

ALAN LEE WOOLDRIDGE

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Summary

Owner/consultant **TrailBlazer Technologies, LLC** providing performance solutions with a multi-disciplinary approach focused on industrial engineering, human factors, operations research, performance management, training needs analysis training development, and training, business change management, human capital development, and performance support automation for space, antiterrorism, law enforcement, military, and civilian applications. Specializing in simulation systems, life cycle cost estimation systems, multivariate performance measurement, cockpit workload assessment, human resource management automation, and automated training analysis and management systems.

Philosophy

“The common thread running through most of my experience has been the need for my clients to do more with less. As such, I always concentrate my skills and intuitive insight on each client’s greatest technical and human challenges to tailor an effective solution using the most sensible, effective and efficient approach fitting the needs of my customer. As a result of my customer service-oriented approach to consulting I have established long term relationships with several of my clients, a few lasting well over a decade.”

Education

M.S.	Industrial Engineering and Management Science	University of Central Florida	1980
B.A.	Psychology	University of Central Florida	1973
B.S.	Industrial Engineering and Management Science	University of Central Florida	1973

Affiliations/Professional Associations

NSC – National Space Club Florida Committee

AIAA - American Institute of Aeronautics and Astronautics: Senior member.

A4H – Astronauts 4 Hire Senior Technical Advisory Council (STAC): Consisting of former NASA astronauts, astronaut instructors, and government liaisons, the STAC provides A4H with strategic guidance on matters related to training and operations.

SALT - Society for Applied Learning Technology

NDIA - National Defense Industrial Association

AFCEA International - The Armed Forces Communications and Electronics Association

Capabilities

- Aerospace & Rocket Solutions
- Program and Project Management
- Simulation Training Development
- Technical & Non-Technical ISD/SAT
- Human Factors & Safety Analysis
- Business Process Reengineering
- Operations Research
- Design Requirements/JAD Facilitation
- Human Capital/Change Management
- Productivity Management
- Instruction and Presentations
- Multivariate Statistics
- Documentation
- Life-Cycle Cost Analysis
- Systems Automation & Integration

Clients

- NASA /Rockwell Shuttle Operations Company
- NASA/Lockheed Space Operations Company
- NASA/MSFC
- Air Force Space Command
- Department of Homeland Security Customs and Border Protection
- Defense Information Systems Agency (DISA)
- Defense Commissary Agency (DECA)
- Defense Security Service (DSA)
- Air Force Human Resources Laboratory
- Naval Training Systems Center
- U.S. Treasury Department, Denver Mint
- U.S. Department of Transportation Federal
- US Marine Corps
- US Forest Service
- Deposit Insurance Corporation
- Defense Acquisition University
- PerformTech Inc.
- RocketStar
- Federal Aviation Administration
- National Highway Traffic Safety Administration
- Florida Department of Law Enforcement
- Coca-Cola Corporation
- AT&T Bell Laboratories
- Vertex Solutions, Inc.
- Star Mountain Inc.
- Abraxas International
- National Coal Corp.
- Litigation Research
- Grumman Aerospace Corporation
- Sikorsky Aircraft
- University of Central Florida
- General Physics Corporation
- SPAR Aerospace Ltd.
- Eduplus, Ltd.
- Pal-Tech, Inc.

Experience

8/12 – 1/16

Mass Dynamix, Inc.

Director/Vice President/Secretary Treasurer/Marketing and Quality Assurance Manager/Principal Investigator - marketing and developing a zero-G mass gauge for measuring fuel states in spacecraft. Responsible for overseeing the design and construction of the prototype zero-G mass gauge, implementing a web presence, and developing a business process and marketing plan. Authored the winning NASA Flight Opportunities Program, Phase Six proposal for 160 parabolic flights to demonstrate the zero gravity optical mass gauge. Acquired both a titanium prototypical tank and transparent sphere from ATK, modified the sphere to have similar duplicate internal structures as the actual prototypical tank, designed and fabricated a test capability for: videoing the transparent tank and managing fluids during the flight test, and recording the measurements of fluids within the prototypical tank during the microgravity portions of the flights.

7/15 – Present

SmallSat Society

Vice President and Technical Director to provide liaison services for SmallSat and small scale launch services and to develop entrepreneurial and leadership training for space-related businesses. Designed logos, marketing materials, and website. Presently working to reorganize and repurpose the society after the retirement of the founder.

