

## Ravi C. Penmetsa

Assistant Professor

**Date of Initial Appointment:** January 1, 2003 (2 years of service)

### Education

Institution	Field of Study	Degree/Date
Wright State University	Engineering	Ph.D., May, 2002
Andhra University	Mechanical Engineering	B.E., June, 1997

### Professional Experience

Position	Institution	Dates
Assistant Professor	Wright State University, Mech. & Mat. Eng.	01/03-Present
Senior Research Associate	Wright State University, Mech. & Mat. Eng.	05/02-12/02
Graduate Research Assistant	Wright State University, Mech. & Mat. Eng.	06/98-04/02

### Principal Publications (Last 5 Years)

1. Penmetsa, R. C., and Grandhi, R. V., 2002, "Structural System Reliability Quantification using Multi-Point Approximations," *AIAA Journal*, Vol. 40, No. 12, pp. 2526-2531
2. Penmetsa, R. C., and Grandhi, R. V., 2002, "Efficient Estimation of Structural Reliability for Problems with Uncertain Intervals," *International Journal of Computers and Structures*, Vol. 80, pp. 1103-1112
3. Penmetsa, R. C., and Grandhi, R. V., 2003, "Structural Failure Probability Prediction Using Fast Fourier Transformations for High Accuracy," *Journal of Finite Elements in Analysis and Design*, Vol.39, No. 5-6, pp. 473-486
4. Penmetsa, R. C. and Grandhi, R. V., 2003, "Uncertainty Propagation Using Possibility Theory and Function Approximations," *Journal of Mechanics Based Design of Structures and Machines*, Vol. 31, No. 2, pp. 257-279
5. Penmetsa, R. C., Grandhi, R. V., and Venkayya, V. B., 2004, "Modeling, Analysis, and Uncertainty Quantification of a Lightweight Torpedo Design," *Journal of Naval Engineers*, Vol. 116, No. 4, pp. 23-36
6. Choi, J., Penmetsa, R. C., and Grandhi, R. V., 2005, "Cavitator Shape Optimization for Minimum Drag," *Journal of Structural and Multidisciplinary Optimization*, Vol. 29, No. 2, pp. 159-167
7. Alyanak, E. J., Venkayya, V. B., Grandhi, R. V., and Penmetsa, R. C., 2005, "Structural Response and Optimization of a Supercavitating Torpedo," *Journal of Finite Elements in Analysis and Design*, Vol. 41, No. 6, pp. 563-582
8. Penmetsa, R. C., 2005, "Determining Probability of Mission Success when Using Deep Penetration Weapons," *International Journal of Mechanical Sciences*, Accepted for Publication,
9. Penmetsa, R. C., and Grandhi, R. V., 2001, "Structural Reliability Assessment in the Presence of Interval Parameters," *6<sup>th</sup> US National Congress on Computational Mechanics*, Dearborn, Michigan
10. Penmetsa, R. C., and Grandhi, R. V., 2001, "Uncertainty Analysis of Large-Scale Structures using High Fidelity Models," *First MIT Conference on Computational Fluid and Solid Mechanics*, June 12-15.
11. Penmetsa, R. C., and Grandhi, R. V., 2001, "Failure Probability Prediction Method for Variables with Uncertain Intervals and Distribution Function," *8<sup>th</sup> International Conference on Structural Safety and Reliability (ICOSSAR-01)*, Newport Beach, CA, June 17-21, Paper # 276.
12. Penmetsa, R. C., and Grandhi, R. V., 2001, "Efficient Estimation of Structural Reliability for Problems with Uncertain Intervals," *42<sup>nd</sup> AIAA/ASME/ASC/AHS SDM Conference*, Seattle, Washington, AIAA-2001-1648.
13. Penmetsa, R. C., and Grandhi, R. V., 2000, "Structural Reliability Prediction for a Design Environment: Use of Multi-Point Approximation," *8<sup>th</sup> AIAA/NASA/USAF/ISSMO Symposium on Multidisciplinary Analysis and Optimization*, Long Beach, CA, AIAA-2000-4759. (R)

