

## RESUME

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DOB: 10-6-1971  
Age : 40 Years



### SUMMARY

**SIXTEEN** years experience in this, **ONE** year teaching experience in GVP college of Engineering, Visakhapatnam, **TWO** years teaching experience in SVP Engineering College, Visakhapatnam, **NINE** years teaching experience in VITAM Engineering College, Visakhapatnam, **TWO** years teaching experience in Jatipita Engineering College, Adilabad, and **TWO** years industrial experience in Veljan Hydrair Limited, Hyderabad.

### EDUCATIONAL QUALIFICATIONS

**Ph. D ( Mechanical Engg.)** : From Mechanical Engineering Department,

College of Engineering (A), Andhra University,  
Visakhapatnam.

Title : Design and Aeroacoustic Analysis of Motor fan for  
Noise Reduction.

Research Area : Computational fluid dynamics, Aero acoustics, and  
Composites

### **Salient Points in Research Work:**

- In present work motor fan is an axial flow plastic fan consists of 10 radial blades. It is used to cool the 20 H.P motor body, these motors are used for underwater applications. Noise reduction is a critical task when these motors are used for Defense applications.
- 3D Laser Digitizer located at Visakha Steel Plant, Visakhapatnam is used to obtain dimensions and 3D (three dimensional) model of motor fan.
- CFD (Computational Fluid Dynamics) and CAA (Computational Aero Acoustics) Simulations are carried out on the motor fan to know the sound pressure levels.
- These numerical results are validated by measurements in semi-anechoic chamber at N.S.T.L. The noise generated from motor fan is 82.3 dB
- There is good agreement between numerical and experimental results.
- Redesign the motor fan for noise reduction by modification of blades with various digits of NACA (National Advisory Committee for Aeronautics) 65-series.
- CFD Simulations are carried out on the all redesigned fans to know the overall sound pressure levels and mass flow rate.
- Then three composite material fans (Fan-1, Fan-2, Fan-3) are fabricated using Jute and Glass fiber in propylene glycol resin by hand lay-up technique.
- Experiments are carried out on three redesigned composite material fans and baseline fan in semi-anechoic chamber at N.S.T.L Visakhapatnam.
- Maximum noise reduction obtained with Fan-2 is 12.8 dB(A).
- Software Packages used - CATIAv5r10, GAMBIT 2.2.30 and FLUENT 6.2

**M. Tech. (Machine Design):** First Class with Distinction – 74 %, from  
J.N.T.U. College of Engineering, Kakinada.

Project : Design and Analysis of Spherical Pressure Vessel  
& its Supporting Columns.

Packages used : Pro-E, ANSYS (8.0)

**B. Tech (Mechanical Engg.):** First Class – 65.54 %, from C.R.R. College of  
Engineering, Eluru - Andhra University.

**S.S.C** : First Class – 76 % from A.P. Residential School,  
Bobbili. Vizianagaram.

## **EXPERIENCE**

### **Teaching Experience**

Present : Working as an Assoc. Professor, at G.V.P College of Engg,  
Visakhapatnam.

With effective from Feb 2010 to till date.

Previous : 1. Worked as an Assoc. Professor, at S.V.P Engg. College,  
Visakhapatnam.

With effective from June 2009 to Jan 2010

2. Worked as an Assoc. Professor, at VITAM College of Engg.  
Andapuram, Visakhapatnam.

With effective from June 2000 to May 2009

3. Worked as a Lecturer at Jathipitha Engineering College,  
Adilabad from September 1998 to June 2000.

**Industrial Experience:** Worked as Design Engineer in M/s Veljan Hydrair Ltd., Patancheruvu. Hyderabad.

With effective from July, 1996 to September, 1998

Product : Hydraulic and Pneumatic Cylinders  
Nature of Work : Design and Analysis of Hydraulic and Pneumatic Cylinders.  
Design Package used : AUTOCAD (R.13)  
FEA Package used : ANSYS (5.4)

### **Software Concepts**

Design Packages : AUTOCAD, Pro-E, CATIA & IRON CAD  
FEA Packages : ANSYS, HYPERMESH, ABAQUS, NASTRAN, GAMBIT & FLUENT

