HAWK (Homing All the Way Killer), Army - March 1980 to May 1983
- IEEE, Army TMDE - February 1992 to June 1996
- IFTE (Integrated Family of Test Equipment), Army - February 1992 to September 1999
- IR&D (Independent Research & Development), GE - January 1980 to December 1988
- LCSS (Land Combat Support System), Army - May 1974 to May 1975
- PATRIOT Missile System, Army - June 1983 to June 1985
- POLARIS Missile System, Navy - October 1962 to October 1964
- Program Development - June 2000 to November 2007
- SAE (Society of Automotive Engineers International), Army - September 1998 to June 2000
- SAFEGUARD Anti-ballistic Missile System, Army - May 1975 to June 1978
- SATURN IB, APOLLO Moon Exploration, NASA - December 1964 to April 1974
- TMDE (Test, Measurement, and Diagnostic Equipment), Army - February 1992 to June 1996
- TPS (Test Program Set), Army - January 1980 to February 1990

ADDITIONAL TRAINING/EDUCATION

INCOSE Systems Engineering Handbook Review & Certified Systems Engineering Professional (CSEP) Preparation

- International Council on Systems Engineering (INCOSE) - April 2008
- This 8-hour International Council on Systems Engineering (INCOSE) Systems Engineering Handbook Review & Certified Systems Engineering Professional (CSEP) Preparation Tutorial prepares educated and experienced systems engineers for taking the professional certification test by reviewing material expected in the test with test-taking tips.

Design Review and Assessment

- AMCOM SED - October 1997
- Methodology for review and assessment of software.

Capability Maturity Model Overview and Process Improvement

- AMCOM SED - October 1997
- Capability Maturity Model Level 2 Overview and Process Improvement

AWARDS

- Zero Defects Apolloneer Award, May 1966