

1. Name	Bhushan Singh Gautam	
2. Date of birth	23-Mar-1988	Email Id : bhushan.iisc@gmail.com mobile: 9632884177
4. Designation/ Employer	Assistant Professor, Guru Ghasidas University, Bilaspur	
5. Copyrights/Patents	<ul style="list-style-type: none"> ● 'Eval_{muffler}'[®] (Copyright Reg. No. SW- 8134/2014). ● 'Eval_{SAC}'[®] (Copyright Reg. No. SW-8227/2014). ● 'Co-axial quarter wave resonator' US Patent filed US15/431798. ● 'Sound Capturing Cup' US Patent filed US15/653721. ● 'Noise attenuating feature at compressor inlet' US patent filing in process. ● 'Acoustic damper containing Quarterwave/Helmholtz and expansion chamber for damping broad frequency ranges' US patent filing in process 	
6. Journal/Conference Papers	<ul style="list-style-type: none"> ● Bhushan Singh Gautam and Chaitanya Bhat, "Structure Borne Noise-structural excitation by turbo charger while Noise radiation by vehicle components", WESPAC 2018. ● Bhushan Singh Gautam and M.L. Munjal, "Flow acoustic analysis of Commercial Automotive Mufflers Matrizant Approach", Journal of Acoustical Society of India, Vol. 39, No. 3, 2012 (pp. 142-151). ● Bhushan Singh Gautam and M.L. Munjal, "A Novel Approach of substituting Boundary conditions to Get Four Pole Parameters of Acoustics Elements", National Symposium on Acoustics 2012. ● Bhushan Singh Gautam and M.L. Munjal, "Flow acoustic analysis of Commercial Automotive Mufflers Matrizant Approach", National Symposium on Acoustics, 2011. 	
7. Expertise	<p>Technical :</p> <ul style="list-style-type: none"> ● Rich exposure to Duct Acoustics and Muffler design. ● Meticulous understanding to problems of fluid structure interaction. ● Experienced in developing, installing and validating experimental setup. <p>Computer skills:</p> <ul style="list-style-type: none"> ● Significant hands on experience with LMS Test.Xpress and various modules of LMS Test.Lab (Data acquisition and analysis software) <ul style="list-style-type: none"> • Signature testing advanced. • Impact testing. • Sound Transmission Loss using impedance tube. • Sound Absorption Coefficient using impedance tube. • Sound Intensity Mapping. ● Worked on 'BnK Pulse', data acquisition and analysis software. ● Well versed with MATLAB. ● Exposure to LMS Virtual.Lab, acoustic module (FEM/BEM) ● Muffler simulation and design using acoustic modules of GT Power and Ricardo wave (WaveBuild 3D 8.0). 	
8. Professional Experience	<ul style="list-style-type: none"> ● Lead & resolved NVH related Customer Issues (Launch/Field) Issues for India, Korea & Japan region. ● Development of acoustic & vibration dampers: Over the years there are few 	

{8 Years' Experience in Research & Development, in the field of Noise and vibration control;

Honeywell Technology Solutions, & Ashok Leyland Limited}

interesting concepts proposed for noise resolution and are applied for Patent.

- Experience with European customers (Volvo, Mazerati, Renault) in resolving turbocharger (TC) related noise issue.
- Lead cross-functional project on Aero-acoustic simulation (flow generated noise source identification) in duct. Established standard methodology for simulating Recirculation valve noise.
- Participated in cross-functional team for developing methodology for electric turbo and other e-boosting projects.
- Lead Noise task force for Hyundai Motors India to reduce turbo rejections due to noise complaint.
- Expertise in Noise Source localization technique, Studied vehicle sensitivity towards turbo vibration and consulted OEM (Tata motors limited) to reduce noise rejection.
- Delievered Talks in different OEMs (Suzuki, Tata Motors Ltd. etc), on turbocharger noise type, sources and possible solutions.
- Consulted Application Engineering (AE) team, for Hyundai 1.2L, vibration specs finalization, Addressed and resolved customer's claim on increased vibration level in specific frequency range, Activity (involving measurement at vehicle, Structures FEA, impact hammer test & acoustic holography) concluded in collaboration with Application team, structures team and VibroAcoustic team.
- Implemented proactive approach (ENAP methodology) to check structure borne noise concern in Vehicle.
- Developed and Implemented Noise attenuating feature at the compressor inlet of turbocharger to dampen out the flow generated noise for Audi/BMW application.
- Proposed, Developed and implemented acoustic damping concept 'Sound capturing cup' for broad frequency range 3000-10000Hz.
- Environmental Noise control at production plant in Bucharest using acoustic damper.
- NVH testing and refinement of vehicles of Indian Leading OEM, Ashok Leyland.
- Investigations and recommendations for structural vibration issues employing modal analysis and operation deflection shapes.
- Development of Testing lab, for Exhaust and Intake system refinement by lab level measurements.
- Organized knowledge sharing session on 'Sound Intensity and its application' for awareness of test engineers.
- Developed Applications '**Evalf_{muffler}**[®]', (Reg. No. SW-8134/2014) and '**Evalf_{SAC}**[®]', (Reg. No. SW-8227/2014) for evaluation of transmission Loss and