3/11 – Present

Integrated Spaceflight Services, LLC

Vice President marketing and developing a zero-G mass gauge, which subsequently became the basis for another corporation. Developed a satellite lifecycle cost estimation widget and satellite propellant storage characteristics database in MS ACCESS. Developing life cycle cost models for commercial manned spaceflight mission global contingency rescue services. Developed a commercial spaceflight astronaut training syllabus.

7/10 – Present

Astronauts4Hire

Advisory Board Member currently supporting the development of A4H's commercial spaceflight astronaut training standards.

Consultant and Design Engineer to RocketStar, Inc. to develop single stage to orbit spaceflight systems. Designed and constructed rocket test vehicle and additive manufactured solid propellant aerospike nozzle, developed and constructed static test system, and performed multiple successful ground and flight tests. Currently authoring multiple NASA and commercial proposals for commercial aerospike rocket development programs. Developed a pintle rocket engine injector patent for use under a NASA George C. Marshall Space Flight Center Cooperative Agreement Notice (CAN) 2016 for Dual Use Technology Development project. Appeared on multiple Canadian Discovery Channel segments regarding the RocketStar aerospike nozzle test program.

Consultant to Integrated Spaceflight Systems, Ltd. and Astronauts4Hire to develop commercial spaceflight training systems, simulations, and procedures for developing and space rating hardware using manned commercial suborbital transportation systems.

Consultant and Senior Analyst to PerformTech, Inc. for Homeland Security Customs and Border Protection to conduct job task analysis for operating and maintaining border security surveillance systems, including the complete Boeing SBInet using own RDAS.net training analysis database to manage and analyze over 7,000 operator and maintenance tasks. Also provided a comprehensive media and methods analysis, and safety and hazards analysis of all SBInet tasks. Facilitated review and validation sessions at the Boeing SBInet facility in Tucson, Arizona for the task inventory, media and methods, and safety and hazard analysis.

Consultant and Senior Analyst to PerformTech, Inc. for Homeland Security Customs and Border Protection to conduct job task analyses for operating and maintaining SBInet surveillance equipment. Performed operator task analysis, training requirements analysis, and curriculum design for the Block 1 SBInet C3I Station-COP and Mobile-COP systems and its supporting products. Conducted focus groups in the field with operator SMEs and developed both the technical approach and the supporting templates for data collection and analysis. Developed a critical task list for Border Patrol Agents and their supervisors, identified course content, and designed a complete operator curriculum.

Consultant and Senior Analyst to PerformTech for Homeland Security Customs and Border Protection to develop an operator task inventory for Northern Border snowmobile operators and instructors. Traveled to the Pemina, North Dakota Border Patrol Station to observe and interview current Border Patrol Agents who patrol on snowmobile and perform operator instruction. Produced a task inventory document that included 107 general operator tasks with 527 supporting KSAs; focusing on nine primary functional areas: pre-ride checkout, basic riding skills, night riding, ice-riding, mountain riding (avalanche survival), patrolling, towing/trailer, post ride check and maintenance, and instructor skills.

Consultant and Senior Analyst to PerformTech for Homeland Security Customs and Border Protection to develop an operator task inventory and curriculum design for the SBInet Northern Border Deployment (NBP) and other Remote Video Surveillance Systems (RVSS). Traveled to both Northern and Southern Borders to observe and interview current Border Patrol surveillance camera systems and RVSS vendor integration and programmer team members, including Border Patrol agents, Supervisors, and Sector Enforcement Specialists. Produced a design document that included course structure, performance objectives, content outline, instructional strategies, assessment approach, media to be used in this course, and technical requirements.

Consultant and Principle Investigator to PerformTech for Homeland Security Customs and Border Protection (HSCBP) to develop an HSCBP Technical Support workforce maintenance task inventory and curriculum design for the Mobile Surveillance System (MSS). Conducted interviews with Telephonics, Inc. and HSCBP maintenance personnel onsite at the MSS field maintenance facility in Tucson, Arizona. Developed a validated task inventory with over 780 corrective and preventative maintenance tasks (including tools and parts) with more than 80 flow charts describing MSS systems, and maintenance activities.

