

Dr. Tameshwer Nath

Contact Information Assistant Professor, Department of Mechatronics Engineering
Indian Institute of Information Technology,
Bhagalpur College of Engineering Campus, Sabour, Bihar-813210, India

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Research Interest
Smart Material (Shape Memory Alloy)
Design of MEMS devices
Dynamic behavior of machine design elements
Mechatronics & Instrumentation

Education **Indian Institute of Technology Indore, M.P. India**

Doctor of philosophy, Discipline of Mechanical Engineering Nov. 2019

- Thesis Topic: Investigations on Contact and Non-Contact Based Actuation Studies of Shape Memory Alloy (SMA) Structures and their Life Cycle Behavior
- Advisor: I.A.Palani, Ph.D.

Sant Longowal Institute of Engineering & Technology, Punjab, India

Master of Technology, Discipline of Mechanical Engineering, Aug. 2012

- Major Project Topic: Dynamic behavior and control of Quarter/Half/Full Car Models with Active and Passive Suspension system
- Advisor: Vikas Rastogi Ph.D.

ITM Gorakhpur, Uttar Pradesh Technical University, Lucknow, India

Bachelor of Technology, Discipline of Mechanical Engineering, Aug. 2008

- Major Project Topic: Design of Powered Jack

Maharana Pratap Polytechnic Gorakhpur, Board of Technical Education Uttar Pradesh

Diploma in Mechanical Engineering-Computer Aided Design, Aug. 2005

- Major Project Topic: Design of Winnowing fan

Research Experience **Research Associate** May 2018 to Mar. 2019
Discipline of Mechanical Engineering
Indian Institute of Technology Indore, M.P. India
Khandwa Road, Simrol, Indore, Madhya Pradesh-453552, India

Objectives:

- Analysis of the thermo-mechanical behavior and Characterization of Shape memory alloy based devices

- Modelling and simulation of MEMS devices

Research Scholar

Jan. 2014 to April 2018

Discipline of Mechanical Engineering
Indian Institute of Technology Indore, M.P. India
Khandwa Road, Simrol, Indore, Madhya Pradesh-453552, India

Objectives:

- Design and development of experimental set up for Joule heating with implementation of control strategies.
- Design and development of experimental test bench for hot water actuated SMA spring and its characterization.
- Development of experimental set up for Pulsed laser and laser (continuous fibre laser) assisted actuation of SMA spring with its practical application with its characterization.

Teaching
Experience

Assistant Professor

September 2020 to Till Now

Indian Institute of Information Technology,
Bhagalpur college of Engineering, BCE Campus,
Bhagalpur- 813210, India

Subjects Taught

- Sensor and actuator

I am teaching and also monitoring practical of these courses subject to Undergraduate (B.Tech) and post graduate (M.Tech) students and doctoral students.

Assistant Professor

March 2019 to July 2019

Subharti University, NH-58, Delhi Haridwar By Pass
Meerut-250005, UP. India

Subjects Taught

- Machine Design, Kinematics of Machine, Mechatronics

I am teaching and also monitoring practical of these courses subject to Undergraduate (B.Tech) and post graduate (M.Tech) students .

Teaching Assistant

July 2014 to April 2018

Discipline of Mechanical Engineering
Indian Institute of Technology Indore, M.P. India
Khandwa Road, Simrol, Indore, Madhya Pradesh-453552, India

Lab Course

- Mechatronics and Instrumentation Laboratory, workshop Technology

I have been assigned to help the students to perform the different experiments of this course. Additionally, I was also assigned to other task includes invigilation during the semester and other examination & volunteering in different academic programs.

Tutorials

- Basic of control system, Smart Materials

I have been assigned to take the tutorials of these courses, where I helped to students to complete their assignment given by the respective professor

Assistant Professor

Sep. 2013 to Dec. 2014

Subharti University, NH-58, Delhi Haridwar By Pass
Meerut-250005, UP. India

Subjects Taught

- Kinematics of Machine, Manufacturing Science

I have been taught and also monitored practical of these courses subject to Undergraduate (B.Tech). I supervised 10 students for their projects (Undergraduates and Postgraduates).

