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PROFILE An experienced systems engineer who formulates, manages, and delivers projects that meet the needs of the stakeholders. Self-motivated to seek out and participate in developing systems engineering methodologies that provide for cost-effective projects. A proven leader who establishes a productive team environment based on collaboration, delegation, and inclusion. Skilled communicator as evidenced by being co-author of four chapters in a text book and numerous conference papers. Enjoys working on challenging projects with other skilled individuals. Core strengths:

- Capable of leading projects from small to very large and from informal to process driven structure.
- Strong organizational, collaborative, analytical, and problem solving skills.
- Clear and effective style of writing and presentation.
- Self-motivated to complete projects with high quality results.

PROFESSIONAL EXPERIENCE

Consulting **2013 - Current**

Continuing active involvement in maturing the MBSE SysML CubeSat reference mode and expanding the collaboration across the aerospace community.

- Took over the lead for the INCOSE Space Systems Working Group in early 2014.
- A coordinator of, and a principal contributor to, the INCOSE MBSE Challenge Team project to develop a CubeSat reference model:
  - All phases of project lifecycle and all phases of operations
  - Applying INCOSE Object-Oriented Systems Engineering Method (OOSEM) and SysML
  - Creating a platform for other CubeSat teams to apply their own mission lifecycle and engineering processes and to customize and populate the model

Analytical Graphics - Exton, PA - Aerospace Modeling and Simulation Software **2008 - 2013**

Director, Product Data Management
Designed and developed a catalog of modeling objects for use in AGI's modeling and simulation tools.
Selected Accomplishments

- Initiated and coordinated a multi-year International Council on Systems Engineering (INCOSE) Model Based Systems Engineering (MBSE) project. MBSE is an emergent methodology that improves communication and enhances capture of knowledge within a project - resulting in increased project efficiency.
  - Coordinated and monitored a project where team members were geographically disbursed and provided support on their own time. Kept the project scope within the effort available from the team members. Motivated software tool vendors to develop additional capabilities. Resolved company proprietary and intellectual property issues.
  - Demonstrated the application of MBSE and Systems Modeling Language (SysML) to the modeling of a small satellite, a CubeSat. The visibility of the project within the aerospace community added to the reputation of AGI being a leader within the modeling and simulation community. Use of the model by the CubeSat community expands their ability to build models and increases their capability to carry out trade studies. This results in better and faster CubeSat development.
  - This is part of much a larger INCOSE effort to develop the emergent MBSE practice as applied to any type of system.
- Designed and managed the population of a catalog of spacecraft objects for import into AGI's modeling and simulation software tools.
  - Designed object modules to consist of a full description of the spacecraft, payloads, and modeling parameters. Prototyped catalog design platform and data structure that determined best solution for ease of population, maintenance, and expansion. Created tools for automatic calculation and population of modeling parameters.
  - The catalog enhanced the ability of AGI users to create satellite modeling and simulation scenarios. The catalog increased the value of AGI's modeling and simulation tools delivered to the customer.

Lockheed Martin - King of Prussia, PA **1973 - 2008**

Chief Engineer, Specialized Mission Data Collection System (2002-2008)
Selected Accomplishments

- Assessed and resolved all technical baseline risks. This included carrying out a mission data security analysis that concluded additional security measures were not required, thereby avoiding impacts to cost and schedule.
- Developed a tool that centralized communication of all technical activities and program commitments within the program.
- All program commitments were met on time and under budget. Customer award fees were 100 percent.
- Supported new business opportunities by developing mission management operations concepts, algorithms, and trade studies. Participated in a company-wide mission management Community of Practice.

Systems Engineer, Mission Management System (1996-2002)
Selected Accomplishments
- Participated in the writing of a winning proposal for a mission management system.
- Developed mission management concepts, algorithms, and trade studies.

Chief Engineer, Follow-on Mission Data Collection System (1993-1996)
Chief Engineer, with a staff of Associate Chief Engineers, lead the re-architecture of planning and scheduling capabilities for the follow-on mission data collection satellites.
Selected Accomplishments
- Established the technical baseline through a series of meetings and reviews with government contracting officers, program office, development managers, and chief engineers of other segments. Supervised and assessed architecture trade-studies carried out by two teams of engineers. Developed the planning and scheduling system concept of operations, requirements definition, and interfaces with other ground systems and space systems for the re-architected system.
- The re-architected system handled an increased number of mission satellites with an improved timeline. All contract obligations were met and the system was transitioned to operations.

Systems Engineer (1989-1993)
Selected Accomplishments
- Participated in the initiation and writing of a winning proposal for the re-architecture of the ground system for the follow-on mission data collection satellites.
- Supported development of planning and scheduling capabilities for the follow-on mission satellites.

Technical Manager, Mission Data Collection System (1986-1989)
Deputy manager of a group of thirty-five satellite planning and scheduling engineers.
Selected Accomplishments
- Assigned personnel to projects, carried out performance reviews, and planned salary action. Assessed technical, cost, and schedule impact of requested changes to program baseline. Developed tools for tracking costs and staffing. Carried out project cost-to-completes.
- Met financial objectives and milestones with high quality products. Built a very strong team.

Systems Engineer (1973-1986)
Selected Accomplishments
- Derived / validated algorithms and designed / verified computer programs for planning and scheduling of a system of mission data collection satellites.
  - Developed algorithms and computer programs for several generations of increasingly complex and capable satellites. Conducted verification of planning and scheduling capabilities, data interface with space system, and proper operations of space system. Created a comprehensive data analysis tool for verifying performance of planning and scheduling capabilities.
  - Met timeline requirements while optimizing mission data quality and quantity. Maximized utilization of satellite capabilities. Data analysis tool was used by other organizations for operational evaluation of satellite activities.
- Supported on-going operations and responded to equipment degradation and failures onboard the satellites.
  - Worked with a team of ground and space engineers to develop modifications to satellite operations that resolved the degradations and failures.
  - Minimized downtime of satellite operations and extended operational life of satellites.
- Participated in the writing of a winning proposal for the ground system of a specialized mission data collection satellite.

EDUCATION

Post Graduate, Physics, Lehigh University, Bethlehem, PA **Ph.D., Physics**, University of Michigan, Ann Arbor, MI
M.S., Physics, Indiana University, Bloomington, IN **A.B., Mathematics**, Indiana University, Bloomington, IN

ORGANIZATIONS

International Council on Systems Engineering (INCOSE),
American Institute of Aeronautics and Astronautics (AIAA), National Defense Industrial Association (NDIA), IEEE

PUBLICATIONS

- Cost-Effective Space Mission Operations, Editors Larson, Boden, and Squibb, Publisher McGraw Hill: Co-author of 4 Chapters
- INCOSE Annual International Symposium Proceedings: Author / co-author of 5 papers
- IEEE Aerospace Conference Proceedings: Author / co-author of 14 papers
- AIAA Space Forum: Author / co-author of 2 papers
- Space Symposium: Author / co-author of 2 papers