Consultant and Senior Analyst to PerformTech for Homeland Security Customs and Border Protection (HSCBP) to conduct a training needs analysis to identify the scope of the pre- and post-Academy curricula, the specific topics and learning objectives to be included in each, and the best delivery and assessment methods to employ. The goal of this project was to identify the training components that would comprise a standardized, measurable pre-Academy curriculum and post-Academy curriculum for CBP Officers. The pre-Academy curriculum would be focused on acquisition of knowledge and skills that will best prepare the CBP Officer to succeed at the Academy. The post-Academy curriculum would reinforce what was learned at the Academy, while focusing on application of skills required of trainees in their first 18-24 months on the job.

Conducted through interviews and focus groups with Customs Subject Matter Experts (SMEs) from the field and from the Customs Field Operations Academy. The end product was an HSCBP approved comprehensive Curriculum Design Guide that described the scope and sequence of the pre- and post-Academy curricula, listing major topics, learning objectives, delivery methods, and assessment methods. This curriculum included a blend of classroom training, Virtual Learning Center courses, and on-the-job training, as required by the analysis.

Systems Software Analyst/Engineer/Business Process Consultant to PerformTech, Inc. performing systems engineering on the Commissary Career Program (CCP) System and business process engineering for the Defense Commissary Agency (DeCA) during a migration from legacy pay scales (GS) to new NSPS pay bands. This ongoing project involves both developing human resources business processes as well as redesigning and implementing commensurate changes to the CCP system software. Additional work to develop Workforce of the Future (WOF) and NSPS-based competency assessment and analysis automation is ongoing.

Principle Investigator to PerformTech, Inc. Performing training and curriculum analysis to redesign the Border Patrol academy curriculum at Artesia New Mexico. The goal of this design analysis was intended to both validate the current curriculum against a comprehensive task analysis and to suggest improvements to the curriculum that would enhance throughput of graduates. As well as supporting a major portion of the analysis, developed the technical approach and supporting Excel spreadsheet templates for data collection and analysis.

Principle Investigator to PerformTech, Inc. Performing training analysis to develop storyboards for computer based training for the Border Patrol post-academy curriculum for fraudulent document recognition. The resulting three part course covers the basic approach to examining documents and specifically covered: U.S. birth certificates, U.S. naturalization certificates, passports, permanent resident cards, border crossing cards, employment authorization documents, and visas.

Systems Software Analyst/Engineer/Consultant to PerformTech, Inc. performing web design and content development facilitation for the Customs Border Protection (CBP) Agency to develop a prototype/mockup career management website for Customs Officers and Border Patrol Agents. The resulting prototype website was developed to be scalable to eventually include all CBP employees.

Systems Software Analyst/Engineer/Consultant to Litigation Research performing Access database development for mock and trial jury analysis using multivariate statistical analysis routines in VBA. This software is able to record historical records and perform individual or longitudinal analysis to identify interactions between juror demographics and trial outcome to develop statistically reliable models for future jury selection and predict the outcome of trials given the demographic composition of jury panels.

Systems Software Analyst/Engineer/Consultant to PerformTech, Inc. performing statistical software development, analysis, and technical approach consulting on a NETS/NHTSA project to develop a traffic safety tool for employers. This project requires the development of a survey instrument, survey instrument pretest, and the development a cost model and tool useable by employers to identify the cost to their business of employee automobile crashes. A database was developed in Access and VBA that provided employee accident summary statistics and graphical presentations.

Systems Software Analyst/Engineer/Consultant to PerformTech, Inc. performing career management systems analysis, programming, and implementation of upgrades to the Defense Commissary Agency (DeCA) Commissary Career Processing System (CCPS). Developed and implemented a complete conversion of the dBASE IV CCPS legacy software system to MSAccess97/VBA. Authored a User Guide and context-specific on-line help for the entire CCP in RoboHelp. Provided long-term support and modernization to current versions of Access, VBA, and RoboHelp. Developed and implemented new and improved user interfaces, continual business process improvements and incorporated the corresponding performance support software, embedded productivity tracking and analysis tools, automated job candidate application and referral processing, automated email notifications, and various data exchange interfaces to on-line Internet and Oracle databases. Developed, authored, and delivered worldwide classroom training in support of new CCP programs and procedures.

