

INCOSE Spotlight on David Mason

Interviewed by Sandy Young, info@incose.org



David Mason

Name: David Mason, ESEP

Titles/Organizations: Principal Consultant, Project Performance International; Course Presenter, Certification Training International

Domain: Aerospace; Retired

Studied: Business Administration, Production and Operations Management; Quantitative Business Analysis

Years in systems engineering: 22

Place of Birth: Portland, Oregon (US)

Current Residence: Fremont, California (US)

Year joined INCOSE: 1998

Roles in INCOSE: Assistant Director, INCOSE Student Divisions; Board Member, INCOSE San Francisco Bay Area (former Chapter President)

How would you describe systems engineering to an 8 year old?

Systems engineering is like putting a puzzle together – you find how the little pieces connect to each other to complete the larger puzzle.

What did you want to do for a job when you were a kid?

It was not until high school that I realized I wanted to design and build things. During my industrial survey classes, I disassembled and rebuilt a small gas engine, and it operated correctly the first time it was started. During this same time, I learned to design, develop and test a product from initial concept to completion in a mechanical engineering class. I found the immediate personal gratification of developing products personally rewarding. That's when I realized I wanted to be a developer.

What inspired you to become a systems engineer?

My inspiration came primarily from the need to find efficient processes and practices to develop, integrate and test complex aerospace products while achieving mission objectives and satisfying stakeholder needs. I was intrigued by finding ways to reduce the technical efforts and improve communications amongst my team members to

develop quality products within approved time and budget constraints. This led me to discovering systems engineering and the tools and actions needed to accomplish my objectives.

What work accomplishment are you most proud of in your career?

The accomplishment I have the greatest pride in was implementing the systems engineering processes on the development of the Near Infrared Camera instrument. NIRCam is the Near Infrared Camera integrated onto the James Webb Space Telescope.

As the Lead Assembly, Integration and Test (AIT) Engineer for NIRCam, I performed the initial concept of the systems assembly sequence, the integration and the design of the verification test process. This also included the designing, development and assembly of the space simulation test facilities to perform system verification.

You are a Lean Six Sigma Black Belt – what does this mean and how is it related to systems engineering?

Lean Six Sigma uses an assortment of statistical and process analytical tools to identify strengths and weaknesses in a product's life cycle at each process stage. Lean Six Sigma and systems engineering are linked by process efficiency: Systems engineering identifies the life cycle processes while "tailoring" the systems engineering level of effort to perform each process, where Lean Six Sigma evaluates the process to identify areas for efficiency improvements.

What current projects are you working on for the INCOSE Student Division?

I strive to address the value propositions across all the stakeholders in the 4-way Benefit Model: students, universities, enterprise and INCOSE.

The student division program focuses on rewarding student efforts through a Student Systems Engineering Conference (SSEC), student division awards and a top student sponsorship to the INCOSE International Symposium (IS).

We are currently planning a pilot SSEC for 2015 at a sponsoring university in California, and the goal is to implement this program in geographical areas surrounding major universities across the globe in 2016.

What's your "elevator speech" to get students interested in STEM (Science, Technology, Engineering and Mathematics) careers?

Students should first pursue their passion. The power of STEM is in how it answers our most challenging questions. These questions can lie in the need to advance new ideas through research or reach the best solution to complex engineering challenges. While systems engineering provides a framework to address complex social and engineering issues, the power of applying STEM ultimately defines solutions for future complex problems.

As an INCOSE-certified Expert Systems Engineering Professional (ESEP) and instructor for preparation courses for Associate Systems Engineering Professional (ASEP) and Certified Systems Engineering Professional (CSEP), what value do you believe these certifications bring?

The value ASEP/CSEP brings is to establish a common systems engineering knowledge base of interrelating processes amongst a team. This facilitates improved communications and effectiveness to develop the best solution within project resource constraints, increasing the final product deliverer success..

I am an independent contractor for Project Performance International and Certification Training International teaching the ASEP/CSEP examination preparation class throughout the United States, China and parts of Europe. Teaching the INCOSE defined generic life cycle to practicing professionals often enlightens them to the interdependencies between processes across the entire life cycle and how these processes impact the systems requirements and ultimately the system architecture. It is a very rewarding experience when the delegates assess the improvements these processes can offer their products and programs.

What are some of the things you like to do outside of work?

Family is of the greatest importance. I enjoy observing the accomplishments of each individual person as they grow into adults and strengthen family bonds.

Golf gives me immediate gratification when conquering the challenge of completing each hole in the fewest number of “strokes” for a total round. I also enjoy remodeling houses requiring an extended time to complete while providing improved living experiences.

And recently, I became a first time grandfather – a new and exciting role in my life.