Assistant Professor

Aug. 2008 to Aug. 2010

Subharti University, NH-58, Delhi Haridwar By Pass

Meerut-250005, UP. India

Subjects Taught

- Engineering Mechanics, Manufacturing Science

I have been taught and also monitored practical of these courses subject to Undergraduate (B.Tech). I supervised 08 students for their projects (Undergraduates and Postgraduates).

Awards

Fellowships

- SLIET Entrance Test (SET) Award: AIR 3 June 2010
- Best Teacher Award 2012-2013
- Doctoral Dissertation Fellowship : Indian Institute of Technology Indore, M.P India
 - Junior Research Fellowship (JRF) Jan. 2014 to April 2016
 - Senior Research Fellowship (SRF) May 2016 to April 2018

The doctoral fellowship program is intended to give the Ph.D. candidates an opportunity to support the research work by MHRD for devoting full time effort to research work.

- Best Research award by Sandip University Nasik July 2018
- Research Associate ship (RA) from CSIR-HRDG May 2018-Mar. 2019

Professional

- Training and Placement officer, Subharti University, Meerut Apr.2019 to Till Now
- Brand Ambassador
 - Associate Bentham Science Ambassador” July 2019 to Till Now
- Reviewer
 - Material Research Express, Smart Material and structures (IOP Science),
 - Microsystems Technologies (Springer),
 - Current Mechanics and Advanced Materials
 - Journal of Intelligent Material systems and Manufacturing
 - International Journal of Precision Technology (Inder-science)
 - Evergreen Journal: Kyushu University Japan
- Head of department of Mechanical Engineering department, Subharti University, Meerut Aug. 2012-Dec. 2013

Workshops & courses

- GIAN Course on Laser Assisted Surface Micro- and Nano-fabrication Discipline of Mechanical Engineering, IIT Indore Sponsored by: MHRD, New Delhi July 8th- 14th ,2018
- Recent Trends in Mechatronics and Robotics Discipline of Mechanical Engineering, SLIET Longowal Sponsored by: TEQIP, New Delhi Dec 10th- 14th ,2018

- Industry Academia conclave
Discipline of Mechanical Engineering, IIT Indore
Sponsored by: MHRD, New Delhi Sept. 2017
- Ishaan Vikas Program
Simrol, IIT Indore
Sponsored by: MHRD, New Delhi Dec. 7th-21th ,2016
- Course on Mechatronics, MEMS & Micro fabrication
Discipline of Mechanical Engineering, IIT Indore
Sponsored by: IIT Indore July 19th- 23rd ,2016
- Ishaan Vikas Program
Simrol, IIT Indore
Sponsored by: MHRD, New Delhi Dec. 2nd-15th , 2015
- Course on Mechatronics, MEMS & Micro fabrication
Discipline of Mechanical Engineering, IIT Indore
Sponsored by: IIT Indore July 07th- 11th , 2014

Patent

1. I.A.Palani, B.K. Lad, **Tameshwer Nath** and Pradeep Kundu, (2016), Thermo-mechanical test bench for reliability estimation of Shape memory alloy spring," India, Application No: 201621007005, Published online:10-11-2017

Referred
Journal

1. **Tameshwer Nath**, Abhilash Kasliwal, Raghunandan singh, Kartik Kulkarni, Gaurav Raut, Alok Kumar, Ritesh Khatri, Sahil Mittal, I.A. Palani, Publication "Investigation on the Laser Based Actuation of Single way Trained SMA sheet and Their Application for the Development of Micro Positioning Stage" ,*Applied Mechanics and Materials*, Vol. 766-767 (2015),pp 427-431
2. **Tameshwer Nath**, Priya Chouhan, Reena Disawal, I.A. Palani, Comparative study of electrically and hot water actuated shape memory alloy using developed thermo-mechanical cycle test bench",*Defence Science Journal*, vol. 67 (2017),pp:100-10
3. **Tameshwer Nath**, Akash K., Priya Chouhan, Bhupesh Kumar Lad, I.A.Palani, "Investigation on thermo-mechanical behaviour of SMA spring under the influence of different actuation medium" *Micro-system Technologies*,(Springer), 2018, pp: 1-9
4. Akash Kumar, Mani Prabu, Ashish Shukla, **Tameshwer Nath**, Karthick S, I.A.Palani, "Investigations on the Life cycle Behavior of Cu-Al-Ni/Polyimide Shape Memory Alloy Bi-morph at Varying Substrate Thickness and Actuation conditions", *sensors and actuators A: Physical (Elsevier)*, vol. 254 2017, pp:28–35
5. Pradeep Kundu, **Tameshwer Nath**, I.A.Palani, B.K. Lad, "Integrating GLL-Weibull distribution within a Bayesian framework for life prediction of Shape memory alloy spring undergoing Thermo-mechanical fatigue" *Journal of Materials Engineering and Performance*, (Springer), vol. 27 (1),2018, pp: 3655-3666
6. Reena Disawal, **Tameshwer Nath**, Shashi Prakash, I.A. Palani, "Life cycle analysis of Electrically actuated SMA spring using Talbot Interferometry"

