Veerababu Dharanalakota

#5-43, Sivalayam Street
Prathipadu, East Godavari District
Andhra Pradesh, India - 533432

✉ dveerababu@outlook.com
☎ +91-7757889454

EDUCATION

Jul 2015 – Oct 2020 **PhD in Acoustics, Indian Institute of Technology Hyderabad, India**
Dept. of Mechanical and Aerospace Engineering
Dissertation: Green's function approach to predict the acoustic performance of circular expansion chamber with concentric liners
Cumulative GPA: 9.8/10

Aug 2011 – Jun 2013 **ME in Acoustics, Indian Institute of Science, Bengaluru, India**
Dept. of Mechanical Engineering
Dissertation: Flow-acoustic analysis and design of multiply-connected automotive mufflers
Cumulative GPA**:** 6.9/10 (First class)

Sep 2007 – May 2011 **B. Tech in Mechanical Engineering**
Jawaharlal Nehru Technological University, Kakinada, India
Aggregated Percentage: 75.9 % (First class with Distinction)

Jun 2005 – Apr 2007 **Intermediate**
Board of Intermediate Education, Andhra Pradesh, India
Aggregated Percentage: 95.2 % (A - Grade)

Jun 2004 – Apr 2005 **Secondary School Certificate**
Board of Secondary Education, Andhra Pradesh, India
Percentage: 89.3 % (First class)

RESEARCH EXPERIENCE

Nov 2021 – Present **Postdoctoral Fellow, Indian Institute of Science, Bengaluru, India**
Dept. of Electrical Engineering

- Modelling sound propagation using physics-informed neural networks (PINNs)
- Multi-layer perceptrons (MLPs), Adaptive learning rate algorithms, Loss-based optimizer switching algorithms, Kolmogorov-Arnold Networks (KANs), Uncertainty quantification

This research is jointly sponsored by the host institute and the Department of Science and Technology (DST), Govt. of India.

Jul 2021 – Nov 2021 **Postdoctoral Fellow, Indian Institute of Technology Hyderabad, India**
Dept. of Mechanical and Aerospace Engineering

- Theoretical modelling and simulation of sound propagation in the ducts
- Developing scaling laws for the simulation and testing of ducted systems

This research is sponsored by the Alstom India

Oct 2020 – Jun 2021 **Research Associate, Indian Institute of Technology Hyderabad, India**
Dept. of Mechanical and Aerospace Engineering

- Analytical and numerical modelling of air-filters for acoustics
- Statistical energy analysis (SAE) for high frequency noise control
- Design of a quieter silencer for the Wankel engine

This research is sponsored by the Fleetguard Filters Private Limited (India), Defence Research and Development Organization (India), and Honeywell USA, respectively.

INDUSTRIAL EXPERIENCE

Jul 2013 – Jun 2015 **Assistant Manager (R&D), Bajaj Auto Limited, Pune, India**
Noise, Vibration & Harshness (NVH) Division

- Aeroacoustic and vibroacoustic analysis of automotive components
- Psychoacoustic analysis of vehicle noise to improve the noise signature
- Failure analysis of structures due to vibrations
- Analysis of prolonged exposure of human body to the vibrations

PROFESSIONAL AFFILIATIONS

Sl. No.	Organization	Membership Type
1	Acoustical Society of India (ASI)	Life Member
2	American Institute of Aeronautics and Astronautics (AIAA)	Member
3	Institute of Noise Control Engineering - USA (INCE-USA)	Member
4	International Institute of Acoustics and Vibration (IIAV)	Member
5	Acoustical Society of America (ASA)	Member
Sl. No.	**Committee**	**Role**
1	ASA - Technical Committee on Computational Acoustics	Member
2	ASA - International Liaison Committee	Member

PROFESSIONAL SKILLS

Programming Languages	MATLAB, Mathematica, Python
ML Frameworks	TensorFlow
Finite Element Methods	Actran, COMSOL, Altair Hyperworks
Signal Processing	Pulse Reflex, Pulse LabShop
CAD	SolidWorks
IT	Microsoft Office, Latex, Zotero, WordFull

