

# National Institute of Technology, Tiruchirappalli:

## Performa for CV of Faculty/ Staff Members

### Curriculum Vitae



#### Brief Profile:

Thank you for visiting my profile. I am currently working as an Assistant Professor in the Department of Mechanical Engineering, National Institute of Technology Tiruchirappalli, Tamil Nadu, India. My Bachelor's degree in Mechanical Engineering from Erode Sengunthar Engineering College, Affiliated to Anna University, Chennai, in 2005. My Master's degree in Engineering Design from College of Engineering Guindy, Anna University, Chennai in 2010. I received my Ph.D. degree in Applied Mechanics from Indian Institute of Technology Madras (IITM), Chennai in 2015. I completed my postdocs from Texas A&M University at Qatar (TAMUQ) in 2018 and 2019 respectively.

My current research interests include Structural Health Monitoring, Mechanics of Composite Structures, Biomechanics, Computational Mechanics, Nano Mechanics and Vibration Control. I have published in several reputed journals such as Journal of Sound Vibration, International Journal of Mechanical Sciences, Composite Structures, Sensors and Actuators A: Physical, Acta Mechanica, Strain, Structural Engineering and Mechanics and also published a couple of book chapters with Springer publishers. I have presented my research works in various international conferences across the world like USA, South Korea, Qatar. I have collaborated in various projects with renowned professors in the field of structural mechanics namely, **Prof. Sami EL-BORGI** from TAMUQ, **Prof. Michael I Friswell** from Swansea University, UK, **Prof. J.N. Reddy** and **Prof. Dimitris C. Lagoudas** from Texas A&M University (TAMU), USA.

1.	Name	Dr. R. Prakash
2.	Designation:	Assistant Professor
3.	Office Address:	No. 126, OJAS Building, Dept. of Mechanical Engg., NIT Trichy.
4.	Telephone (Direct) (Optional): Telephone :                      Extn (Optional): Mobile (Optional):	0431-250 3421 +91- 9444810545
5.	Email (Primary):	rprakash@nitt.edu
6.	Field(s) of Specialization:	Structural Health Monitoring, Vibration Control, Mechanics of Composite Materials, Computational Mechanics

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### 7. Employment Profile

Job Title	Employer	From	To
Assistant Professor	National Institute of Technology, Tiruchirappalli.	04/05/2020	Till Date
Senior Assistant Professor	SASTRA Deemed to be University, Thanjavur.	01/11/2019	30/04/2020
Postdoctoral Research Associate	Texas A&M University at Qatar	01/05/2019	31/10/2019
Senior Assistant Professor	SASTRA Deemed to be University, Thanjavur.	01/06/2018	30/04/2019
Postdoctoral Research Associate	Texas A&M University at Qatar	01/12/2016	31/05/2018
Senior Assistant Professor	SASTRA Deemed to be University, Thanjavur.	01/06/2016	30/11/2016
Faculty on Contract	National Institute of Technology Puducherry, Karaikal.	06/08/2015	27/05/2016

### 8. Academic Qualifications (From Highest Degree to High School):

Examination	Board / University	Year	Division/ Grade	Subjects
Ph.D.	Indian Institute of Technology Madras (IITM), Chennai.	2015	-	Structural Health Monitoring
M.E.	College of Engineering, Guindy Campus, Anna University, Chennai.	2010	First Class with Distinction	Engineering Design
B.E.	Erode Sengunthar Engineering College, affiliated to Anna University, Chennai.	2005	First Class	Mechanical Engineering

### 9. Academic/Administrative Responsibilities within the University

Position	Faculty/Department/Centre/Institution	From	To
Time Table Co-ordinator	Department of Mechanical Engineering	Jan 2022	Till Date
Faculty In-charge for No Dues	Department of Mechanical	Aug 2020	Till Date

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To B.Tech. (Mechanical Engg.) & M.Tech. (TPE & ISE) Students	Engineering		
Class Committee Chairman for First Year of M.Tech (ISE)	Department of Mechanical Engineering	Aug 2021	July 2022
Member of B.Tech (Mechanical Engg.) Project Committee	Department of Mechanical Engineering	Aug 2020	July 2021
Member of Data Collection Committee	Department of Mechanical Engineering	April 2021	Till Date
Member of Implementation of NEP 2020 for UG Program	Department of Mechanical Engineering	Aug 2020	Till Date
Faculty Advisor for B.Tech (Mechanical Engg.) 2020-24 Batch Students	Department of Mechanical Engineering	July 2021	Till Date
Member of NBA Committee	Department of Mechanical Engineering	Nov 2021	Till Date
Member of PMRF Candidates Screening Committee	Department of Mechanical Engineering	July 2022	Till Date
Member of Anti-Ragging Committee	Institute Level	Feb 2021	March 2022

10. Academic/Administrative Responsibilities outside the University

Position	Institution	From	To
Nil	Nil	Nil	Nil

11. Awards, Associateships etc.

Year of Award	Name of the Award	Awarding Organization
2011	Second Rank in Master of Engineering Design	Anna University, Chennai, Tamil Nadu.

