MECHANICAL ENGINEER

Skills

MatLab/Simulink, dSpace Rapid-prototyping, C, Microsoft Office, SolidEdge (CAD), Alibre (CAD), Model Center, MTS Test Press, Robust Engineering, Shanin Red X,DFMEA

Professional Experience

Mechanical Engineer

January 2009 to Current General Electric ï¼ Mars Hill , ME

- Air Force Research Laboratory Energy Power Thermal Division Developing advanced aircraft thermal and power system models for optimizing aircraft mission performance.
- Allows for the performance benefits of differing advanced thermal and power system to be quickly evaluated before the development of expensive hardware.
- Leading computer modeling team in the development of environmental control and life support system models for Air Force air superiority platform.
- Developed thermal system models and conducted analysis for Integrated Vehicle Energy Technology (INVENT) program of record.
- Developed and integrated models for AFRL's in-house thermal tip-to-tail model.

Senior Project Engineer

January 2001 to January 2009 Lockheed Martin ï¼ Oldsmar , FL

- Led design and development projects for controllable and passive automotive chassis systems.
- Led professional teams consisting of software and electrical engineers and CAD designers.
- Interfaced with customers in advanced development and production projects.
- Responsible for the design and development of the following advanced automotive chassis systems: Magneto-Rheological Powertrain Mount System Developed controllable powertrain mount system comprised of controllable fluid, magnetic circuit, sensor and controller.
- Led project from advanced development with European customer to production program with initial sales of $1.7 million/year with sales growth of $13 million/year.
- Received 6 related patents and pending patents.
- Magneto-Rheological Damper Piston Cores Developed high performance MR damper piston cores to improve damping performance of MR dampers by 20%.
- Semi-Active Mount Systems Developed Semi-Active powertrain mount system that incorporated stepper-motor actuator and integral controller to reduce mount dynamic stiffness at powertrain firing frequency by 50%.
- Received 4 related patients.
- Rotary Damper Developed passive rotary damper for improved damper packaging with European customer.
- Successfully completed customer durability and vehicle testing.
- Received 2 related patients.

Project Engineer

January 1994 to January 2001 Railworks ï¼ New York City , NY

- Developed control algorithms and simulation model for automotive chassis development.
- Responsible for the design and development of the following simulation and control algorithms: Integrated Chassis Controls: Damper Based Yaw Control Developed control algorithm to integrate MR controllable suspension system to braking system during emergency maneuvers.
- Developed system with European customer and brake supplier.
- Development work resulted in production algorithm used in current MR damper system.
- Received 1 related patient and 2 publications.
- Full Vehicle Model Developed 16 degree of freedom full vehicle model used in integrated chassis development.
- Vehicle model used in the development of controllable braking, suspension, and steering systems.
- Generated 1 related publication.
- Brake by Wire Algorithms Developed ABS and base brake control algorithms for vehicle brake-by-wire system.
- Developed Simulink model of hydraulic brake system.
- Received 3 related patents.
- Engine Vibration Control Algorithms (LMS Algorithm) Implemented feedforward LMS algorithm for engine vibration control system, which consisted of inertia actuators, accelerometers, crankshaft sensor, and controller.
- Engine vibration control system reduced vibration at accelerometer by 25dB from 20 to 200Hz.
- Generated 1 related publication.

Education and Training

M.S : Mechanical Engineering , 1993 University of Nevada Las Vegas GPA: University of Nevada Las Vegas Outstanding Thesis Award Prediction of the Performance Criteria for Passive Heating, Ventilation and Air Conditioning Silencers. Masters Thesis. Mechanical Engineering University of Nevada Las Vegas Outstanding Thesis Award Prediction of the Performance Criteria for Passive Heating, Ventilation and Air Conditioning Silencers. Masters Thesis.

B.S : Mechanical Engineering , 1991 University of Nevada Las Vegas Mechanical Engineering

Interests

7159855 Hydraulic Mount with Reciprocating Secondary Orifice Track-Mass 7118100 Magnetorheological-Fluid Hydraulic Mount 7063191 Reversed Decoupler Assembly for MR Mount 7036804 Bi-State Hydraulic Mount with Integral Controller 6848682 Bi-State Hydraulic Mount

6799754 Dual Track Variable Orifice Mount 6691990 Variable Orifice Track Powertrain Mount 6622830 Rotary Damper 6549842 Method and Apparatus for Determining an Individual Wheel Surface Coefficient of Adhesion 6536565 Rotary Damper 6505108 Damper Based Vehicle Yaw Control 6456921 Method and System of Brake System Control 5707115 Regenerative Braking Method

Publications

Active Vibration Control Technology Control Architecture of Integrated Chassis Systems Controlled Integrated Rotary Damper Torsion Bar Suspension Variable Plunger Relevant Publications M. Bodie, G. Russell, K. McCarthy, C. E. Lucas, J. Zumberge, M. Wolff, "Thermal Analysis of an Integrated Aircraft Model," 48th AIAA Aerospace Sciences Meeting Including the New Horizons Forum and Aerospace Exposition, Jan. 4-7, 2010, Orlando, FL. M. Bodie, M. Wolff, "Robust Optimization of an Aircraft Power Thermal Management System," 46th AIAA/ASME/SAE/ASEE Joint Propulsion Conference and Exhibit, July 25-28, 2010, Nashville, TN. C. Miller, J. Zumberge, M. Wolff, M. Boyd, and M. Bodie, "Drive Stand Characteristics for Hardware-in-the-Loop Turbine Engine Emulation," 46th AIAA/ASME/SAE/ASEE Joint Propulsion Conference and Exhibit, July 25-28, 2010, Nashville, TN. M. Bodie, M. Wolff, "Power Thermal Management System Design for Enhanced Performance in an Aircraft Vehicle," 2010 SAE Power Systems Conference, Nov. 2-4, 2010, Fort Worth, TX. A. Hac, M. Bodie, "Improvements in Vehicle Handling through Integrated Control of Chassis Systems," International Journal of Vehicle Design, vol. 29, nos. 1 and 2, 2002, pp. 23-50. M. Bodie, A. Hac, "Closed Loop Yaw Control of Vehicles Using Magneto-Rheological Dampers," 2000 SAE Technical Paper Series. Paper #2000-01-0107. K. Connair, M. Bodie, P. Chaumette, A. Catalan, "Development of a Common Vehicle Model for Chassis Control Design," 1999 SAE Technical Paper Series. Paper #1999-01-0732. B. Riley, M. Bodie, "An Adaptive Strategy for Vehicle Vibration and Noise Cancellation," Proceedings of the IEEE National Aerospace and Electronics Conference NAECON. vol. 2, May 1996, pp. 836-843.

Additional Information

- Patents 7159855 Hydraulic Mount with Reciprocating Secondary Orifice Track-Mass 7118100 Magnetorheological-Fluid Hydraulic Mount 7063191 Reversed Decoupler Assembly for MR Mount 7036804 Bi-State Hydraulic Mount with Integral Controller 6848682 Bi-State Hydraulic Mount 6799754 Dual Track Variable Orifice Mount 6691990 Variable Orifice Track Powertrain Mount 6622830 Rotary Damper 6549842 Method and Apparatus for Determining an Individual Wheel Surface Coefficient of Adhesion 6536565 Rotary Damper 6505108 Damper Based Vehicle Yaw Control 6456921 Method and System of Brake System Control 5707115 Regenerative Braking Method

Skills

Air Force, automotive, benefits, C, CAD, hardware, controller, firing, life support, MatLab, Microsoft Office, modeling, MTS, dB, packaging, Press, prototyping, publications, publication, Research, sales, simulation