### **RESEARCH PUBLICATIONS**

1. Title: "CFD & CAA Simulations on Motor fan for Noise Reduction". Paper published in **Science Direct** Journal – Applied Acoustics, Volume-72, pp. 982-992, 2011. **(Impact factor – 1. 50)**
2. Title: "Reduction of motor fan noise using jute composites". Paper published in a Journal of Scientific & Industrial Research, Journal Started in 1942 by NISCAIR-CSIR, India, volume-71, issue-2, pp. 221-225, Mar 2012. **(Impact factor – 0.65)**
3. Title: "Experimental study on reduction of motor-fan noise by modification of blade and shroud configuration". Paper published in an Institution of Mechanical Engineers, Part C; Journal of Mechanical Engineering Science, U K, London, volume-224, No. 2, pp. 315-320, 2010. **(Impact factor – 0.76)**
4. Title: "CFD analysis of cooling fan for minimization of noise level". Paper published in a Journal of Cooperation among University, Research and Industrial Enterprises, BITS, Pilani, volume-1, issue-2, pp. 35-44, 2009.

5. Title: "Reduction of motor fan noise using jute composites", Published in the proceedings of the "Joint International Conference on Advanced Materials (ICAM-2011)" organized by University of Delaware, U.S.A and B T L Institute of Technology & Management, Bangalore-99, Aug. 18-19, 2011.
6. Title: "Finite element analysis of composite motor fan", Published in the proceedings of the "National Conference on Applications of Finite Element Analysis" organized by Sri Eshwar College of Engineering, Coimbatore, Tamil Nadu, Nov. 25-26, 2011.
7. Title: "Numerical and experimental investigation of axial fan for noise sources", Published in the proceedings of the "The 20<sup>th</sup> International Offshore (Ocean) and Polar Engineering Conference & Exhibition" organized by International Society of Offshore and Polar Engineers, Beijing, China, June 20-26, 2010.
8. Title: "Reduction of motor fan noise using CFD and CAA Simulations", Published in the proceedings of the "ISMA2010 International Conference on Noise and Vibration Engineering" organized by the Department of Mechanical Engineering of the Katholieke Universiteit Leuven, Leuven, Belgium, 20-22 September, 2010.
9. Title: "Fabrication methodology of low noise composite motor fan", Published in the proceedings of the "Third international and twenty fourth all India manufacturing technology, design and research conference" organized by the Department of Mechanical Engineering of the college of engineering (A), Andhra university, Visakhapatnam, 13-15 December, 2010.
10. Title: "Vibration analysis of circular and annular plate under different boundary conditions", Published in the proceedings of the "National conference on advances in mechanical engineering" organized by the Department of Mechanical Engineering of the Jawaharlal Nehru national college of engineering, Shimoga, Karnataka, 24-25 September, 2010.
11. Title: "Hydrogen as an alternate fuel in I.C. Engines", Published in the proceedings of the "National conference on advances in mechanical

engineering" organized by the Department of Mechanical Engineering of the Jawaharlal Nehru national college of engineering, Shimoga, Karnataka, 24-25 September, 2010.

12. Title: "CFD analysis of INSEAN E779A propeller flow and cavitation", Published in the proceedings of the "National conference and workshop on advances Mechanical & marine systems design" organized by the Department of Marine Engineering of College of Engineering (A), Andhra University, Visakhapatnam, 28-30 October 2010.
13. Title: "Large eddy simulation of motor-fan", Invited paper for National workshop on "Acoustic Stealth Studies Related to Warship & Underwater Weapon Technologies", Naval Science and Technological Laboratory, Visakhapatnam, 7-11 September 2009.
14. Title: "Design and analysis of composite mono leaf spring", Published in the proceedings of International conference on "Modeling Simulation and Manufacturing Systems (MSMS-2008)" organized by Department of Mechanical Engineering, College of Engineering (A), Andhra University, Visakhapatnam, 29-30 June 2008.
15. Title: "Simulation of sea water pump cooling fan for air-borne noise reduction using CFD", Published in the proceedings of "International conference on Recent Trends in Mechanical Engineering" organized by UJJAIN College of Engineering, Ujjain, India, 4-6 October 2007.
16. Title: "Inland water ways, requirement of new vessels- delivery and cost aspects", Published in the proceedings of National conference on "Inland water ways, requirement of new vessels- delivery and cost aspects" organized by Institution of Engineers (I), Local Center, Visakhapatnam, 24-25 February 2007.
17. Title: "Fracture analysis of a composite wind turbine blade", Published in the proceedings of "International conference on Global manufacturing and Innovation (GMI 2006)" organized by Coimbatore Institute of Technology, Coimbatore, India, 27-29 July 2006.

