

SATCHI VENKATARAMAN

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Dr. Venkataraman, Professor of Aerospace Engineering at San Diego State University is an expert in Analysis and Design of Aerospace Structures, Structural Optimization, Uncertainty Quantification, and Risk Assessment. His current research investigates models for failure analysis of aerospace composite structures, efficient techniques for design optimization; design approaches for damage tolerance and predictable failure, reliability based design optimization, and quantification of variability and model uncertainty in complex multi-scale problems. He has extensive teaching experience at graduate and undergraduate level courses in solid mechanics, aerospace structural analysis and optimization. Courses taught in recent years include Statics, Aerospace Structural Analysis, Structural Vibration Analysis, Finite Element Structural Analysis, Mechanics of Composite Materials, Theory of Elasticity, Structural Optimization, & Theory of Elastic Stability. He has mentored doctoral, masters and undergraduate students. He has published more than 50 technical articles and received multiple teaching awards. His work is funded by research grants from Air Force, Navy, NASA and Northrop Grumman.

EDUCATION

Institution	Year	Degree	Major Field
University of Florida	1999	Ph.D.	Engineering Mechanics
Clemson University	1993	M.S.	Mechanical Engineering
Anna University, Madras, India	1991	B.E.	Mechanical Engineering

Doctoral Dissertation: *Modeling, Analysis and Optimization of Cylindrical Stiffened Panels for RLV Structures.*

PROFESSIONAL EXPERIENCE

Professor, Dept. of Aerospace Engineering, San Diego State University, Aug 2014 to present.
Associate Director, Computational Science Research Center, San Diego State University, AY 2012-present.
Associate Professor, Dept. of Aerospace Engineering, San Diego State University, Aug 2007 to Aug 2014.
Associate Faculty, Computational Science Research Center, San Diego State University, Aug 2004-present.
Assistant Professor, Dept. of Aerospace Engineering, San Diego State University, Aug 2002 to July 2007.
Research Engineer, AeroChem Corporation, Gainesville, FL, Mar 2001 to Aug 2002.
Visiting Assistant Professor, Dept of Aerospace Engineering, Mechanics and Engineering Science, University of Florida, Gainesville, FL, Mar 2001 to Aug 2002.
Postdoctoral Research Associate, University of Florida, Gainesville, FL, Mar 2000 to Feb 2001.
Visiting Researcher, NASA Langley Research Center, Hampton, VA, Jan 2000 to Feb 2000.
Graduate Research Assistant, University of Florida, Gainesville, FL, Jan 1995 to Dec 1999.
Summer Intern, Ford Research Labs, Dearborn, MI, May-August, 1997.
Graduate Teaching and Research Assistant, Clemson University, Clemson, SC, May 1993 to Apr 1994.
Research Assistant, Clemson University, Clemson, SC, Jan 1992 to Apr 1993.

AWARDS & HONORS

Homer Peabody Award for Excellence in Mentoring and Teaching, SDSU Bridges Program, 2014.
Most Influential Faculty Award, Department of Aerospace Engineering, San Diego State University, 2014, 2011, and 2006.
Associate Fellow, American Society of Aeronautics and Astronautics, 2011.
Northrop-Grumman Outstanding Teacher Award, San Diego State University, 2011.
Award for Outstanding Contribution to Aerospace Education, AIAA San Diego Section Award, 2009.
Summer Faculty Fellowship, U.S. Air Force Air Vehicles Directorate Summer Faculty Program, 2008.
Outstanding International Student Academic Achievement Award, College of Engineering, University of Florida, April 1997.

COURSES TAUGHT

Course Name	Term	Institution
Introduction to FORTRAN Programming Statics (<i>EM 200/AE 200</i>)	F93, S94. S04, F04, S05, F05, Su06, F10-F13	Clemson Univ. SDSU
Mechanics of Materials (<i>EGM 3520</i>)	S02	Univ. of Florida
Aerospace Structural Dynamics (<i>AE410</i>)	F06, F07, F08	SDSU
Aerospace Structural Analysis (<i>AE 310</i>)	S03 to S08, S10 to S 13	SDSU
Finite Element Methods (<i>ME 610, EM 510</i>)	F03, F05, S07, F09, F 12	SDSU
Composite Structural Analysis (<i>EM 530</i>)	F10	SDSU
Theory of Elasticity (<i>EM 621/AE 621</i>)	F02, F03, F04, S06, S08, F09, S 12, F 13	SDSU
Theory of Elastic Stability (<i>EM 727</i>)	F 04, F06, F08, F10, S 13	SDSU
Engr. Design: Analytical Methods (<i>ME 614</i>)	S03, S05	SDSU
Structural Optimization (<i>EM 600/EM641</i>)	S03, S05, F07, S10, F11	SDSU