HONORS AND AWARDS

Sl. No.	Honor/Award	Organization	Year
1	Young Acousticians Grant	International Union for Pure and Applied Physics (IUPAP), Australia	2023
2	International Travel Grant	Department of Science and Technology (DST), Govt. of India	2023
3	Best Paper Award	Acoustical Society of India	2023
4	International Students Grant	Acoustical Society of America (ASA)	2020
5	Certificate of Appreciation in Research	Indian Institute of Technology Hyderabad	2019
6	Young Professional Congress Attendance Grants	International Institute of Noise Control Engineering (I-INCE)	2018
7	Certificate of Research Excellence	Indian Institute of Technology Hyderabad	2018
8	Best Paper Award	Acoustical Society of India & All India Institute of Speech and Hearing, India	2014
9	Dr. B. R. Ambedkar Merit cum Means Scholarship	Jawaharlal Nehru Technological University Kakinada, India	2011
10	Scholarship of Excellence	Cincinnati Telugu Foundation & BREAD Society, India	2007
11	Certificate of Appreciation	Narayana Educational Institutions, India	2005
12	Certificate of Proficiency	Ministry of Non-Conventional Energy Sources, Govt. of India	2004
13	Certificate of Merit	Ramanujan Educational Society, India	2001-2003

RESEARCH GRANTS

Jan 2025 – Jun 2026 **NVIDIA Academic Grant (~INR 16 Lakhs)**
Physics-based Machine Learning for Sound Propagation

TALKS AND SEMINARS

24th, 28 - 29 Dec 2021 **Short course on "Concepts on Computational Acoustics"**
Indian Institute of Technology Hyderabad, India

26 Nov 2018 - 1 Dec 2018 **National Level Faculty Development Programme on "Noise and Vibration Control of Structures: Engineering Applications"**
Jawaharlal Nehru Technological University, Kakinada, India

4 – 15 Jun 2018 **National Level Faculty Development Programme on "Noise, Acoustics, Vibration Control and Measurement in various Engineering Applications with hands-on sessions"**
Jawaharlal Nehru Technological University, Kakinada, India

PROFESSIONAL TRAININGS ATTENDED

21 – 25 Nov 2022 **COMSOL Multiphysics Intensive Online Training Course**

7 – 11 Jun 2021 **Nonlinear problems in Mechanical and Physical Systems**
Indian Institute of Technology Hyderabad, India

08 – 12 Oct 2020 **Advanced Machine Learning for Biosignal Data "**
National Institute of Technology Raipur, India

26 Aug 2018 **Practice School for Young Professionals – Noise Control Case Studies**
International Institute of Noise Control Engineering (I-INCE), Chicago, USA

27 Aug 2018 **Young Professional Workshop**
International Institute of Noise Control Engineering (I-INCE), Chicago, USA

23 May 2016 – 3 Jun 2016 **Computational Acoustics for Emerging Needs**
Indian Institute of Technology Bhubaneswar, India

1 – 5 Sep 2014 **One-week Acoustics course: Comprehensive Theory, Applications and Simulations**
Free Field Technologies, Chennai, India

7 – 11 July 2014 **One-week training program: Noise and Vibration Control**
Indian Institute of Science, Bengaluru, India

PUBLICATIONS

Journals:

1. **D. Veerababu** and Prasanta K. Ghosh, "Neural network based approach for solving problems in plane wave duct acoustics", *Journal of Sound and Vibration*, 585, 118476, (2024). https://doi.org/10.1016/j.jsv.2024.118476
2. **D. Veerababu,** Namra Quasim, and Prasanta K. Ghosh, "Estimation of Acoustic Field in a Uniform Duct with Mean Flow using Neural Networks", *International Journal of Acoustics and Vibration*, (2024). *(Accepted for publication)*
3. **D. Veerababu** and Prasanta K. Ghosh, "Solving 2-D Helmholtz equation in the rectangular, circular, and elliptical domains using neural networks", (2024). *(Under review since Jul 2024 with the publisher)*
4. **D. Veerababu** and Prasanta K. Ghosh, "Prediction of acoustic field in 1-D uniform duct with varying mean flow and temperature using neural networks", (2024). *(Under review since Jul 2024 with the publisher)*
5. **D. Veerababu,** R. Ashwin and Prasanta K. Ghosh, "Improving neural network training using loss-based dynamic learning rate scheduler", (2025). *(Manuscript prepared and under review by co-authors, expected submission Dec 2024)*
6. **D. Veerababu,** C. Sachin, P. V. S. Subhashini, and B. Venkatesham, "Acoustic modelling and analysis of automotive air-filters", *International Journal of Acoustics and Vibration*, 28(4), 353 – 361, (2023). https://doi.org/10.20855/ijav.2023.28.41959
7. **D. Veerababu** and B. Venkatesham, "Transmission loss of lined Helmholtz resonator with annular air-gap: A Green's function based approach", *Noise Control Engineering Journal*, 69(2), 112-121, (2021). https://doi.org/10.3397/1/376912