Systems Software Analyst/Engineer/Consultant to PerformTech, Inc. performing systems analysis, programming, and implementation of the Defense Commissary Agency (DeCA) Commissary Student Training Evaluation System. This system administers Level 1 evaluations of management training courses provided by DeCA Headquarters. Developed and implemented a complete conversion of the dBASE IV legacy software system to MSAccess97/VBA.

Systems Software Analyst/Engineer/Consultant to PerformTech, Inc. performing systems and personnel competency analysis, programming, and implementation of the Defense Commissary Agency (DeCA) Commissary Employee Skills Gap Analysis System. Reviewed existing competencies for generic positions representing all DeCA employees across the entire agency. Developed an improved rigorous analysis approach to enhance the utility of the skills gap data and developed and implemented an MS Access 2000 workbook for use by supervisors to survey and analyze skill gaps. An MS Access 2000 prototype of the survey system for maintaining, rolling up, summarizing and presenting agency-wide skill gap data was also developed and demonstrated.

Instructional Systems Design Engineer/Consultant to PerformTech, Inc. for the Defense Information Systems Agency (DISA) to support the migration of Defence MegaCenters from mainframe operations to mid-tier service center operations. Responsibilities included facilitating and performing training requirements analyses, developing training syllabi, identifying training resources, maintaining the HRD COMPASS training management system, and developing on-line user, administrator, and maintenance guides. This effort resulted in a fully functional and comprehensive training analysis and management system based on analysis of over 3800 task topics with over 4700 related training interventions with the capability of tracking the training of over 7800 employees with over 352 core position descriptions.

Systems Software Analyst/Engineer/Consultant to PerformTech, Inc. performing systems analysis, programming, and implementation of the Defense Commissary Agency (DeCA) Employee Satisfaction Survey Data Management and Analysis System. This system supports the scanning of survey forms, the management of unlimited years of survey data, the statistical analysis and graphical presentation of the results, and the comparison of results with similar OPM surveys. Developed and implemented in MSAccess97/VBA.

Systems Software Analyst/Engineer/Consultant to PerformTech, Inc. performing training management and assessment systems analysis, business process analysis, and requirements development for the Defense Commissary Agency Commissary Training Management System (TMS). Facilitating requirements analysis sessions, authoring requirements documentation, and preparing a GAO and OMB business case analysis and life cycle cost estimations for developing and implementing a complete conversion of the DBMS mainframe legacy software system to perform as an operational client-server system integrated with the immerging DeCA data warehouse.

Training Analyst/Consultant to Vertex Solutions developing a training needs analysis plan, performing training assessment interviews, reviewing training assessment data, supporting the authoring of the training needs assessment report, and developing comprehensive training curricula for Defense Security Services Special Agents and Industrial Security Representatives.

Senior Analyst/Consultant to PerformTech, Inc. for Volpe Center/Department of Transportation to perform background research, interview a variety of Federal agencies, and author a report evaluating surface transportation systems vulnerability to terrorism. This study considered the layers of security infrastructure, the current state of this security, the vulnerability to unconventional weapons available to terrorists, and made recommendations on strategies for mitigation.

Consultant to Star Mountain for the US Navy to develop a training system life cycle cost estimation methodology adopted by NAVAIR as the standard for training program life cycle management.

Instructional Systems Design Engineer/Consultant to PerformTech, Inc. for the Federal Deposit Insurance Corporation to design and develop a Present Value Electronic Performance Support System add-in for Microsoft Excel97, a cost-benefit analysis tool. Responsibilities included the design and development of integrated on-line help and supporting the development of integrated CBI user training materials.

Systems Software Analyst/Engineer/Consultant to PerformTech, Inc. performing systems analysis, programming, and implementation for the Defense Commissary Agency to develop and implement the Commissary Officer/Manager (1144) classification analysis in MSAccess97/VBA.

Consultant to Rockwell Shuttle Operations Company for the NASA Operations Support Contract to provide training analysis, design tools, and evaluation for Space Station Freedom flight crew and ground support personnel.

Management Systems Consultant/Training Analyst/Training Author to PerformTech, Inc. performing training analysis, training development, design meeting facilitation, and authoring of key lessons (Life Cycle Costing and IPPD Overview) in the Defense Acquisition University (DAU) SYS211 Course on Integrated Product and Process Development (IPPD).