S – Spring semester, F – Fall semester, Su – Summer semester

PUBLICATIONS

Articles in Refereed Journals

- JP 1. Bilge, Kaan, et al. "Global and local nanofibrous interlayer toughened composites for higher in-plane strength." *Composites Part A: Applied Science and Manufacturing* 58 (2014): 73-76.
- JP 2. Marhadi, K. S., Venkataraman, S., and Pai, S.S., Quantifying uncertainty in statistical distribution of small sample data using Bayesian inference of unbounded Johnson distribution. *International Journal of Reliability and Safety*, Vol. 6, No. 4, pp 311-337, 2012.
- JP 3. Marhadi, K.S., Venkataraman, S., and Wong, S., Load redistribution mechanism in damage tolerant and redundant truss structure. *Journal of Structural and Multidisciplinary Optimization*, Vol. 44, Iss. 2, pp 213-233, 2011.
- JP 4. Marhadi K. S., and Venkataraman, S., Comparison of Quantitative and Qualitative Information Provided by Different Structural Load Path Definitions. *International Journal for Simulation and Multidisciplinary Design Optimization*, Vol. 3, pp.384-400, 2009.
- JP 5. Marhadi, K. and Venkataraman, S., Surrogate Measures to Optimize Structures for Robust and Predictable Progressive Failure, *Structural & Multidisciplinary Optimization*, Vol. 39, No. 4, pp. 245-261, 2009.
- JP 6. Salas, P.A., Benson, D. J., Venkataraman, S., and Loikkanen, M., Numerical Implementation of Polymer Viscoplastic Equations for High Strain-Rate Composite Models, *J. Aerosp. Engrg.* 22(3), pp. 304-309, 2009.
- JP 7. Salas, P., and Venkataraman, S., "Optimization of Laminates for Predictable Failure in the Presence Model Parameter Uncertainties and Variability," *Structural & Multidisciplinary Optimization*, Vol. 37, No 6, 2009, p 541-555.
- JP 8. Salas, P. and Venkataraman, S., Controlling failure using structural fuses for predictable progressive failure of composite laminates," *Structural & Multidisciplinary Optimization*, Vol. 34, No 6, 2007, p 473-489.
- JP 9. Venkataraman, S., and Salas, P., Optimization of Composite Laminates for Robust and Predictable Progressive Failure Response," *AIAA Journal*, Vol. 45, No. 5, 2007, p 1113-1125.
- JP 10. Venkataraman S., "Reliability optimization using probabilistic sufficiency factor and correction response surface," *Engineering Optimization*, Vol. 38, No. 6, 2006, pp. 671-685.
- JP 11. Venkataraman S. and Haftka R. T., "Structural Optimization: What has Moore's Law Done for Us?" *Structural & Multidisciplinary Optimization*, Vol. 28, No. 6, pp 375-387, 2004.
- JP 12. Zhu, H., Sankar, B. V., Haftka, R. T., Venkataraman, S., Blosser, M. L., "Optimization of Functionally Graded Metallic Foam Insulation under Transient Heat Transfer Conditions," *Structural & Multidisciplinary Optimization*, Vol. 28, No. 5, November, pp 349-355, 2004.
- JP 13. Venkataraman, S., Zhu, H., Haftka, R. T., Sankar, B. V. and Blosser, M., "Optimum Design of a Functionally Graded Metallic Foam Thermal Insulation," *AIAA Journal*, Vol. 42, No. 11, pp 2355-2363, 2004.

- JP 14. Zhu, H., Sankar, B. V., Haftka, R. T., Venkataraman, S., and Blosser, M., Minimum Mass Design of Insulation Made of Functionally Graded Material,” *Journal of Spacecraft and Rockets*, Vol. 40, No. 2, 2004, pp. 467-469
- JP 15. Venkataraman, S., and Sankar, B.V., “Analysis of Sandwich Beams with a Functionally Graded Core,” *AIAA Journal*, Vol. 41, No. 12, 2003, pp. 2501-2505.
- JP 16. Qu, X., Venkataraman, S., Haftka, R. T. and Johnson, T. F., “Reliability, Weight, and Cost Tradeoffs in the Design of Composite Laminates for Cryogenic Environments,” *AIAA Journal*, Vol. 41, No. 10, 2003, pp. 2029-2036.
- JP 17. Huang J., Venkataraman S., Haftka R.T. and Rapoff A.J., “Optimization of Axisymmetric Distribution of Elastic Modulus Around a Hole for Increased Strength,” *Structural & Multidisciplinary Optimization*, Vol. 26, pp 1-12, 2003.
- JP 18. Rapoff, A. J., Johnson, W. and Venkataraman, “Transverse Plane Shear Test Fixture for Total Knee Systems,” *Experimental Techniques*. Vol. 27, Iss. 3, pp. 37-39, 2003.
- JP 19. Venkataraman, S., Lamberti, L., Haftka, R. T., and Johnson, T. F., “Challenges in comparing numerical solutions for optimum weights of stiffened shells,” *Journal of Spacecraft and Rockets*, Vol. 40 (2), pp. 183-192, 2003.
- JP 20. Venkataraman, S., Haftka, R.T., and Rapoff, A.J.," Structural Optimization Using Biological Variables to Understand How Bones Design Holes," *Structural & Multidisciplinary Optimization*, Vol. 25, pp. 19-34, 2003.
- JP 21. Lamberti, L., Venkataraman, S., Haftka, R. T., and Johnson, T. F., “Preliminary Design Optimization of Stiffened Panels Using Approximate Analysis Models,” *International Journal of Numerical Methods in Engineering*, Vol. 57, pp. 1351-1380, 2003.
- JP 22. Venkataraman, Haftka, R. T., and Johnson, T. F., “Maximal Errors due to Use of Equivalent Properties for Sublaminates,” *AIAA Journal*, Vol. 39, No. 2, pp 296-302, 2001.