8. **D. Veerababu** and B. Venkatesham, "A Green's function solution for acoustic attenuation by a cylindrical chamber with concentric perforated liners" *ASME Journal of Vibration and Acoustics*, 143(2), 021004, (2021). https://doi.org/10.1115/1.4048172

9. **D. Veerababu** and B. Venkatesham, "Green's function approach for the transmission loss of concentrically multi-layered circular dissipative chamber", *Journal of the Acoustical Society of America*, 147(2), 867 – 876, (2020). https://doi.org/10.1121/10.0000

International Conferences:

1. **D. Veerababu**, Prasant K. Ghosh, "Prediction of one-dimensional acoustic field with axial temperature gradient using neural networks", *Inter-Noise 2024*, Nantes, France, 25 – 29 Aug, (2024). https://doi.org/10.3397/IN_2024_3663

2. **D. Veerababu**, J. Pavan Kumar, Prasant K. Ghosh, "Loss-based optimizer switching to solve 1-D Helmholtz equation using neural networks", *Acoustics 2023 Sydney*, Australia, 4 – 8 Dec, (2023). https://doi.org/10.1121/10.0022918

3. **D. Veerababu**, R. Ashwin, Prasant K. Ghosh, "Achieving stable convergence of neural networks for estimating acoustic field in uniform ducts", *Acoustics 2023 Sydney*, Australia, 4 – 8 Dec, (2023). https://doi.org/10.1121/10.0022917

4. **D. Veerababu** and Prasanta K. Ghosh, "Solution of 1-D Helmholtz equation using artificial neural networks", *Proceedings of the 29th International Congress on Sound and Vibration, ICSV29*, Prague, 9 -13 July, (2023).

5. **D. Veerababu** and B. Venkatesham, "Evaluation of acoustic performance of multi-perforate lined chamber by means of Green's function", *Proceedings of the 27th International Congress on Sound and Vibration, ICSV27*, 11 – 16 July, (2021).

6. **D. Veerababu** and B. Venkatesham, "Effect of shell compliance on the axial transmission loss of concentric tube resonator", *Proceedings of 13th Western Pacific Acoustics Conference, WESPAC2018*, New Delhi, India, 11 – 15 Nov, (2018).

7. **D. Veerababu** and B. Venkatesham, "Acoustic analysis of extended inlet/extended outlet concentric tube resonator using Green's function", *INTER-NOISE & NOISE-CON Congress and Conference Proceedings, Inter-Noise 18*, 2170 – 2178, Chicago, USA, 26 – 29 Aug, (2018).

8. **D. Veerababu** and B. Venkatesham, "Three-dimensional acoustic analysis of concentric tube resonator using Green's function", *Proceedings of the 24th International Congress on Sound and Vibration, ICSV24*, 4, 2305 – 2312, London, UK, 23 – 27 Jul, (2017).

9. G. Pradeep, T. T. Raja, **D. Veerababu**, B. Venkatesham and S. Ganesan, "Numerical prediction of perforated tube acoustic impedance", *Proceedings of the 24th International Congress on Sound and Vibration, ICSV24*, 4, 2361 – 2368 London, UK, 23 – 27 Jul, (2017).

National Conferences:

10. **D. Veerababu**, B. Shivateja, B. Venkatesham, B. Nikhil, NDevara NSR Prasad, G. Anvesh kumar, Scaling Laws for acoustic duct performance measurement, *50th National Symposium on Acoustics, NSA – 2023*, Odisha, India, 24 – 26 Feb, (2023).

11. **D. Veerababu** and M. L. Munjal, 3-D FEM as well as 1-D Analysis of a Three-Pass Double-Reversal Muffler, *Acoustics 2014*, Mysore, India, 12 – 14 Nov, (2014).

12. **D. Veerababu** and M. L. Munjal, 1-D Flow-Acoustic Analysis of Hybrid Three-Pass Double-Reversal Mufflers, *Acoustics 2013* (An Indo-French Conference on Acoustics), New Delhi, India, 10 – 15 Nov, (2013).

REFEREES

Dr. Prasanta K. Ghosh	Associate Professor, Department of Electrical Engineering, Indian Institute of Science, CV Raman Road, Bengaluru, India – 560012 prasantg@iisc.ac.in
Prof. M. L. Munjal	Professor Emeritus, Department of Mechanical Engineering, Indian Institute of Science, CV Raman Road, Bengaluru, India – 560012 munjal@iisc.ac.in
Prof. B. Venkatesham	Professor, Department of Mechanical and Aerospace Engineering, Indian Institute of Technology Hyderabad, Kandi, Sangareddy District, Telangana, India – 502285 venkatesham@mae.iith.ac.in