Instructional Systems Design Engineer/Consultant to Scientific Systems Corporation for the US Marine Corps Assault Amphibious Program training requirements analysis to provide training analysis and design tools, problem analysis methodology, and perform training requirements analysis for the entire AAV lifecycle.

Consultant to Spar Aerospace for the development of training analysis, design, and evaluation tools and methodology for Space Station Freedom robotics training.

Consultant to Rockwell Shuttle Operations Company for the NASA Operations Support Contract to provide training analysis and design tools for Space Station Freedom flight crew and ground support personnel. Authored the training and analysis portion of the RSOC proposal. Served as an invited member of the NASA Quality Round table.

Instructional Systems Design Engineer/Consultant to Eduplus Ltd. to develop and implement training requirements analysis tools (RDAS), user training and methodology for the Canadian Coast Guard.

Systems Designer and Software Developer to automate the batch mixing system for the Coca-Cola bottling plant in Cidra, Puerto Rico.

Senior Analyst and Principle Investigator. Developed and maintained the DISA CMS Management Plan, provided program management, marketing, and coordinated OPM and DISA management at all levels. Team leader and mentor for the technical staff supporting all tasks and activities associated with the management plan. Supported the development of early DISA/DITSO organizational vision, business practices, and competency documents in participation with other DISA organizations. Authored and prepared text and graphics for several internal DISA management briefings to be delivered by the client to the agency directors. Performed management analysis, conducted training, and conducted workshops for both DISA and DISA-WESTHEM Training Strategic Plan, the Career Management System (CMS) Vision and Concepts. Developed innovative management training interventions based on contextually realistic business simulations, conducted a session, and authored a report for a migration management simulation for DISA-WESTHEM at Vail, Colorado. Developed technical support materials and facilitated DISA agency consolidation meetings at DMC-Mechanicsburg, DMC-Denver, DMC-Rock Island, and DMC-San Diego which supported the development of data processing center migration technical and management plans and DMC concept of operations at each site. Developed technical support materials and facilitated both technical and nontechnical DISA Career Boards to provide the competencies and job skills for DISA CMS Job Requisition Kits and Job Application Kits. Developed concepts, scripts, and supervised production of DISA training pamphlets, printed guides, and training videos. Developed, authored, and demonstrated prototype automated data collection tools and supporting manuals for job analysis, position descriptions, and training library information management. Analyzed position descriptions and developed standardized skill sets and supporting training materials for a broad range of technical and nontechnical DISA positions. Developed benchmarking, training needs assessment, and organizational health concepts, authored materials, conducted surveys, analyzed results for DMC-Ogden.

Training analyst, instructional developer, training software developer to review FAA security publications and conducted design meetings at MCO and at the Oklahoma City FSDO. Developed prototype computer based instructional materials for airport and FAA facility perimeter security training and conducted small group tests at major FAA facilities in the United States. This prototype became the basis for subsequent security training.

Consultant/SW Engineer for the US Navy to reverse engineer and upgrade the T-44A systems panel trainer from a hard-wired analog system to a more adaptable PC software system.

Senior Analyst and Principle Investigator. Designing, coordinating and performing interviews, surveys, programmatic presentations, analysis of results, training program evaluations and authoring the final report for a congressionally mandated report assessing USDA Forest Service Law Enforcement and Investigation organizational effectiveness.

Senior Analyst and Principle Investigator. Performing career management systems analysis, programming, and implementation of upgrades to the Defense Commissary Agency Commissary Career Processing System (CCPS) in Access, VBA, and RoboHelp. Prepared the Preliminary Functional Economic Analysis for the regionalization and modernization of the DeCA civilian personnel functions.

Senior Analyst and Principle Investigator. Developed training materials for the U.S. Air Force School of Aerospace Medicine Ergonomics Course.

1/89 - 4/90

Barrios Technology

Senior Project Engineer. Developed and applied advanced analysis tools to a complete and detailed organizational mission analysis, task analysis, training objectives analysis, media selection, simulator functional requirements analysis, and training evaluation for NASA Space Station Freedom flight crew and ground support personnel.

Proposal Contributor and proposed Space Station Quality Program Manager for Barrios prime contract to NASA for the Kennedy Space Center Safety, Reliability, and Quality Assurance Contract. Presented best and final offer briefing at KSC.