12. Fellowships

Year of Award	Name of the Fellowship	Awarding Organization	From (Month/Year)	To (Month/Year)
2009	GATE Scholarship	MHRD, India	Mar 2009	June 2010
2010	HTRA Fellowship	MHRD, India	July 2010	June 2015

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### 13. Details of Academic Work

#### (i) Curriculum Development

- Mechanical Vibrations and Acoustics
- Smart Materials and Structures

#### (ii) Courses taught at Postgraduate and Undergraduate levels

##### Undergraduate level

- Strength of Materials
- Dynamics of Machinery
- Composite Materials
- MEMS Devices – Design and Fabrication
- Industrial Robotics

##### Postgraduate level

- Safety in Engineering Industry

#### (iii) Projects guided at Postgraduate level

- Conditioning Monitoring of Turbine Blades.
- Finite Element Analysis of Human Body in Semi-Supine Posture Subjected to Whole Body Vibration.
- Modal Analysis of Human Body Vibration Model for Indian Subjects Under Semi-Supine Posture.
- Damage Identification in GFRP Plate using Wavelet Packet Transform.
- Detection of Crack Orientation in a Plate using Shearlet Transform.
- Dynamic Failure Analysis of Valve Train Mechanism.
- Human Body Vibration Analysis in Sitting Posture for Automobile Application.

### 14. Details of Major R&D Projects

Title of Project	Funding Agency	Duration		Status
		From	To	Ongoing/ Completed
Vibro-acoustic Characteristics and Acoustic Emission based Structural Health Monitoring of Cylindrical GFRP Panels at Elevated Temperatures	SEED Grant from NIT Tiruchirappalli	15/04/2021	14/04/2023	Ongoing

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15. Number of PhDs guided

Name of the PhD Scholar	Title of PhD Thesis	Role(Supervisor/ Co-Supervisor)	Year of Award
Pankaj Chaupal	<i>Structural Health Monitoring (SHM) of Composite Beam and Plates using Machine Learning Approach &amp; Shearlet Transform Technique</i>	Supervisor	Ongoing
E. Ashok	<i>Noise, Vibration and Harshness (NVH) analysis of Automobile Systems</i>	Supervisor	Ongoing

16. Participation in Workshops/ Symposia/ Conferences/ Colloquia /Seminars/ Schools etc. (mentioning the role)

Date (s)	Title of Activity	Level of Event (International/ National/ Local)	Role (Participant/ Speaker/ Chairperson, Paper presenter, Any other)	Event Organized by	Venue
22 <sup>nd</sup> July – 11 <sup>th</sup> Aug 2012	5 <sup>th</sup> Asia Pacific Summer School (APSS) on Smart Structures	International	Participant	Indian Institute of Science (IISc), Bengaluru, India	Indian Institute of Science (IISc)

17. Workshops/ Symposia/ Conferences/ Colloquia/Seminars Organized (as Chairman/ Organizing Secretary/ Convenor / Co-Convenor)

Title of Activity	Level of Event (International/ National/ Local)	Date (s)	Role	Venue
Nil	Nil	Nil	Nil	Nil

18. Invited Talks delivered

Topic	Date	Inviting Organization
Condition Monitoring of Rotating Machines	26-10-2021	Department of Mechanical Engineering, Mahendra Institute of Engineering & Technology,

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		Namakkal, Tamil Nadu.
Evolution and Future Scope of Mechanical Science – EFMS’21	16-04-2021	Department of Mechanical Engineering, Bannari Amman Institute of Technology, Erode, Tamil Nadu.
Wavelet-based Methods for Composite Structures	29-01-2021	Department of Civil Engineering, IEST, Shibpur, West Bengal.
Conditional Monitoring of Turbine Blades	08-09-2020	Kongu Engineering College, Erode, Tamil Nadu.
Conditional Monitoring of Modern Machine Tools - A Journey Towards Industry 4.0	02-02-2019	Sree Vidyanikethan Engineering College (Autonomous), Tirupati. Andhra Pradesh.
Damage identification in a bladed disk using wavelet packet transform	10-12-2018	SASTRA Deemed University, Thanjavur, Tamil Nadu.
Damage identification in a bladed disk using wavelet packet transform	27-11-2018	TAMUQ, Doha, Qatar.