18. Title: "Iterative parametric program to find optimum rotational speed for a given interference using ANSYS", Published in the proceedings of National conference on "Advances in Mechanical Engineering (AIME)" organized by Faculty of Engineering, Jamia Milla, Islamia, New Delhi, 20-21 January 2006.

### **WORKING PAPERS**

1. CFD & CAA simulation on centrifugal blower for aerodynamic noise reduction (under review)
2. Computational aero acoustic analysis of INSEAN E779A propeller using FLUENT
3. Experimental and numerical analysis of diesel generator foundation base frame for vibration reduction

### **RESEARCH PROPOSALS (TEQIP-II-S.C. 1. 2):**

1. Noise and Vibration study on Variable compression engine with various natural oils (Hydrogen, Ethanol & its blends, Jatropa etc.)
2. Noise and Vibration study on sandwich composites.

Equipments: FFT Analyzer and Sound level meter (Cost: 15 Lakhs)

### **SHORT TERM COURSE PROPOSED (TEQIP-II- S.C. 1. 2):**

Title: Advances in composites – A research perspective

Proposed dates: June 25-28, 2012

### **RESEARCH PROJECTS APPLIED:**

1. Fatigue, Vibration and Acoustic performance studies on Sandwich Composite materials

Agency: DST Project cost: 27 Lakhs

2. Vibration Suppression Of Composite Leaf Spring Using Visco Elastic Embedded System

Agency: DST Project cost: 23 Lakhs

### **CONSULTANCY PROJECTS APPLIED:**

1. Optimization of diesel generator foundation for vibration reduction.  
Organization: N.S.T.L, VISAKHAPATNAM

Project cost: 10 Lakhs (Under Process)

### **PATENTS:**

Title: Jute-Glass Fiber Sandwich Composites for Noise Reduction of Motor Fan

Agency: Government of India, Ministry of Commerce & Industry,  
Department of Industrial Policy and Promotion, New Delhi  
(Work is under process)

### **RESEARCH PROJECTS COMPLETED:**

Worked as project associate at VITAM core, VSP

1. Development of test rig for hydrodynamic force measurement for ship hulls.
2. Contra rotating propeller Gearbox for submarine

Principle Investigator : M. Madhusudhana Rao, Rtd. Scientist -E, NSTL

Sponsored Organization: N.S.T.L, VISAKHAPATNAM



### **CONSULTANCY PROJECTS COMPLETED:**

1. Computational fluid dynamic and aero acoustic analysis of blower for noise reduction.  
Sponsored Organization: N.S.T.L, VISAKHAPATNAM

### **HONOR**

1. Acted as reviewer for SAGE Publications, USA  
Journal: Journal of Vibration and Control (**Impact factor – 0.76**)  
Title: Noise Reduction through Elastically Restraints Sandwich Polycarbonate Window Pane into Rectangular Cavity
2. Appointed by honorable vice-chancellor of Andhra University as an examiner for M. Tech thesis evaluation at Mechanical Engineering Department, A.U College of Engineering (A), Visakhapatnam.

### **SPECIAL ACHIEVEMENTS**

1. Best Faculty Award (Mechanical Department) in 2008, VITAM COE, VISAKHAPATNAM.
2. Special recognition from secretary, VITAM COE for NBA work.
3. Got district first rank in 7<sup>th</sup> class and merit scholarship.
4. Patent on my research work is under process.
5. Redesign of motor fan is forwarded to KIRILOSKER Ltd. for validation.