Articles in Conference Proceedings

- CP 1. Casini, Jacopo, Satchi Venkataraman, and Juan Barragan. "Experimental Characterization of Full Field Creep Deformation in Adhesively Bonded Joints." *Proceedings of the 55th AIAA/ASME/ASCE/AHS/SC Structures, Structural Dynamics, and Materials Conference. January 2014.*
- CP 2. Wagschal; K. R. Venkataraman, S., “Numerical Investigation of Tapered Sandwich Closeouts with Isotropic Functionally Graded Cores,” *Proceedings of the 54th AIAA/ASME/ASCE/ AHS/ASC Structures, Structural Dynamics and Materials Conference*, Boston Massachusetts, April 8-11, 2013
- CP 3. Christensen, A., James, S., Sens, B., and Venkataraman, S., Experimental Investigation of Tapered Edge Closeouts in Sandwich Composites,” *Proceedings of the 54th AIAA/ASME/ASCE/ AHS/ASC Structures, Structural Dynamics and Materials Conference*, Boston Massachusetts, April 8-11, 2013
- CP 4. Stromsoe, J., and Venkataraman, S., Functionally Grading Honeycomb Core Material by In-Plane Crushing For Tapered Sandwich Closures, *Proceedings of the 53rd AIAA/ ASME/ ASCE/ AHS/ ASC Structures, Structural Dynamics and Materials Conference*, AIAA 2012-1702, Honolulu, Hawaii, April 23-26, 2012.
- CP 5. Navaid, R., and Venkataraman, S., Variance Sensitivity Analysis Of Parameters In Puck’s Failure Theory For Composites, *Proceedings of the 53rd AIAA/ ASME/ ASCE/ AHS/ ASC Structures, Structural Dynamics and Materials Conference*, Honolulu, Hawaii, April 23-26, 2012.
- CP 6. Salas, P., Benson, D., Venkataraman, S., Modeling Error Estimation in Response Prediction of Multilevel Composite Systems using Bayesian Networks, *Proceedings of the 13th AIAA Non-Deterministic Approaches Conference*, Denver, Colorado, April 4-7, 2011.
- CP 7. Marhadi K.S. and Venkataraman, S., Comparison of Load Path Definitions in 2-D Continuum Structures. *Proceedings of the 50th AIAA/ ASME/ ASCE/ AHS/ ASC Structures, Structural Dynamics and Materials Conference*, Palm Springs, California, May 4-7, 2009.
- CP 8. Venkataraman, S., Marhadi, K. S., and Haney, M., Investigating Alternate Load Paths and Damage Tolerance of Structures Optimized for Multiple Load Cases. *Proceedings of the 50th AIAA/ ASME/ ASCE/ AHS/ ASC Structures, Structural Dynamics and Materials Conference*, Palm Springs, California, May 4-7, 2009.
- CP 9. Marhadi, K., Venkataraman, S. and Pai, S. S., “Quantifying Uncertainty in Statistical Distribution of Small Sample Data Using Bayesian Inference of Unbounded Johnson Distribution,” *Proceedings of the 49th*

AIAA/ ASME/ ASCE/ AHS/ ASC Structures, Structural Dynamics and Materials Conference, Schaumburg, Illinois, April 2008.

