Eric H. Thorstenson

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Thorski Design, LLC, 2/05 - Present

President/Principal Engineer

As founder of Thorski Design, LLC, an engineering company offering technical services to government and commercial customers in the aerospace industry, performed contracts including:

- *Subsystem engineering leadership for development of the Antenna Thruster Orientation Mechanism,* a deployable four degree-of-freedom pointing platform for Northrop Grumman's Mission Extension Pod spacecraft. Managed subsystem budget, requirements definition, and subcontract specifications from early concept development through CDR. Set and maintained performance budgets including mass, torque margin, and pointing. Performed extensive design and analysis for new subassemblies including rotary joints, thruster pointing platform, twist capsule, and structural components.
- *Mechanical, electrical, and I&T engineering for Orbital ATK and NASA GSFC on the TESS mission.* Lead development of solar array twist capsule implementation including concept development, detailed design of mechanical and electrical components, and integration and test. Developed integration and test procedures and scripts for solar array, SADA, and battery relay unit. Following the on-orbit success of the mission, awarded the NASA Silver Achievement Medal in 2019.
- *Systems engineering and conceptual development for NASA GSFC Systems Engineering Directorate.* Developed multiple payload deployment concept to accommodate independent deployment of two spacecraft from a single launch vehicle. Designed release actuator mechanism with an adjustable tip-off, cam-operated cup/cone retention mechanism. Awarded a US patent for this deign in 2017.
- *Systems, mechanical, and I&T engineering for NASA GSFC on the Magnetospheric Multiscale (MMS) mission.* Lead development of a shock isolation system for the ACS accelerometer system. Developed hardware, sensors, and custom software application for high-resolution measurement of the Magnetometer Boom hinge performance, deployment and impact energy analyses, and characterization of release actuator performance.
- *Mechanical engineering and I&T support for Orbital Sciences and NASA GSFC on the Glory spacecraft program.* Conducted extensive solar array hinge qualification testing, including development of custom data acquisition hardware and software. Implemented solar array deployment test program, designed GSE, and developed software for preloading the array during installation. Received a letter of commendation from NASA for efforts on the solar array test program.

Additional independent projects include development of a software application for aerospace vehicle mass properties tracking, analysis, and prediction; development of microcontroller firmware for digital communication, sensor monitoring, and actuator control; design and fabrication of data acquisition and controller hardware interface boards; and

Professional Summary

- Over thirty years of experience in mechanical engineering and other disciplines supporting a variety of aerospace development contracts
- Fifteen years of experience acting as subsystem development lead for four spacecraft missions

Areas of Expertise

- Mechanisms and deployables
- Integration and test
- Real-time software and control systems
- Mechanical and mechanism design
- Kinematic modeling and animation
- Test software development

Spacecraft Missions

- MEP
- TESS
- MMS
- Glory
- ACRIMSAT
- Formosat-3
- QuikTOMS

Awards and Recognition

- NASA Silver Achievement Medal (2019)
- US Patent, Deployment Mechanism (2017)
- NASA Commendation (2008)

development of a physics based flexible body modeling approach for harness kinematics.

Orbital Sciences Corporation, 10/96 – 1/05

Senior Engineer/Principal Engineer

Provided mechanical engineering leadership for the ACRIMSAT, QuikTOMS, and Formosat-3 programs. Ensured that designs met mechanical system requirements, and that requirements were verified with a thorough test program. Performed analyses, wrote procedures, and conducted the following tests: random vibration, sine burst, sine sweep, acoustic, separation and array release, array deployment, alignment, and mass properties. Directed assembly of the flight structure, including build-up of primary and secondary structure components, installation of solar arrays, and installation of payloads. Developed finite element models and performed quasi-static, normal modes, and random vibration analyses. Prepared and presented mechanical systems material at all major milestone reviews.

CTA, Incorporated, 10/92 – 10/96

Senior Engineer

Supported NASA Langley's Microgravity Program Support Office, providing detailed technical analysis of Space Station components and experiments. Performed static structural, normal modes, frequency response, transient response, and thermal analyses on Space Station experiments and experiment racks. Supported the I&T effort for NASA's Sensor Data Processing Facility at GSFC. Developed test plans and procedures covering various mission operations and day-in-the-life scenarios.

EER Systems, 5/91 - 10/92

Quality Assurance Engineer

Supported the installation of the APS-137 radar system in a fleet of U.S. Coast Guard C130s. Designed an automated radome lift mechanism to avoid potential damage to the new radar or radome.

Grumman Space Station Program Support Division, 8/90 - 2/91

Systems Engineer

Supported NASA's Space Station Freedom Program Office. Performed technical analyses on the Space Station thermal control system, electrical power system and solar arrays, and ESA's Man-Tended Free Flyer.

Education

BS, Mechanical Engineering, University of Virginia, 1990