	<p>Sound absorption coefficient, respectively of acoustic element/material.</p> <ul style="list-style-type: none"> Proposed and implemented a methodology for checking setup for sound transmission loss and absorption coefficient. 			
9. Professional Achievements	<ul style="list-style-type: none"> Patent awards for the developing concept Sound capturing cup & coaxial QW resonators- Acoustic Damper Development. Bravo Gold Award for solving customer issue (Caterpillar) in limited time and avoid launch issue. Award for Tech & Innovation for developing and improving test rigs at HTS Bangalore. 'Star Award' for introducing a procedure of source localization which helped in saving of \$72119 for the year 2016. Author of Copyright softwares 'Evalf_{muffler}' (Copyright Reg. No. SW-8134/2014) and 'Evalf_{SAC}' (Copyright Reg. No. SW-8227/2014) for Sound Transmission Loss & Sound Absorption Coefficient measurement respectively. 			
10. Education				
Exam /Degree	Board/University	Year	Specialization	% of Marks/Grade
M.E.	Indian Institute of Science, Bangalore	<u>2009-2011</u>	<u>Mechanical Engineering</u>	6.0/8.0
B.E.	Chhattisgarh Swami Vivekananda Technical University	<u>2005-2009</u>	<u>Mechanical Engineering</u>	8.0/10
11. M.E. Project/Thesis	<p style="text-align: center;"><u>Flow Acoustic Analysis of Commercial Automotive Mufflers – Matrizant Approach</u></p> <p>The project deals with the prediction of performance of mufflers using Matrizant approach. It is not feasible to experimentally evaluate the performance of all mufflers at the design stage. Though analytical methods are available in the literature, for analysis of various muffler configurations but are tedious, involves complex mathematical modeling and prone to oversights and human error. Hence, a semi-analytical method employing Matrizant approach is presented. It is very convenient for solving a set of linear first order differential equations. One has to simply put the governing flow-acoustic differential equations in the canonical differential matrix form which can be easily solved by means of a computer program. An algebraic scheme has been worked out to incorporate the boundary conditions systematically, which reduces the probability of any oversights and human error and also helps in elimination of numerical instabilities which were present in 'Transfer Matrix based Muffler Program' (TMMP) for some perforated element muffler configurations.</p>			
12. Other Projects Completed	<p><u>M.E.</u> :</p> <ul style="list-style-type: none"> Evaluation of Vibro-Acoustic Properties of Polymer composite Materials, a Consultancy project by ADA. 			
	<p><u>B.E.</u> :</p> <ul style="list-style-type: none"> Case study of "Process Capability analysis and Indices of Manufacturing Process". 			

	<ul style="list-style-type: none"> ● “Step Climber” a manually operated robot. ● A vehicle for “Laws of motion” an event @IIT KGP tech fest
13. Academic Achievements	<ul style="list-style-type: none"> ● ME Project work has been included in Chapter 4 and 8 of “Acoustics of Ducts and Mufflers – 2nd edition, by M.L Munjal” published by John Wiley and Sons, UK in 2014. ● Awarded ‘Best presentation Award’ at NSA-2011 held at Jhansi for presenting ‘Flow acoustic analysis of Commercial Automotive Mufflers Matrizant Approach’. ● Secured AIR-007 (99.97 %ile) in GATE 2009. ● Awarded <u>BEST DESIGN</u> for model in a mechanical event “ Laws of Motion” held at IIT Kharagpur, Feb 2007. ● Participated in “Robotix” a mechanical event at IIT Kharagpur, Feb 2007. ● Secured AIR-436 in final round National Science Olympiad 2001. ● Secured 69% in National Level Science Talent Search Examination 2003.
14. Interest/Preference	<ul style="list-style-type: none"> ● Automotive Noise and Vibration Control ● Duct and Muffler acoustics ● Industrial Noise Control ● Environmental Noise Control

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