19. Membership of Learned Societies

Type of Membership (Ordinary Member/ Honorary Member / Life Member )	Organization	Membership No. with date
Life Member	Institute of Smart Structures and Systems (ISSS)	LM-379
Life Member	in Indian Society of Theoretical and Applied Mechanics (ISTAM)	L/2000

20. Academic Foreign Visits

Country	Duration of Visit	Programme
Doha, Qatar	3 Days	Qatar-UK Workshop
Swansea, UK	1 Week	Research Work
Jeonbuk, South Korea	5 Days	Advances in Structural Health Management and Composite Structures (ASHMCS 2014)
New York, USA	5 Days	First International Conference on Mechanics of Composites (MECHCOMP 2014)

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21. Publications

(A) Refereed Research Journals:

Author(s)	Title of Paper	Journal	Volume (No.)	Page Numbers	Year	Impact Factor of the Journal (Optional)
S. El-Borgi, <b>P. Rajendran</b> , Trabelssi M	Nonlocal and Surface Effects on Nonlinear Vibration Response of a Graded Timoshenko Nanobeam	<i>Archive of Applied Mechanics</i>	-	1-30	2022	2.467
Rohit Kshirsagar, <b>R. Prakash</b> ,	Prediction of Corrosion based Damages in Turbine Blades using Modal and Harmonic Analyses	<i>Materials Today: Proceedings</i>	46	10093-100101	2021	-
P.K. Bharadwaj, <b>R. Prakash</b> ,	Modal and Harmonic Analysis of the Indian Male Human Body Subject under Semi-Supine Posture	<i>Materials Today: Proceedings</i>	46	10085-10092	2021	-
S. El-Borgi, A. Alrumaihi, <b>P. Rajendran</b> , R. Yazbeck, R. Fernandes, J.G. Boyd, D.C. Lagoudas	Model updating of a scaled piping system and vibration attenuation via locally resonant bandgap formation	<i>International Journal of Mechanical Sciences</i>	194	106211	2021	6.772

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S. El-Borgi, R. Fernandes, <b>P. Rajendran</b> , R. Yazbeck, J.G. Boyd, D.C. Lagoudas	Multiple bandgap formation in a locally resonant linear metamaterial beam: theory and experiments	<i>Journal of Sound and Vibration</i>	488	1-25	2020	4.761
N. Jamia, M. I. Friswell, S. El-Borgi, <b>P. Rajendran</b>	Modelling and Experimental Validation of Active and Passive Eddy Current Sensors for Blade Tip Timing	<i>Sensors and Actuators A: Physical</i>	285	98-110	2019	4.291
<b>P. Rajendran</b> , N. Jamia, S. El-Borgi, M.I. Friswell,	Wavelet Transform based Damage Identification in Bladed Disks and Rotating Blades	<i>Shock and Vibration</i>	8	1-16	2018	1.616
N. Jamia, <b>P. Rajendran</b> , S. El-Borgi, M.I. Friswell	Mistuning Identification in Bladed Disk using Wavelet Packet Transform	<i>Acta Mechanica</i>	229	1275–1295	2018	2.645
S. El-Borgi, <b>P. Rajendran</b> , M.I. Friswell, M. Trabelssi, J.N. Reddy	Torsional vibration of size-dependent viscoelastic rods using nonlocal strain and velocity gradient theory	<i>Composite Structures</i>	186	274–292	2018	6.603



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<b>P. Rajendran, S.M. Srinivasan</b>	Identification of Added Mass in the Composite Plate Structure based on Wavelet Packet Transform	<i>Strain, An International Journal for Experimental Mechanics</i>	52	14-25	2016	2.578
<b>R. Prakash, Sivakumar M.S.</b>	Performance of rotational mode based indices in identification of added mass in beams	<i>Structural Engineering and Mechanics</i>	54	711-723	2015	2.998
R. Prakash, Srinivasan S.M.	Rotational mode shape based added mass identification using Wavelet Packet Transform	<i>International Journal for Computational Methods in Engineering Science &amp; Mechanics</i>	16	182-187	2015	-
<b>R. Prakash, Srinivasan S.M.</b>	Wavelet packet transform based damage identification of GFRP beam	<i>Journal of Structural Engineering</i>	40	44-47	2013	-