14. Penmetsa, R. C., Zhou, L., and Grandhi, R. V., 2000, "Fast Fourier Transformation to Accurately Predict the Structural Failure Probability," *8<sup>th</sup> ASCE EMD/SEI/GI/AD Conference*, Notre Dame, IN, PMC2000-083.
15. Penmetsa, R. C., Zhou, L., and Grandhi, R. V., 2000, "Adaptation of Fast Fourier Transformations to Estimate the Structural Failure Probability," *41<sup>st</sup> AIAA/ASME/ASC/AHS SDM Conference*, Atlanta, GA, AIAA-2000-1718.
16. Choi, J., Penmetsa, R. C., and Grandhi, R. V., 2003, "Shape Optimization of Supercavitating Projectiles Underwater," *7<sup>th</sup> U. S. National Congress on Computational Mechanics*, Albuquerque, New Mexico, paper # 2121.
17. Choi, J., Alyanak, E., Khambaswadkar, R.B., Kalavalapally, R., Adduri, P., Singh, T., Grandhi, R.V., Penmetsa, R.C., and Venkayya, V. B., 2003, "Multidisciplinary Optimization and Reliability Analysis of Undersea Weapons" *AIAA/ICAS International Air and Space Symposium and Exposition*, Dayton, OH, 19 pages
18. Alyanak, E., Grandhi, R., Penmetsa, R. C. and Venkayya, V., 2004, "Structural Response of a Supercavitating Torpedo Shell," *45<sup>th</sup> AIAA/ASME/ASC/AHS SDM Conference*, Palm Springs, CA, AIAA Paper 2004-1850.
19. Alyanak, E., Penmetsa, R. C., and Grandhi, R. V., 2004, "Variable Shape Cavitator Design for a Supercavitating Torpedo," 10th AIAA/ISSMO Multidisciplinary Analysis and Optimization (MDO) Conference, Albany, New York, AIAA 2004-4424.
20. Adduri, P., Penmetsa, R. C., and Grandhi, R. V., 2004, "Estimation of Structural System Reliability Using Fast Fourier Transforms," 10th AIAA/ISSMO Multidisciplinary Analysis and Optimization (MDO) Conference, Albany, New York, AIAA 2004-434.
21. Adduri, P., Penmetsa, R. C., and Grandhi, R. V., 2004, "Solving the Multi Dimensional Convolution Integral for System Reliability," *9<sup>th</sup> ASCE EMD/SEI/GI/AD Joint Specialty Conference on Probabilistic Mechanics and Structural Reliability (PMC2004)*, Albuquerque, New Mexico, July 26-28, 2004.

### **Professional Memberships**

1) American Institute of Aeronautics and Astronautics (AIAA), 1998-Present, 2) American Society of Mechanical Engineers (ASME), 2001-Present, 3) The Society of Naval Architects and Marine Engineers (SNAME), 2004-Present

### **Institutional and Professional Service**

Department Committees: Design Committee, Winter 03-Present, ABET Objectives Committee, Winter 04 – Present, Design Committee Winter 03 - Present

College Committees: Academic Computing Committee (Chair), Fall 03 – Spring 03, Academic Computing Committee, Fall 04 – Present

University Committees: Parking Advisory & Appeals Committee, Fall 03 – Spring 03, University Technology Committee, Fall 03 – Spring 03, UTC Sub-committee for Faculty Computer Initiative, Spring 2004

Reviewer for Professional Journals: Journal of Shock and Vibration, ASME Journal of Mechanical Design, Journal of Finite Elements in Analysis and Design, Journal of Structural and Multidisciplinary optimization, Journal of Sound and Vibration, Journal of Structural Safety, International Journal of Reliability and Safety

Other Professional Service: Judge, SAE Aero Design-East Competition, Dayton, Ohio, May 2003, Member, Trebuchet Advisory Board, Develop and update online ABET alumni survey forms, Maintain/update ME department webpage, Taught "Introduction to Mechanical Engineering" for EGR 191 students during winter 2003, spring 2003, winter 2004, Attended the Campus Visitation Day, Attended and presented research developments to the college external advisory board, Fall 2004, Organized a week long one hour MATLAB workshop for the Mechanical and Materials Engineering students. Prepared PowerPoint notes for distribution in class. Fall 03, Winter 04, and Spring 04

### **Professional Development Activities (Last 5 years)**

Effective Teaching: A Workshop, Wright State University, February 2003, Disruptive students in the classroom, CTL Fall 03