9/86-1/89

Safety Services Corporation

United Airlines Services Corporation/ Flight

Senior Project Specialist. Project Manager and Senior Consultant for an Abraxas International Inc. contract to AT&T Bell Laboratories Resource Planning and Administration to perform software R&D productivity research and survey of R&D quality and productivity management techniques. This included the development of both organizational level and individual performance evaluations.

Senior Analyst, Senior Engineer, and Planning and Analysis Manager for the Air Force Space Command 1013th Combat Crew Training Squadron (CCTS) to develop the Space Training Management System (STMS), the Training Requirements Analysis Development Evaluation System (TRADES), and a four year comprehensive Training Development and Support Plan (TDSP) to be used by the CCTS for future tasking of the Training Support and Integration contractor. This included the development of standards and procedures for all levels of training evaluation.

Proposal Manager, Project Manager and Senior Analyst for Lockheed Space Operations Company to review and evaluate NASA and contractor Launch Team training, and design a complete and comprehensive Launch Team Training System (LTTS) to be used for future space operations at Kennedy Space Center.

Deputy Project Manager and Senior Analyst for Rockwell Shuttle Operations Company to review and evaluate NASA astronaut and mission controller training. The final products of this audit were a set of recommendations for the improvement of existing courseware and simulation systems, a prototype Automated Training Management System, a sample of advanced Computer Based Training applied to their specific subject matter, and a detailed management plan and guide for the efficient production of courseware.

Proposal Manager, Project Manager and Senior Analyst for United States Air Force Undergraduate Space Training to analyze training requirements, design, and implement an automated Satellite Model for simulated satellite control training. Advanced application generation and automated configuration control capabilities will be implemented by the project team to be used by the Air Force for continuing operation and maintenance of the simulation model. The final version of this model was to integrate with the training evaluation capabilities.

6/79 - 9/86
President

Vreuls Research Corporation – Vice

Senior Analyst on Air Force Human Resources Laboratory contract F33615-84-C-0055 to author tutorials and create user aids to support the operation of the stand-alone Performance Measurement and aircrew Debriefing Systems (PMDS) to be interfaced with the Simulator for Air-to-Air Combat (SAAC) and the Air Combat Maneuvering Instrumentation (ACMI) at Luke AFB.

Senior Analyst on NAVAIR/NTSC contracts N00019-84-C-0015 and N00019-84-C-0098 to develop and implement an automated Methods and Media Selection Model for F14a+/F14D and A-6F Operator and Maintenance Tasks. Developed and implemented the Requirements Development and Analysis System (RDAS) to build a task database, and perform automated methods and media selection. Software was also developed and implemented to provide an automated task and objectives editing and reporting capability for the F-14 instructional designers. Performed data collection onsite at Grumman, Long Island and Top Gun Miramar facilities. This contract also required interfacing the newly developed analysis software to the Grumman TRACS task analysis system on the IBM PC/XT, as well as, developing and implementing improvements to TRACS including the entire F-14A+/F-14D maintenance update analysis. As part of this study, compared RDAS media and methods selection to experienced Navy Instructors for 200 tasks resulting in 100% agreement.

Senior Analyst on Air Force Human Resources Laboratory contract F33615-82-C-0010 to perform Blue Flag augmentee job task analysis, information flow analysis, and develop and implement the Blue Flag Task Analysis Database System (BFTADS) to support Blue Flag training objectives, exercise design, and evaluation. BFTADS is capable of automatically generating operating guides, information flow diagrams, and job performance support materials from the contents of the task analysis database for each augmentee. This work also required the development of a computer based instructional system for NATO EIFEL-1 users.

Senior Analyst to provide the detailed functional design for an automated and adaptive user training system (including a training evaluation component) to be embedded in a computerized health care system for all three DOD services under a consulting agreement with Medcom Inc., a subsidiary of Baxter-Travenol Laboratories, Inc.

Systems analyst on United Technologies contract P. O. 876285 to develop and adapt VRC's Requirements Development and Analysis System (RDAS) to perform mission, task, and time-line analyses in support of Sikorsky Aircraft's LHX design project. These analyses were used to evaluate crew workload in one and two crewmember configurations in representative mission profiles. RDAS was interfaced with off-the-shelf software to provide graphic outputs illustrating various aspects of crew workload. Continuing analysis support and software enhancements were provided.