- CP 10. Sirimamilla R. R., Venkataraman, S. and Pai, S. S., "Incorporating Data Uncertainty in Reliability Based Design Optimization Using Inverse Reliability Measures," *Proceedings of the 49th AIAA/ ASME/ ASCE/ AHS/ ASC Structures, Structural Dynamics and Materials Conference*, Schaumburg, Illinois, April 2008.
- CP 11. Marhadi, K. and Venkataraman, S., "Characteristics of Designs and Load Paths in Structures Optimized for Robust Damage Tolerance," AIAA-2008-1795. *Proceedings of the 49th AIAA/ ASME/ ASCE/ AHS/ ASC Structures, Structural Dynamics and Materials Conference*, Schaumburg, Illinois, April 2008..
- CP 12. Venkataraman, S. and R. Haftka, R.T., Teaching Undergraduate Aerospace Structural Analysis – Preparing Students For Future Workforce, AIAA-2008-2183, . *Proceedings of the 49th AIAA/ ASME/ ASCE/ AHS/ ASC Structures, Structural Dynamics and Materials Conference*, Schaumburg, Illinois, April 2008.
- CP 13. Wesley, R., and Venkataraman, S., "Progressive Sampling for Response Surface Fitting Using Method of Dividing Rectangles (DIRECT)," *Proceedings of the 48th AIAA/ ASME/ ASCE/ AHS/ ASC Structures, Structural Dynamics and Materials Conference*, Waikiki, Hawaii, April 2007.
- CP 14. Venkataraman, S., Mahadevan, S., Strack, W. C., Nagpal. V., and Pai, S. S., "Calculating Confidence Intervals for Reliability to Quantify Effect of Distribution Parameter Uncertainty," *Proceedings of the 48th AIAA/ ASME/ ASCE/ AHS/ ASC Structures, Structural Dynamics and Materials Conference*, Waikiki, Hawaii, April 2007.
- CP 15. Venkataraman, S., Strack, W. C., Nagpal. V., and Pai, S. S., "Incorporating Distribution Parameter Uncertainty in Reliability Calculation," *Proceedings of the Annual Reliability & Maintainability Symposium 2007*, Orlando, Florida, January 22-25, 2007.
- CP 16. Salas, P., and Venkataraman, S., "Incorporating Model Uncertainties and Variability in Optimization of Laminates for Predictable Failure," AIAA-2006-7040, *Proceedings of the 11th AIAA/ ISSMO Multidisciplinary Analysis and Optimization Conference*, Portsmouth, Virginia, September 2006.
- CP 17. Marhadi, K. and Venkataraman, S., Effect of Competing Failures and Load Redistributions on Progressive Failure Predictability in Truss Structures," AIAA-2006-7101, *Proceedings of the 11th AIAA/ ISSMO Multidisciplinary Analysis and Optimization Conference*, Portsmouth, Virginia, September 2006.
- CP 18. Venkataraman, S. and Salas, P., "Optimum Design of Structural Fuses for Tailoring Robust and Predictable Progressive Failure," *submitted to 47th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference*, Newport, Rhode Island, April 2006.
- CP 19. Venkataraman, S. and Salas, P., "Optimization of Performance and Failure Predictability in Composite Laminates Undergoing Progressive Failure," AIAA-2005-2225 *Proceedings of the 46th AIAA/ ASME/ ASCE/ AHS/ ASC Structures, Structural Dynamics, and Materials Conference*, Austin, Texas, April 2005.
- CP 20. S. Venkataraman, "Reliability Optimization of Structures Using Probabilistic Sufficiency Factor and Correction Response Surface, *AIAA Paper 2004-2033, Proceedings of the 45th AIAA/ ASME/ ASCE/ AHS/ ASC Structures, Structural Dynamics, and Materials Conference*, Palm Springs, California, April 2004.
- CP 21. S. Venkataraman, and B. Sankar, "Elasticity Analysis and Optimization of a Functionally Graded Plate with Hole," *AIAA Paper 2003-1466, Proceedings of the 44th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference*, Norfolk Virginia, April 2003.
- CP 22. W. Wang and A. Kurdila, and Venkataraman, S., "Shape Optimization of Electrodes for Piezoelectric Actuators – Static Analysis," *AIAA Paper 2003-1806, Proceedings of the 44th AIAA/ ASME/ ASCE/ AHS/ASC Structures, Structural Dynamics, and Materials Conference*, Norfolk, Virginia, April 2003.
- CP 23. Zhu, H., Sankar B. V., Venkataraman, S., and Haftka, R. T., "Optimization of a Functionally Graded Metallic Foam Insulation Under Transient Heat Transfer Conditions," *AIAA Paper 2003-1531, Proceedings of 44th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference*, Norfolk, Virginia, April 2003.
- CP 24. Venkataraman S. and Haftka R. T., "Structural Optimization: What has Moore's Law Done for Us?, *Proceedings of the 43rd AIAA/ASME ASCE/AHS/ASC Structures, Structural Dynamics and Materials Conference*, Denver, Colorado, April, 2002.
- CP 25. B. Sankar, N. Apetre and S. Venkataraman , Indentation of a Sandwich Beam with Functionally Graded Core, *AIAA Paper 2002-1683, Proceedings of the 43rd AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference*, Denver Colorado, April 2002, 11 pages.