### **PROJECTS HANDLED (PG Level)**

1. Estimation of hydrodynamic coefficients using FLUENT
2. Design and Analysis of Cavitations testing tank
3. Experimental and Numerical analysis of Centrifugal blower for estimation of flow and noise
4. Noise reduction of metal blower using composites
5. Static and Dynamic analysis of Aluminum and composite blower

6. Flow and cavitations analysis of propeller
7. Optimization of automobile cabin mounting bracket using OPTISTRUCT

### **PROJECTS HANDLED (UG Level)**

1. Fabrication of solar powered three wheeler for physically challenged people
2. Design and manufacturing of Pelton Wheel for 120 W output
3. Hydrogen- An alternate fuel: Performance of an IC Engine
4. Jatropa- An alternate fuel: Performance of an IC Engine
5. Performance of I.C Engines – Ethanol & Blends as fuel
6. Analysis of three wheeler automobile chassis using ANSYS
7. Design and Analysis of Composite mono Leaf Spring
8. Static and Modal analysis of Composite material embedded with shape memory alloy
9. Static and Dynamic Analysis of Shell for Under Water Applications.
10. Virtual Test on Steering Wheel using MSC. NASTRAN
11. Failure analysis of Conveyor pulley using MSC. NASTRAN
12. Static and Dynamic analysis on auto lift screw Lift
13. Crash Analysis of Automobiles
14. Design and Stress analysis of involute spur gear tooth using FEA
15. Iterative Parametric Program for Interference Fit Using ANSYS.
16. Design And Analysis Of Tractor Front Axle Using Msc. NASTRAN

### **TRAINING UNDERGONE**

1. Attended a seminar on "Condition monitoring & Diagnostic Engineering Management" by Prof. Dr. K Nagaraja Rao, Director, COMADEM International, UK, GITAM University, Visakhapatnam, Feb 19, 2012.
2. Attended a two day National workshop on "Challenges in micro and nano manufacturing: indian perspective in the global scenario" Organized by Department of Mechanical Engineering, Andhra University College of Engineering (A), Visakhapatnam. 11-12 December 2010.

3. Attended a five day "National conference and workshop on advances Mechanical & marine systems design" organized by the Department of Marine Engineering of Andhra University College of Engineering (A), Visakhapatnam. 28-30 October 2010.
4. Attended a two day National workshop on "Mission10X advanced teaching and learning techniques" Organized by Department of Mechanical Engineering, Anil Neerukonda Institute of Technology and sciences, Visakhapatnam, 26-27 August 2010.
5. Attended a five day National workshop on "High impact teaching skills" Organized by Department of Mechanical Engineering, Anil Neerukonda Institute of Technology and sciences, Visakhapatnam, 17-21 May 2010.
6. Attended a two day National workshop on "Winzone-Faculty development programme" Organized by Department of Mechanical Engineering, Sanketika Vidya Parishid Engineering College, Visakhapatnam, 19-20 October 2009.
7. Attended a three day National workshop on "Fatigue, Fracture and Creep of Materials and Components" Organized by Department of Mechanical Engineering, Andhra University College of Engineering (A), Visakhapatnam. 23-25 March 2009.
8. Attended a two day National workshop on "Intelligent Manufacturing" Organized by Department of Mechanical Engineering, Andhra University College of Engineering, Visakhapatnam. 16-17 March 2009.
9. Trained in Center for Entrepreneurship development Program on "Faculty Development Program in Entrepreneurship" organized by Department of Mechanical Engineering, Gayatri Vidya Parishid college of Engineering, Visakhapatnam. 04-17 December 2008.
10. Attended an Advanced Technology Programme on Current Trends in Nanotechnology organized by Department of Mechanical Engineering, National Institute of Technology, Warangal. June 30- July 12, 2008

11.Trained in AICTE Staff development Program on “CAD and CNC Manufacturing” organized by Department of Mechanical Engineering, Jagannath Institute of Technology and Management, Parlakhemudi.02-14 July 2007.

12.Attended a three day National workshop on “Composite materials” Organized by Department of Metallurgical Engineering, Andhra University College of Engineering, Visakhapatnam. 27-28 February 2007.

### **OTHER ADMINISTRATIVE ACTIVITIES**

- Officer in charge of university Examinations.
- Time tables in charge.
- Department NBA Coordinator
- In charge Head of the Department
- Spot co-coordinator
- Academic –coordinator for TEQIP-II- S.C. 1.2
- Designed Course structure for new M. Tech Program (Computer Aided Analysis and Design -CAAD)