

Alan Lee Wooldridge, Consultant

TrailBlazer Technologies, LLC

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Owner/consultant **TrailBlazer Technologies, LLC** providing performance solutions with a multi-disciplinary approach focused on rocketry, spacecraft, 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.

Education

M.S. Industrial Engineering and Management Science, *University of Central Florida, Orlando, FL*

B.A. Psychology, *University of Central Florida, Orlando, FL*

B.S. Industrial Engineering and Management Science, *University of Central Florida, Orlando, FL*

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)

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

Publications and Technical Documents

Authored over 200 technical reports, user guides, manuals, technical publications, conference presentations, instructor and student guides, training development and support plans, and conference presentations. Have presented lectures and classroom training internationally.

Clients

- NASA/MSFC
- NASA /Rockwell Shuttle Operations Company
- NASA/Lockheed Space Operations Company
- Department of Homeland Security Customs and Border Protection
- Defense Information Systems Agency (DISA)
- Defense Commissary Agency (DECA)
- Defense Security Service (DSA)
- Air Force Space Command
- 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
- RocketStar
- PerformTech Inc.
- 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.

Professional Experience

SmallSat Society

(2015 – Present)

Vice President, Technical Director

Technical advisor and coordinator to provide scientific and liaison services for SmallSat and small scale launch services and develop entrepreneurial and leadership training for space-related businesses. Participated in the NASA/KSC Partnership Landscape Forum Workshop with other major space organizations.

Mass Dynamix, Inc.

(2012 – 2016)

Vice President and Secretary-Treasurer

Principal Investigator for the α Metrix™ project, which provides immediate and improved measurement of liquid propellants leading to enriched exploration missions or millions of dollars in savings in spacecraft weight and mission extension tradeoffs.

Integrated Spaceflight Services, LLC.

(2011 – Present)

Vice President

Developing procedures for costing, designing, manufacturing, and qualifying hardware for commercial suborbital and orbital spacecraft. Currently supporting the development of a zero-G mass gauge for spacecraft propellant tanks. Developed a satellite lifecycle cost estimation widget and satellite propellant storage characteristics database in MS ACCESS.

TrailBlazer Technologies, LLC

(1989 – Present)

Owner/Consultant

Consultant – RocketStarInc. for rocket systems design and development, and business planning and development.

- Spearheaded and authored technical sections of a winning NASA MSFC proposal for aerospike pintle development contract. Currently, technical manager of the effort.
- Developed and constructed a small rocket testbed for additively manufactured aerospike rocket nozzles and performed ground testing campaign with several successful launches and recoveries.

Consultant - PerformTech, Inc. for **Homeland Security Customs and Border Protection**

- Completed job task analysis for operating and maintaining border security surveillance systems, including the complete Boeing SBInet using own 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.
- Completed a training needs analysis to identify the scope of the pre- and post- Customs Academy curricula, the specific topics and learning objectives to be included in each, and the best delivery and assessment methods to employ in combined support of 169 customs officer tasks.
- Facilitated a team that streamlined training for the President's initiative to increase the number of available agents on the border by successfully completing a training and curriculum analysis and redesign of the Border Patrol academy curriculum at Artesia New Mexico.

Consultant - PerformTech, Inc. for **Defense Commissary Agency (DeCA)**

- Developed and implemented career management systems software for the Commissary Career Processing System (CCPS), which reduced the HR personnel requirements by over 75% while improving throughput and customer satisfaction with effective personnel placement automation.
- Provided support and modernization of software and streamlining of CCP business process and DeCA HR initiatives for over 15 years.
- Developed and implemented other automated products for commissary manager evaluations, training effectiveness surveys, and prototype systems for human capital management. This work resulted in more than doubling performance efficiency while increasing customer satisfaction.
- Developed and delivered worldwide classroom training for new CCP programs and procedures.

