

# 11.0 References

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# Curriculum Vitae

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**Doctor of Philosophy in Mechanical Engineering**, *Virginia Polytechnic and State University*,  
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#### Relevant Coursework:

- \* Vibration of Mechanical Systems
- \* Dynamic Systems - Control Engineering I
- \* Applied Linear Algebra
- \* Advanced Control Engineering I (State Space Methods)
- \* Advanced Control Engineering II (Digital Control Systems)

Research Topic: Combined Shock and Vibration Isolation Through the Self-Powered, Semi-Active Control of a Magnetorheological Fluid Damper in Parallel with an Air Spring  
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**Master of Engineering in Mechanical Engineering**, *Old Dominion University*, Norfolk, Virginia  
May 1998, Cumulative GPA: 3.66/4.00

#### Relevant Coursework:

- \* Engineering Software (MSC/NASTRAN, MSC/PATRAN, GENESIS)
- \* Finite Element Analysis
- \* Manufacturing Processes
- \* Theory of Elasticity
- \* Advanced Dynamics
- \* Theory of Vibrations
- \* Computational Fluid Dynamics
- \* Partial Differential Equations (I & II)
- \* Numerical Analysis (2 Courses)
- \* Complex Variables

**Bachelor of Science in Physics**, Minor Mathematics, *California State University, San Bernardino*  
December 1991, Cumulative GPA: 3.54/4.00

**Associate in Arts in Liberal Arts**, *Los Angeles Pierce College*  
June 1988 (Emphasis in Business Administration)

## EXPERIENCE:

9/2003 to Present, *PAR Technologies, LLC*, Hampton, Virginia, **Senior Design Engineer**

Responsibilities include research and development involving devices that utilize piezoelectric actuation. Specific responsibilities include first principles and multi-physics modeling of piezoelectric devices, detailed product design including design for manufacturability and repeatability, product testing, and control system design related to the control of piezoelectrically driven devices.

7/1998 to 9/2003, *Northrop Grumman Newport News*, Shock Technology Group, Newport News, Virginia, **Senior Engineer**

Responsibilities include the design of large servohydraulic shock test machines, structural design and analysis, control system design and implementation, the design of advanced active and semi-active shock and vibration isolation systems for use on submarines and surface ships, development of numerical analysis tools, static and dynamic finite element analysis using commercial codes and isolation mount characterization. Individually responsible for project management and engineering for several current R&D programs.

7/1996 to 7/1998, *Northrop Grumman Newport News*, Reactor Services Department, Newport News, Virginia, **Engineer**

Responsibilities include the design of tools and equipment used in the initial and refueling of nuclear U.S. Navy powered aircraft carriers and submarines, troubleshooting automated and manual nuclear fueling equipment and ensuring products were delivered on time and within budget.

1/1996 to 7/1996, *Mitsubishi Chemical America, Inc.*, Chesapeake, Virginia, **Mechanical/Manufacturing Engineer (Intern)**

Responsible for the redesign of existing manufacturing and test equipment to increase productivity. Individually responsible for all aspects of the design process from concepts to completion.

Fall 1994, *Old Dominion University*, **Teaching Assistant**

Taught undergraduate algebra course. Responsibilities included preparing and presenting lectures and preparing and grading exams.

1993 to 1994, *The George Washington University, Joint Institute for Advancement of Flight Sciences, NASA Langley Research Center*, Hampton, Virginia, **Research Assistant**

Assisted in an ongoing research project involving prediction of noise generated by an advanced ducted propfan using computational aeroacoustic techniques.

Summer 1991, *California State University, San Bernardino*, **Research Assistant**

Assisted in an ongoing research project involving determination of the potential damaging effects of x-rays on ferroelectric materials.

1980 to 1993, *Lucky Stores, Inc.*, Buena Park, California, **Manager**

Directed all aspects of the operation of a retail grocery store. Responsibilities included direct supervision of up to 300 employees, customer service, payroll, scheduling, ordering and inventory control.

## ADDITIONAL TRAINING:

- \* I-DEAS Master Series Modeling
- \* I-DEAS Master Series Simulation (Finite Element Analysis)
- \* MSC NASTRAN Linear Static and Dynamic Analysis
- \* Abaqus Linear Static and Dynamic Analysis
- \* Windows NT for Advanced Users
- \* Intermediate UNIX

- \* Practical Shock Analysis and Design: A Shock and Vibration Information and Analysis Center (SAVIAC) Short Course
- \* Introduction to Vibration Testing: A Shock and Vibration Information and Analysis Center (SAVIAC) Tutorial
- \* Data Acquisition for Shock and Vibration Measurements: A Shock and Vibration Information and Analysis Center (SAVIAC) Tutorial
- \* Validation and Editing of Shock and Vibration Data: A Shock and Vibration Information and Analysis Center (SAVIAC) Tutorial
- \* Design of Naval Ship Structures (Short Course), Natale S. Nappi

## COMPUTER SKILLS:

- \* *Programming Languages:* FORTRAN, Pascal, Visual Basic
- \* *Operating Systems:* UNIX, Microsoft Windows95/98 and NT 4.0
- \* *Graphical Environments:* Microsoft Windows, Sun OpenWindows, X Windows
- \* *Computer Systems:* IBM PCs and Compatibles, Sun, Silicon Graphics and IBM Workstations, Cray Supercomputers
- \* *Mathematical Software:* Derive, Maple, Mathematica, Mathcad, Matlab and Simulink
- \* *Engineering Software:* SDRC I-DEAS Master Series, MSC NASTRAN and PATRAN, Abaqus, AutoCad 2000
- \* *Office Software:* Microsoft Word, Excel, PowerPoint and Access
- \* *DAQ and Control System Hardware/Software:* dSpace

## PUBLICATIONS:

1. *Numerical Solution of the Two-Degree-of-Freedom Mass-Spring-Damper System with Applications to Shock Isolation System Design*, 1999 SAVIAC Shock and Vibration Symposium, Albuquerque, New Mexico
2. *Developing a Functional Representation of an Isolation Mount from Parsing Data*, 2000 SAVIAC Shock and Vibration Symposium, Arlington, Virginia
3. *A Numerical Investigation of Combined Shock and Vibration Isolation through the Semi-Active Control of a Magnetorheological Fluid Damper in Parallel with an Air Spring*, 2000 SAVIAC Shock and Vibration Symposium, Arlington, Virginia
4. *Development of a Numerical Response Solver for the Nonlinear Two-Degree-of-Freedom Model with General Damping*, 2000 SAVIAC Shock and Vibration Symposium, Arlington, Virginia
5. *Application to Shock Analysis of the Transformation of the Modal Damping Matrix to Physical Coordinates*, 2000 SAVIAC Shock and Vibration Symposium, Arlington, Virginia
6. *Combined Shock and Vibration Isolation through the Optimal Control of a Hybrid "Smart" Mount*, To be presented at the 2002 SAVIAC Shock and Vibration Symposium, Newport, Rhode Island
7. *Chirp Machine Performance Optimization for Improved Test Utility*, To be presented at the 2002 SAVIAC Shock and Vibration Symposium, Newport, Rhode Island

## HONORS, AWARDS AND ACTIVITIES:

- \* The Henry C. Pusey Award for Best Technical Paper, 2002 SAVIAC Shock and Vibration Symposium
- \* Member - American Society of Mechanical Engineers (ASME)
- \* Dean's List: C.S.U.S.B.
- \* Alpha Gamma Sigma Honor Society: Los Angeles Pierce College
- \* 2nd Degree Black Belt, American Taekwondo Association

## **REFERENCES:**

Academic and employment references are available upon request.