Program Director and Principal Investigator on Naval Training Equipment Center (NTEC) contract N61339-83-M-0971 to develop a demonstration study of the Cerebellar Model Arithmetic Computer (CMAC) for training. A Primer and research plan were written describing adaptation of this innovative technique to military training. Program Director and Principal Investigator for experiment related to Predictor Display Effectiveness for Carrier Approach and Landing on Contract N61339-81-C-0076 for the Naval Training Equipment Center (NTEC).

Principal Investigator for multivariate data analysis and state-space performance model for air combat maneuvering performance measurement study on Contract F33615-80-C-0024 for the Air Force Human Resources Laboratory (AFHRL) and the NTEC.

Program Director and Principal Investigator for the development of multivariate data analysis programs and their interface with the file structure of the F-14 Instructor Support System on Device 2F95 under subcontract with the University of Central Florida on Contract N61339-79-D-0105 for NTEC.

Task Leader for the analysis and development of a multivariate, state-space performance measurement model for nuclear power plant operators under subcontract with General Physics Corporation on Contract RP-769-2 for the Electric Power Research Institute.

Program Director and Principal Investigator on subcontract P.O. 0917 with Appli-Mation, Inc., to develop a predictor and augmented display system for research on methods to enhance training of aircraft carrier landing using minicomputer technology on Contract N61339-79-C-0125 for NTEC; responsible for predictor display designs, performance measurement specification and development of research plans.

Consultant on the design of instructor models and performance measures for a Landing Signal Office Training System under subcontract with Canyon Research Group, Inc., on Contract N61339-80-C-0073.

Program Director and Principal Investigator on subcontract P.O. 097 with Appli-Mation, Inc., to design and develop the simulated flight test portion of the Dynamic Naval Aviator Selection Testing and Evaluation System (DYNASTES) using minicomputer technology on Contract N61339-79-D-0105 for NTEC and NAMRL; responsible for the training and testing syllabus design, instruction data base editor specification, student performance data base architecture and maintenance software design, specification of audio-visual packages, and overall system integration. Technical Advisor for changes to the syllabus control algorithms, testing syllabus content, performance measures and system integration for DYNASTES under subcontract P.O. III4 with Appli-Mation, Inc., on Contract N61339-80-C-0144 for NTEC and NAMRL.

6/74 - 4/80

Canyon Research Group, Inc. – Regional Director/Office Manager

Senior Engineer. Task Leader on Contract F33615-79-C-0001 to develop specifications for an automated performance diagnosis and adaptive testing system for ground attack weapons delivery maneuvers on the ASPT (Advanced Simulator for Pilot Training) at Williams AFB, Arizona. Responsible for development of functional specifications for a performance measurement system, performance diagnosis model and adaptive testing logic. Design of an empirical development plan for refining and evaluating the adaptive testing program on the ASPT was also required.

Deputy Program Manager on Contract N61339-78-C-0060 to develop the experimental design, develop comprehensive approach, prepare measurement software and collect and examine data for the VTRS (Visual Technology Research Simulator) human performance research program at Naval Training Equipment Center, Orlando, Florida.

Technical Advisor on Contract N61339-77-C-0166 to perform a literature review of research applicable to the investigation of stress effects upon training effectiveness. Responsible for the review of reports and consolidation of technical information into a report useful for the direction of future stress in training research.

Principal Investigator on Contract N61339-77-C-0166 to study the performance measurement capability for the (Stage I) ISS attachment to F-14A Operational flight Trainer - Device 2F95. Responsible for review of the database design for long term research consequences related to the ability of the ISS file structure to support hypothetical research studies. The development of small sample performance measurement modeling techniques was also performed.

Staff Engineer. Task Leader on Contract F33615-77-C-0079 to develop an effective performance measurement model for air combat maneuvering using the simulator for air-to-air combat (SAAC) at Luke AFB, Arizona. Was responsible for development and implementation of statistical research data base manipulation and analysis of software. Also performed final analysis of data verifying experimental procedures and ultimately specifying the performance measurement model. The study involved a combined analytical and empirical approach to study 'free form' air combat engagements in a simulator.