- CP 26. S. Buskirk, S. Venkataraman, P. Ifju and A. Rapoff, "Functionally Graded Biomimetic Plate with Hole," *AIAA Paper 2002-1330, Proceedings of the 43rd AIAA/ ASME/ ASCE/ AHS/ ASC Structures, Structural Dynamics, and Materials Conference*, Denver Colorado, 2002.
- CP 27. J. Huang, S. Venkataraman, A. Rapoff and R. Haftka, , "Optimization Design of Inhomogeneous Isotropic Plates with Holes by Mimicking Bones," *AIAA Paper 2002-1236, Proceedings of the 43rd AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference*, Denver Colorado, April, 2002.
- CP 28. Zhu, H, Sankar, B. V., Haftka R. T., and Venkataraman, S. "Minimum Mass Design of Insulation Made of Functionally Graded Material," *AIAA Paper 2002-1425 Proceedings of 43rd AIAA/ ASME/ ASCE/ AHS/ASC Structures, Structural Dynamics, and Materials Conference*, Denver Colorado, April, 2002.
- CP 29. Grosset, L., Venkataraman, S., and Haftka, R. T., "Probability-based genetic algorithm for composite laminate optimization," *Proceedings of the 43rd AIAA/ASME ASCE/AHS/ASC Structures, Structural Dynamics and Materials Conference*, Denver, Colorado, April, 2002.
- CP 30. Venkataraman, S., Zhu, Z., Sankar, B. V., and Haftka, R. T., "Optimum Design of a Functionally Graded Metallic Foam Thermal Insulation," *Proceedings of the American Society of Composites-16th Annual Technical Conference*, September, 2001, Blacksburg, VA.
- CP 31. Venkataraman, S., Haftka, R. T., and Rapoff, A. J., " Structural Optimization Using Biological Variables to Understand How Bones Design Holes," *Proceedings of the Fourth World Congress of Structural and Multidisciplinary Optimization, WCSMO-4-189*, Dalian, China, June 4-8, 2001.
- CP 32. Venkataraman, S., and Sankar, B. V., "Analysis of Sandwich Beams with a Functionally Graded Core," *AIAA Paper 2001-1281, Proceedings of the 42nd AIAA/ASME ASCE/AHS/ASC Structures, Structural Dynamics and Materials Conference*, Seattle, WA, Apr. 16-19, 2001.
- CP 33. Qu, X., Venkataraman, S., Haftka, R. T., and Johnson, T. F., "Reliability, Weight, and Cost Tradeoffs in the Design of Composite Laminates for Cryogenic Environments," *AIAA Paper 2001-1327, Proceedings of the 42nd AIAA/ ASME/ ASCE/ AHS/ ASC Structures, Structural Dynamics, and Materials Conference*, Seattle, WA, Apr. 16-19, 2001.
- CP 34. Qu, X., Venkataraman, S., Haftka, R. T., and Johnson, T. F., "Reliability based Optimization of Composite Laminates for Cryogenic Environments," *AIAA Paper 2000-4760, Proceedings of 8th AIAA/USAF/NASA/ISSMO Symposium on Multidisciplinary Analysis and Optimization*, Long Beach, CA, Sept. 6-8, 2000.
- CP 35. Qu, X., Venkataraman, S., Haftka, R. T., and Johnson, T. F., "Response Surface Options for Reliability based Optimization of Composite Laminates" *Proceedings of the 8th ASCE Special Conference on Probabilistic Mechanics and Structural Reliability*, June 2000.
- CP 36. Lamberti, L., Venkataraman, S., and Haftka, R. T., "Comparison of Preliminary Designs of Stiffened Panels Optimized Using PANDA2 for Reusable Launch Vehicle Propellant Tanks," *AIAA Paper 2000-1657, Proceedings of 41st AIAA/ ASME/ ASCE/ AHS/ ASC Structures, Structural Dynamics, and Materials Conference*, Atlanta, GA, Apr. 3-6, 2000.
- CP 37. Venkataraman, S., and Haftka, R.T., " Optimization of Composite Panels - a review, " *Proceedings of the American Society of Composites- 14th Annual Technical Conference*, Fairborn, OH, pp. 479-488, 1999.
- CP 38. Venkataraman, S., Haftka, R. T. and Johnson, T. F., "Design of Shell Structures for Buckling Using Correction Response Surface Approximations," *AIAA Paper 98-4855, Proceedings of the 7th AIAA/USAF/NASA/ISSMO Symposium on Multidisciplinary Analysis and Optimization (Part. 2)*, St. Louis, MO, September, 1998, pp. 10-31.
- CP 39. Venkataraman, S., Haftka, R. T. and Johnson, T. F., "Use of Equivalent Laminate Properties in the Optimization of Stiffened Composite Panels," *Proceedings of the 12th Annual Technical Conference, American Society of Composites*, Dearborn, Michigan, pp. 12-22, 1997.
- CP 40. Venkataraman, S., and Haftka, R. T., "Integration of Finite Element Analysis and Panel Design Program," *AIAA Paper 97-1052. Proceedings of the 38th AIAA/ ASME/ ASCE/ AHS/ ASC Structures, Structural Dynamics, and Materials Conference*, Kissimmee, FL, April 7-10, 1997.

Published Abstracts

1. Rapoff AJ, Rinaldi RG, Johnson WM, Venkataraman S, Daegling DJ. Heterogeneous anisotropic elastic properties in a *Macaca fascicularis* mandible. *Proceedings of the 72nd Annual Meeting of the American Association of Physical Anthropologists*, Tempe, Arizona, 23-26 April 2003.

2. Daegling DJ, Marinescu R, Venkataraman S, Rapoff AJ. Effects of structural heterogeneity and anisotropy on finite element model predictions for a mandible of *Macaca fascicularis*. *Proceedings of the 72nd Annual Meeting of the American Association of Physical Anthropologists*, Tempe, Arizona, 23-26 April 2003. (published in the *American Journal of Physical Anthropology*: 83-83, Suppl. 36.)
3. Rapoff AJ, Fontanel O, Venkataraman S. Heterogeneous orthotropic elasticity about a nutrient foramen via microindentation. *Proceedings of the ASME Summer Bioengineering Conference*, Sonesta Beach, FL, 25-29 June 2003. (published in the *American Journal of Physical Anthropology*: 174-175, Suppl. 36)
4. Venkataraman, S., Zu, H., Haftka, R. T. and Sankar, B.V., Optimum Design of functionally graded metallic foam insulation for reentry vehicle thermal protection systems, *Proceedings of the Ninth International Conference on Composites in Engineering*, San Diego, California, July 2002.
5. Venkataraman, S., and Haftka, R.T., "Response Surfaces for Predicting Load Redistribution in Multi-level Structural Optimizations," *Proceedings of the 20th International Congress of the International Union of Theoretical and Applied Mechanics (IUTAM)*, Chicago, Illinois, August 27 – September 2, 2000.
6. Venkataraman, S., Haftka, R. T., Roux, W. and Harrison, P., "Comparison of NASTRAN and PANDA2 for the Optimization of Stiffened Panels," *Proceedings of the Second International Conference on Composites in Engineering*, New Orleans, Louisiana, August 1995.