Consultant - PerformTech, Inc. for **Defense Information Systems Agency (DISA)**

- Provided management and training analysis support for more than 12 years in the areas of human resource management research and analysis, business process change facilitation, management consulting, and training administration automation in a highly technical communications and data processing environment.
- The business process engineering and strategic planning support provided to support civilianization, change management, and downsizing of DISA's activities. The migration and downsizing activities (involving over 24,000 employees and the migration of 300 processing centers into 16 centers) is considered to be one of the major success stories in modern Government.

- Led a team of DISA subject matter experts to develop the baseline operational implementation of DISA's Learning Management System to provide a fully functional and comprehensive training analysis and management system based on analysis of over 3800 task topics (clusters of closely related tasks) with over 4700 related training interventions with the capability of tracking the training of over 7800 employees with over 352 core position descriptions.

Consultant - Rockwell Shuttle Operations Company (RSOC)

- Provided training analysis, design tools, and evaluation for Space Station Freedom flight crew and ground support personnel. Mentored/supported the analysis team.
- Authored the computer based training and training analysis and development section of the of the RSOC STS mission support continuation contract proposal.
- Participated in the NASA Quality Round table as a full member.

Consultant - Spar Aerospace

- Developed training analysis, design, and evaluation tools and methodology for Space Station Freedom robotics training.

Barrios Technologies, Inc.

(1989 – 1990)

Project Manager/Senior Engineer

- Founded and guided the Space Station Working Group for **Space Station Freedom** (SSF, now ISS) at **NASA, Johnson Space Center, TX**, through the integrated analysis of mission goals, the alignment of international enterprise stakeholders toward the accomplishment of those goals, the planning for new performance, the diagnosis of performance deficiencies, and the development, implementation, conduct, and assessment of the performance interventions needed to achieve those goals.
- Developed and applied advanced analysis tools to provide a complete and detailed organizational mission analysis, task analysis, training objectives analysis, media selection, and simulator functional requirements analysis for the **NASA Space Station Freedom** flight crew and ground support personnel as the SSF mission design began to mature.
- Developed prototype training materials for **NASA** space station training.
- Authored and presented **NASA** Space Station Freedom training analysis presentations for local, national, and international conferences.

United Airlines Services, Inc.

(1986 – 1989)

Project Manager/Senior Project Engineer

- Led a team to review and evaluate **NASA** astronaut and mission controller training for **Rockwell Shuttle Operations Company (RSOC)**. Developed a comprehensive 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, and a detailed management plan and guide for the improvement of the training business process and efficient production of courseware.
- Led a team at **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.

- Analyzed training requirements for **United States Air Force Undergraduate Space** Training to design, and implement an automated Satellite Model for simulated satellite control training.
- Developed 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) for the **Air Force Space Command 1013th Combat Crew Training Squadron (CCTS)** 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.

Vreuls Research Corporation and Canyon Research Group, Inc.

(1974 – 1986)

Senior Scientist/Regional Director and then Vice President

- Performed over 30 human factors research studies and developed systems for simulator training and automated performance measurement for F-14, F-16, F-18, A-7, A-10, and F-4 air combat and aircraft carrier and approach landing under contracts to **Naval Training Systems Center (NTSC)**, **Naval Aerospace Medical Research Laboratory (NMRL)**, **Naval Air Systems Command (NAVAIR)**, and **Air Force Human Resources Laboratory (AFHRL)**.
- Developed and automated many adaptive training algorithms, pilot selection models, parametric and non-parametric analyses techniques, including multivariate ridge discriminant and state space analysis.
- Developed a methodology and automated support for the efficient operation of **Blue Flag** theater of battle training and developed training requirements and training concepts for **NATO EIFFEL 1** air tasking command and control for **AFHRL**.

Martin Marietta, Inc.

(1973 – 1974)

Quality Engineer

- Designed, reviewed, and approved software and documentation of automated manufacturing, and special engineering electronic systems and components testing for Sprint I and Sprint II anti-ballistic missile system airborne guidance electronics.