



C. Douglas Botos

Expertise

Mr. Botos' expertise is in the use of computer software for the mechanical design and static/dynamic analysis of aerospace and mechanical structures. He is well qualified in the application of SDRC Master Series™ and NASTRAN software with emphasis on design and analysis. He has extensive experience with design and manufacturing of thin walled plastic parts for consumer product applications.



Education

Purdue University, West Lafayette, IN
B.S. Degree in Aeronautical and Astronautical Engineering, 1990

Business Experience

Quartus Engineering Incorporated, San Diego, CA
1997 to present

Co-founder of Quartus Engineering Incorporated. Chief Design Engineer and Owner. Chief Engineer in charge of all Design projects. Responsible for three direct manager reports and seventeen design engineers.

Structural Dynamics Research Corporation (SDRC), San Diego, CA
1988 through 1997

Project Engineer with SDRC Advanced Test and Analysis Division. Performed static and dynamic analysis of aerospace structures and developed custom software for a variety of engineering applications.

SDRC Engineering Services Division, Inc., Nanterre, France /Cincinnati, OH
1986 through 1988

Student Engineer (Cooperative Education) with SDRC Technical Development. Developed FORTRAN geometry translator programs between SDRC I-DEAS and SET (Standard d'Echange et Transfer). Developed FORTRAN code for I-DEAS Model Solution applications and I-DEAS user interface utilities.

Product Experience

Cellular Phones. Over four years of cellular phone mechanical design including thin walled plastic parts, LCD integration, multiple-band antennas, silicone and plastic key mats, in-mold decoration, painting. Managed a team of engineers to develop two separate phone products with tasks including project management, cost and schedule evaluation, PCB layout interaction, and oversight of all design activities.

Semiconductor Equipment. Performed dynamic analysis of semiconductor manufacturing equipment. Used linear and nonlinear transient analysis to predict loads and failure modes of equipment caused by rotating equipment and seismic environments.

Launch Vehicles. I-DEAS finite element modeling and dynamic analysis using MSC/NASTRAN of the Titan Centaur launch vehicle and SRMU solid rocket motors. Pretest analysis of the Atlas IIAS launch vehicle using MSC.NASTRAN and FORTRAN applications.

Satellites. Coupled loads dynamic analysis of Atlas II/Telstar4 and Titan-Centaur/classified payload using MSC.NASTRAN. Pretest analysis and modal analysis of ACTS communication satellite.

Composites. Performed design and drafting for various composite structures including satellites and space shuttle payloads. Performed design and drafting of tooling layouts for assembling composite structures.

Test/Analysis Software. Developed FORTRAN software for advanced techniques in selection of accelerometer locations for modal survey tests. Techniques included advanced methods for creating Test Analysis Models (TAMs) using MSC.NASTRAN.

Space Station Freedom. SDRC on-site structural utilities and software support as part of Grumman Space Station Engineering and Integration Contract. Enhancement, porting and debugging of IDEAS software, NASA-developed spacecraft simulation programs and TRASYS thermal radiation analysis software. Platforms included DecStation 5000, VAX/VMS and IBM RS/6000. Development and debugging of numerous structural and thermal utility programs for more efficient preprocessing and postprocessing of NASTRAN and TRASYS analysis models.

Artillery Missile. Modal analysis of an artillery missile using MSC.NASTRAN to determine system frequencies for guidance and control.

Amusement Parks. Design and static analysis of a 200-foot movable show set using I-DEAS finite element analysis.

Railcar. Finite element modeling and dynamic analysis of a twin stack rail car using I-DEAS.

Data Storage Cartridge. Power consumption analysis of a computer data storage cartridge using experimental testing.

I-DEAS MASTER SERIES™ Design. Certified instructor for the I-DEAS Master Series Design class. On-site modeling of parts and assemblies. On-site drafting experience with large assemblies.

I-DEAS MASTER SERIES™ Simulation. Certified instructor for the I-DEAS Master Series Simulation class. On-site modeling of parts and creation of associated finite element models. Experience using both I-DEAS Master Series Model Solution and Optimization for both statics and dynamics.

I-DEAS MASTER SERIES™ General. Experienced in Master Series Software installation and software license management. Knowledgeable in I-DEAS Data Management including projects, libraries and catalogs.

Skills

- Design: I-DEAS Master Series, Pro/ENGINEER, Solidworks
- Analysis: I-DEAS Master Series, NASTRAN, FEMAP
- Drafting: Geometric Dimensioning and Tolerancing, ASME Y14.5M-1982 and 1994
- Programming: FORTRAN
- Office Automation: MS Word, Excel, PowerPoint, Project

Publications

Botos, C. Douglas, and C. Flanigan, "Automated Selection of Accelerometer Locations for Modal Survey Tests," 10th International Modal Analysis Conference, San Diego, California, February 3-7, 1992.

Mast, Jeffrey R., Donald J. Graff, and C. Douglas Botos, "Modal Test and Correlation of the Castor IVA Solid Rocket Motor," AIAA-98-1794, 39th AIAA/ASME/ASCE/ASH/ASC Structures, Structural Dynamics, and Materials Conference, Long Beach, California, April 20-23, 1998.

Affiliations

- Member of Tau Beta Pi Engineering Honorary
- Member of Sigma Gamma Tau Aerospace Honor Society
- Member of American Institute of Aeronautics and Astronautics

Last updated on January 18, 2008