Funded Grants

Baseline and Residual Strength Characterization of Composite Laminates Under Bearing and Bypass Loading, Office of Naval Research (in collaboration with Dr. Hyonny Kim and Joshua Rivera, NAVAIR), April 2014 – March 2017. Status: Currently Funded

Blade Stress Estimation of Integrally Bladed Rotors Subjected to Multi-Source Excitations, (AFOSR (through STTR-Phase 2 subcontract from NextGen Aeronautics), May 2014- May 2016. Status: Currently Funded

Structural Evaluation of Frame-Stiffened Composite Panels, National Aeronautics and Space Administration, Oct 2013 –Sep 2014.

Broadening Participation in Interdisciplinary Computational Science and Engineering Research and Training (ICSERT), NSF Directorate for Education and Human Resources, (with Jose Castillo, PI, Paul Paolini, co-PI, Rob Edwards, co-PI) Sep 2013-Aug 2017.

Creep Characterization of EA 9394 at high temperatures and biaxial loading. Northrop Grumman Co., Dec 2012 – Dec 2013.

Scaled up Compression After Impact Test on Stiffened Panels, AFOSR, (through STTR subcontract from Materials Sciences Corporation), Sep 2012 – Dec 2012.

Blade Stress Estimation of Integrally Bladed Rotors Subjected to Multi-Source Excitations , AFOSR (through STTR-Phase 1 contract from NextGen Aeronautics), AFOSR, March 2012- Dec 2012.

Positioning and Manipulation of Micro and Nano-Sized Particles Using Acoustic Manipulation and In-Plane Stress Actuation, CSU Program for Education and Research in Biotechnology (CSUPERB), May 2009-Dec 2012.

Undergraduate Student Scholarships for Participation in Interdisciplinary Computational Science and Engineering Research, NSF Directorate for Education and Human Resources, (with Jose Castillo, PI and Paul Paolini, co-PI) Aug 2009-July 2014.

Reliability Estimation and Optimization with Statistical Uncertainty, NASA (through SBIR Phase-II subcontract from N&R Engineering), (Dec 2005-Dec2007).

Calculating confidence bounds for probability of failure using statistical data obtained from limited testing, NASA Glenn Research Center (through N& R Engineering), Jun 2005 – Aug 2005..

Structural Health Monitoring of Deployed Space Structures, Grant-in-Aid Award, SDSU Foundation, Jan 2005- July 2006.

Optimization for Predictable and Robust Failure, Research, Scholarship and Creative Activity Award, SDSU Foundation, Jan - June 2006.

Load redistribution in multi-level coordination in optimization of complex aerospace structures, Northrop Grumman Corporation, Oct 2004- Oct 2005.

Damage Identification in Large Periodic Lattice Structures Having Local and Global Imperfections- undergraduate student research grants, Sponsor: California Space Grant Consortium, Oct 2004 – Sep 2005,

Modeling, Analysis and Optimization of High Emissivity Coatings, Space Micro Inc, San Diego, CA, June 2004

Development of Design Optimization Methods for Large Scale Structures, Northrop Grumman Corporation, Oct 2003- Oct 2004.

Development of Multi-Fidelity Analysis and High-Accuracy Surrogate Models for Reliability-Based Optimization, Proposal for Research, Scholarship and Creative Activity Award 2003, January – June 2004,

Structural Design for Performance and Predictability via Optimization of Failure Sequences, Research, Scholarship, and Creative Activity (RSCA) Award San Diego State University, , 2002-2003.

Structural Design for Performance and Predictability via Optimization of Failure Sequences, Faculty Grant-In-Aid Award, San Diego State University Foundation, 2002-2003.

Design for stress concentrations near holes via biomimetics, Principal Investigator, (CO-PI's: R. T. Haftka and A. J. Rapoff, University of Florida), NASA, Phase-II Small Business Innovation Research, January 2001 to January 2003 .

Biomimetics Based Design of Damage Tolerant Airframe Panels, Principal Investigator (CO-PI's R. T. Haftka and A. J. Rapoff), University of Florida, Phase-I Small Business Innovation Research (SBIR) grant funded by NASA, AeroChem Corporation, Jan 2000 to June 2000.

Combined Thermal and Structural Optimization of Functionally Graded Tile, Co-Principal Investigator, (Co-PI's R. T. Haftka and B. V. Sankar, University of Florida) NASA Langley Research Center, March 2001 to Dec. 2001.