(B) Conferences/Workshops/Symposia Proceedings

Author(s)	Title of Abstract/ Paper	Title of the Proceedings	Page numbers	Conference Theme	Venue	Year
Pankaj Chaupal, Vivek	Dynamic Failure Analysis of IC	<i>4<sup>th</sup> International Conference on</i>	-	-	SRM Institute of Science and	2022

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Kauraw, <b>Prakash Rajendran</b>	Engine Valve Mechanism	<i>Advance in Mechanical Engineering (ICAME 2022)</i>			Technology, Chennai	
Pankaj Chaupal, <b>R. Prakash</b>	Damage Identification in Composite Structure using Machine Learning Techniques based on Acoustic Emission Waveforms	<i>Recent Advances in Manufacturing (RAM-2021)</i>	-	-	NIT Surat, Gujarat, India.	2021
N. Jamia, M.I. Friswell, S. El-Borgi, <b>P. Rajendran</b>	Simulating Eddy Current Sensors in Blade Tip Timing Application: Modeling and Experimental Validation	<i>ASME 2018 International Mechanical Engineering Congress and Exposition (IMECE 2018),</i>	-	-	Pittsburgh, USA	2018
N. Jamia, M.I. Friswell, S. El-Borgi, <b>P. Rajendran</b>	Blade Tip Timing Based Condition Monitoring of Bladed Disks in Rotating Machines	<i>ISMA Conference on Noise and Vibration Engineering 2018</i>	-	-	Leuven Belgium.	2018
S. El-Borgi, <b>P. Rajendran</b> , M.I. Friswell, M. Trabelssi, J.N. Reddy	Torsional vibration of size-dependent viscoelastic rods using nonlocal strain and velocity gradient theory	6th European Conference on Computational Mechanics (ECCM 6),	-	-	Glasgow, UK.	2018
<b>P. Rajendran</b> , N. Jamia, S. El-Borgi, M. I. Friswell	Identification of Mistuned Blades using Wavelet Transform	<i>The Second International Computational Science and Engineering Conference (ICSEC17)</i>	-	-	West Bay, Doha, Qatar	2017
N. Jamia,	Coupled	<i>VII</i>	-	-	Rhodes,	2017

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M. I. Friswell, S. El-Borgi, <b>P. Rajendran</b>	Mechanical and Electromagnetic Modeling of Eddy Current Sensors	<i>International Conference on Computational Methods for Coupled Problems in Science and Engineering Coupled Problems 2017</i>			Greece	
<b>Prakash R</b> and Sivakumar MS	Identification of Added Mass in the Composite Plate Structure based on Wavelet Packet Transform	<i>Advances in Structural Health Management and Composite Structures (ASHMCS 2014)</i>	-	-	Jeonbuk, South Korea	2014
<b>Prakash R,</b> Srinivasan SM	Mode Shape based Damage Identification of GFRP beam Structures by Spatial Wavelet Packet Transform	<i>First International Conference on Mechanics of Composites (MECHCOMP 2014)</i>	-	-	Stony Brook University, New York, USA.	2014
<b>Prakash R,</b> Srinivasan SM	Wavelet Packet based damage identification of GFRP beam	<i>International Congress on Computational Mechanics and Simulation (ICCMS 2012)</i>	-	-	IIT Hyderabad, Hyderabad.	2012
<b>Prakash R,</b> Srinivasan SM, Marippan D	Damage Identification of Composite beam using Wavelet Packet Transform	<i>Asian Conference on Mechanics of Functional Materials and Structures (ACMFMS)</i>	-	-	IITD, New Delhi	2012
<b>Prakash R,</b> Johnson, Marippan D, Srinivasan	Damage Detection in Composite beam using Continuous	<i>International Conference on Strength of Materials (ICSMA)</i>	-	-	IISc, Bengaluru, India	2012

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SM	Wavelet Transform					
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(C) Books & Monographs

Author(s)	Title of Book/Monograph	Name of Publishers	Year of Publication	ISSN/ISBN Number
Pankaj Chaupal, <b>R. Prakash</b>	Damage Identification in Composite Structure using Machine Learning Techniques based on Acoustic Emission Waveforms	<i>Springer Nature,</i>	2022	ISBN 978-981-16-9951-1
El-Borgi, S., <b>Rajendran, P.,</b> Trabelssi, M	Application of Combined Nonlocal and Surface Elasticity Theories to Vibration Response of a Graded Nanobeam	<i>Springer Tracts in Mechanical Engineering</i>	2021	ISBN 978-3-030-63049-2