Task Leader on Contract N61339-77-C-0137 to develop a performance measurement model for TACAN/GCA approaches on the Automated Flight Training System Enhanced (AFTS-E) on an F-4E simulator located at Luke AFB, Arizona. This study involved the specification of a complex performance measurement and data collection and processing system. Was responsible for development and implementation of the data processing and analysis software on the TRADEC Sigma-7 computer at Naval Training Equipment Center in Orlando, Florida. Was also responsible for the final performance measurement analysis.

Principal Investigator on Contract N61339-74-C-0141 to study the expanded adaptive module for basic instrument flight maneuvers on the TRADEC at the Naval Training Equipment Center in Orlando, Florida. This was a limited study to gain operational experience with this automated training system and to obtain data useful for the development of small sample performance measurement modeling techniques. Was responsible for the design and conduct of the data gathering portion of the study as well as the rudimentary development of small sample nonparametric analysis algorithms.

Principal Investigator on Contract N61339-77-C-0143 for development of a synthetic selection system for naval aviators called DYNASTES (Dynamic Naval Aviator Selection Testing and Evaluation System) at NTEC in Orlando Florida. This study involved a comprehensive literature review on pilot selection and the integration of this knowledge into a training/testing for selection system. Was responsible for design of the architecture of the synthetic selection system and incorporation of the principles uncovered during the literature review.

Program Manager on Contract N61339-76-C-0079 to develop and implement two complete performance measurement systems and several adaptive training logics for a real-time automated instrument flight trainer. The study involved collection of empirical data for the analysis and comparison of the systems implemented. A preliminary development and implementation of techniques to determine the hierarchical relationships between exercises in the syllabus was also included.

Research Engineer. Task Leader on Contract N61339-75-C-0128 to develop and implement an automated training performance measurement system for an F-4 flight simulator and to develop data collection and analysis procedures for subsequent field data collection and analysis. Was responsible for development of data collection analysis methods based on previous measure selection studies using multivariate statistical methods.

Task Leader on Contract N61339-75-C-0091 to study certain statistical and theoretical issues in the use of multivariate methods to potentially reduce sampling requirements and stabilize weighting coefficients when using multivariate methods to assess performance.

Task Leader on Contract N61339-75-C-0087 to design, install and develop a simplified, higher-order, partially self-organizing adaptive training system for an expanded PDP-9 system at the Naval Training Equipment Center, Orlando, Florida. Was responsible for software system and display system specifications, design and development of the training controller, and system development tests.

Project Leader for Contract N61339-76-M-0025 to design, develop and execute a software system for data extraction, editing and formatting (for analysis) of continuous time history records from a simulator study of the effects of various camera sensor configurations upon pilot performance using a visual carrier landing display.

Task Leader for Contract N61339-74-C-0079 to design and develop a higher-order adaptive training system for manned vehicle training. The study involved the application of what is known in automated training, laboratory level adaptive training, human performance assessment and computer-aided instruction. Was responsible for software development of a system which will permit entry-level (continuous) skill assessment and thereby control system branching or administration of supplemental training techniques in order to efficiently progress a student through a syllabus of instruction.

Task Leader for Contract N61339-74-C-0063 to further develop trainee performance measurement selection techniques, implement resulting measures in a real-time automated instrument flight trainer (TRADEC F-4E configuration) and conduct tests and evaluations of improved measurement subsystem. The study involved collection of empirical data, further improvement of multivariate measure selection analysis methods, programming for real or near real-time measurement, and construction of methods to conduct measurement system evaluations.

6/73 – 6/74 Martin Marietta, Inc. – Quality Engineer
Quality Engineer for the Sprint I and Sprint II Missile System to design, review, and approve software and documentation of automated manufacturing and special engineering electronic systems and components testing. Responsible for review and analysis of airborne guidance electronics designs and documentation. This quality effort also concerned the detailed review and approval of electronic test requirements, test specifications, automated testing hardware, testing software, data analysis software, and documentation for testing the Sprint II missile guidance electronics and cables in compliance with contract specifications.

4/70 – 6/73 State of Florida/NTSC – Research Associate
Research Assistant for the University of Central Florida providing automated analysis and data collection tools, developing experimental designs, and conducting human factors research at the Naval Training Systems Center, Human factors Laboratory. Developed an artificial intelligent analog to digital heart rate monitor, automated an analog to digital eye tracking system, and a variety of research data and analysis software. Completed and published several peer-reviewed research papers.

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