Post-Doctoral Candidates Mentored:

Vaibhav Yadav, PhD. Mechanical Engineering University of Iowa (Aug 2014 – present)

Doctoral Degree Students Directed (and served as the Dissertation Committee Chair):

Luis Escalona *Ph.D. Computational Science, (anticipated 2019)*

Kevin Joiner *Ph.D. Computational Science (anticipated 2019- coadvised by Prof. R. Carretero Mathematics)*

Pablo Salas *PhD. Engineering Science, 2010. Research Engineer, Western Digital.*

Kun Marhadi *PhD. in Computational Science 2009, Research Engineer, Brüel & Kjaer, Denmark.*

Master's Degree Students Directed (and serve/served as Thesis/Project chair/co-chair)::

Paulina Diaz-Montiel *MS Aerospace Engineering (anticipated May 2016)*

Alexandru Popescu, *MS Aerospace Engineering (anticipated May 2016)*

Mirchell Burton, *MS Aerospace Engineering (anticipated May 2016)*

Juan Avila, *MS Aerospace Engineering (anticipated Dec 2015)*

Varshini Kamaraj, *MS Aerospace Engineering, (anticipated Aug 2015).*

Manasi Palwankar, *MS Aerospace Engineering, (anticipated Aug 2015).*

Ulas Akgun *MS Aerospace Engineering, (anticipated Dec 2014). Intern at Whirlwind Propellers Inc.*

James Mullinix *MS Applied Mathematics (w/ R. Carratero) (anticipated Dec 2014).*

Manny Hernandez, *MS Aerospace Engineering, (anticipated May 2015) – Engineer NAVAIR.*

Gabriela Sanz-Dougllass, *MS Aerospace Engineering, (anticipated Dec 2013) Participated in NASA University Research Scholars Program (Jan – Aug 2013.) Recipient of Graduate Equity Fellowship, RH Fleet scholarship. , Recipient of 2013-2014 NASA's Harriet G. Jenkins Graduate Fellowship (\$40K).*

Jacopo Casini *MSc Aerospace Engineering (University of Pisa, Dec 2013) (GE Gas & Oil Exporation)*

Gianmaria Bullegas *MSc Aerospace Engineering (University of Pisa, Dec 2013) (doctoral candidate Imperial College, United Kingdom)*

Kevin Joiner, *MS Mathematics (Non-Linear Dynamical Systems), 2013, U.S. Navy. (co advised with Ricardo Carratero)*

Vishal Agarwal *MS Aerospace Engineering, 2013, Engineer, United Technologies Aerospace Systems*
 Kathy Wagschal, *MS Aerospace Engineering, 2012, Engineer, NAVAIR*
 Jeremy Stromsoe *MS Aerospace Engineering, 2011. Engineer, General Atomics.*
 Rafay Navaid *MS Aerospace Engineering, 2011. Engineer, General Atomics.*
 Scott Wong, *MS Aerospace Engineering, 2009, Engineer, NAVAIR.*
 Joshua Rivera *MS Aerospace Engineering, 2009. Senior Engineer, NAVAIR.*
 Raghu Sirimamilla, *MS Aerospace Engineering, 2009. Engineer, United Technologies Aerospace Systems.*
 James Issa *MS Aerospace Engineering, 2008. Reliability Engineer, Qualcomm. (co advised with Eugene Olevsky)*
 Guy Watanabe *MS Aerospace Engineering, 2007, Structural engineer, Northrop Grumman.*
 Himaja Jani *MS Aerospace Engineering, 2006. Reliability Engineer, Qualcomm. (co advised with Eugene Olevsky)*
 Pablo Salas *MS Aerospace Engineering 2005, Research Engineer, Western Digital.*

Undergraduate Students Mentored/Mentoring:

Ghanim Al Wakeel *B.S. Aerospace Engineering (May 2015) – Funded by NSF STEM scholarship 2014-2015.*
 Pietro Zerilli *B.S. Aerospace Engineering (May 2015) – Funded by NSF STEM scholarship 2014-2015.*
 Sinan Tobchi *B.S. Aerospace Engineering (May 2015)*
 Jeffrey Erickson *B.S. Aerospace Engineering (May 2015) – Funded by NSF STEM scholarship 2013-2015*
 Juan Barragan *B.S. Mechanical Engineering, Funded by NSF STEM scholarship 2012-2014.*
 Francisco Candido *B.S. Aerospace Engineering (May 2014) – Funded by MARC fellowship. Participated in summer 2013 REU at Harvard University. Recipient of CSU Chancellor’s Pre-Doctoral Fellowship. PhD student, Cornell U.*
 Elizabeth Fortin *B.S. Mechanical Engineering (May 2014) – Funded by NSF STEM scholarship 2011-2012, MBRS-IMSD fellowship (2012-2014). Participated in summer 1013 REU at NC State University, Ph.D. student Arizona State Univ.*
 Scott James *B.S. Aerospace Engineering (May 2014). Funded by NSF STEM scholarship 2011-2013. Student intern at Hamilton Sundstrand Co. Recipient of ASTM student research scholarship, RH Fleet scholarship, and Speer Scholarship..*
 Jeromey Suko *B.S. Aerospace Engineering (May 2014) Funded by NSF STEM scholarship 2011-2013. Engineer at United Launch Alliance Co.*
 Juan Avila *B.S. Aerospace Engineering (May 2014) Funded by NSF STEM scholarship 2011-2013. Concurrently enrolled in MS Aerospace Engineering at SDSU..*
 Andrew Christensen *BS Aerospace Engineering, May 2013. (NSF STEM scholarship 2012-2013). Engineer, United Technologies Aerospace Systems.*
 Brett Sens *BS Aerospace Engineering, May 2013. (NSF STEM scholarship 2012-2013). Engineer, United Technologies Aerospace Systems*
 Alejandrina Nuno *BS Aerospace Engineering, May 2011. (Recipient of NSF STEM scholarship 2010-2011). Team Lead, Composite Structures, General Atomics. Student, MS Aerospace Engineering at SDSU.*
 Eric Lundgren; *BS Mechanical Engineering, May 2007, (recipient of NASA Summer Research Internships at NASA Langley Research Center, 2005 & 2006). Research Engineer, Aerospace Corporation. M.S. Aerospace Engineering, Virginia Tech.*
 Cecilia Larossa *BS Aerospace Engineering - May 2007 (recipient of SAMPE scholarship, Aerospace Engineering Speer Scholarship, ARCS Scholarship, NASA Summer Research Internship, NASA Langley Research Center, 2006).. Ph.D. Aerospace Engineering, Stanford University, 2013.*
 Joshua Rivera; *BS Aerospace Engineering 2007, MS Aerospace Engineering 2009, Recipient of Aerospace Engineering Speer Scholarship, 2004, Senior Engineer, NAVAIR. Obtained a MS degree in Aerospace Engineering at SDSU.*
 Roya Yazandifar; *BS Civil Engineering 2006, M.S. Civil Engineering, 2010, Structural Engineer at CalTrans.*
 Eduardo Velazquez *BS Aerospace Engineering 2005, Recipient of Aerospace Engineering Speer Scholarship, 2004, Doctoral Candidate at UCSD. Senior Enigneer, Space X.*
 Peter Seyforth; *BS Mechanical Engineering – May 2004, Design Engineer, Vangaurd Composites.*

Professional Society Memberships

Associate Fellow, American Institute of Aeronautics and Astronautics (since 2011)
Member, AIAA Non-Deterministic Approaches Technical Committee (since 2007)
Member of American Society of Mechanical Engineers (since 2000)
Member of American Society for Composites (since 1997)
Member, Intl. Society of Structural & Multidisciplinary Optimization (since 2000)
Member, Society for Advancement of Materials and Process Engineering (since 2002)

SERVICE TO UNIVERSITY AND COMMUNITY

Service to University

HHS Dean Review committee, Spring 2015
Dept. of Chemistry Periodic Review Committee Fall 2013.
Undergraduate Research Working Group, SDSU Strategic Planning, Fall 2013 – present.
Academic Senate, SDSU, Fall 2011 – Spring 2014.
Graduate Council, SDSU, Fall 2011- present.
University Graduate Curriculum Committee, Fall 2011 – present. (Chair Spring 2014 – present)
Senate Committee -Equal Opportunity Programs Committee, Fall 2012 – Spring 2013.
Graduate Advisor, Aerospace Engineering Master's Degree Program, SDSU, Spring 2004 – present.
Faculty Student Mentoring Program (FSMP), SDSU, Fall 2008 – Spring 2011.
Aerospace Department Curriculum Committee, Fall 2002-present
College of Engineering Curriculum Committee, Fall 2003-Spring 2006)
College of Engineering Graduate Committee, Fall 2004 – present
College of Engineering, Joint Doctoral Program Committee, Fall 2003- Fall 2008.
College of Engineering, International Studies Committee (Spring 2004 – Spring 2005)
Faculty Mentor: CSEM Scholarship & Mentoring Program (Spring 2003-Spring 2006).
Faculty Advisor: SDSU SAMPE Student Chapter, Spring 2004 – present)
Faculty Advisor, SDSU AIAA Student Chapter, Fall 2012- present.
Faculty Advisor, SDSU Rocket Project, Fall 2012 – present.
Aerospace Engineering Faculty Search Committee, Spring 2006 &Spring 2008.

Service to Community

Reviewer to professional technical journals: AIAA Journal, Journal of Aircraft, Structural & Multidisciplinary Optimization, Composite Structures.
Session Chair, AIAA SDM conferences (Non-Deterministic Approaches Forum papers (2008-present).
Vice-Chair for Technical Activities, AIAA San Diego Chapter, May 2012-May2013.
Advisory Board Member, Math Task Force, San Diego Unified School District, Aug 2011 – Mar 2013.
President, University of Florida International Folk Dancers, August 1996 to July 1997
Activities Director, University of Florida Sports Club Council, Sept. 1996 to May 1997
Graduate Student Rep., Teaching Effectiveness & Resources Committee Clemson University, Fall 1993.