7. Mani Prabu S.S., Mithun R., Muralidharan M., **Tameshwer Nath**, Brolin A, Akash K., Palani I.A., "Thermomechanical Behavior of shape memory alloy spring actuated using novel scanning technique powered by ytterium doped continuous fiber laser" *Smart Material and Structures (IOP Science), vol. 28 2019, pp: 1-13*

Book
Chapters

1. **Tameshwer Nath**, Karthick S., Priya Chouhan, Bhupesh K. Lad, I.A. Palani, "Investigation on Actuation and thermo-Mechanical Behavior of Shape Memory Alloy Spring by comparing On/off and PID Controller for Precise Position Control" *CCIS 627, 2016, pp. 1-11*
2. Priya Chouhan, **Tameshwer Nath**, Bhupesh K Lad, I.A. Palani, "Investigation on actuation and thermo-mechanical behavior of Shape Memory Alloy spring using hot water" *IOP Conference series under material science and engineering, vol. 149 (1), 2016, pp: 1-7*

Conferences

1. Mithun R, **Tameshwer Nath**, Mani Prabu S S, Palani I A, " Influence of Flow Domain Parameters on hot Water Actuation of Shape Memory Alloy Spring For Barrier Gate System", *2020 IIT Madras (Accepted)*
2. Yogeshwaran S.M., **Tameshwer Nath**, Reena Disawal, I.A. Palani, "Design and fabrication of shape memory alloy actuated Stewart platform for automated laser assist micro machining application, *COPEN-10, 06-09 Dec. 2017 ISBN No: 978-93-80689-28-9, PP No: 962-965*
3. **Tameshwer Nath**, Gaurav Raut, Alok Kumar, Ritesh Khatri, I.A. Palani, " Investigation on Laser assisted actuation of shape memory alloy based Micro-Valve" *RACE 2015, 18th -20th feb.2015, ISBN: 978-81-925974-3-0*
4. Himanshu singh, Prateek Juiker, **Tameshwer Nath**, I.A. Palani, B.K. Lad, "Failure Diagnosis & Reliability Assessment of NiTi Shape Memory Alloy Spring for Micro- Actuators" *RACE 2015 18th -20th feb.2015, ISBN: 978-81-925974-3-0*
5. **Tameshwer Nath**, Akash K. Shiva S. Farhan Babu, I.A. Palani, ' Investigation on The Effect of Laser Actuation and Interaction on Ni-Ti SMA Sheet For The Development of Micro-Grippers' *IUMRS, July 24th -30th , 2014 at Fukoka University, Japan.*
6. Akhil Verma, Anand K, Hari Visanth, **Tameshwer Nath**, I.A. Palani, "Investigation on hot fluid based actuation of SMA spring and their application for the development for Heat Engine" (*ICMMSEIR:2018*), 020022, AIP conference Proceeding
7. Priya Chouhan, **Tameshwer Nath**, I.A. Palani, Bhupesh K. Lad, "Development of test rig for Laser actuated Shape Memory Alloy (SMA) spring and its life cycle analysis" *AIMTDR-2016, ISBN: 978-93-86256-27-0*
8. Karthick S, **Tameshwer Nath**, Akash K., I.A. Palani, "Cyber Physical System Design for Shape Memory Alloy Sentrroller based Intelligent Instrument" *23rd to 24th June 2016*

9. **Tameshwer Nath**, Ravi Kumar Thakur, Vikas Rastogi, "Modeling and simulation of vehicle with controller" December 5th -7th 2013
10. **Tameshwer Nath**, Vikas Rastogi, "Dynamic Modeling and Simulation of Automotive Suspension System with Overwhelming Controller" October 25th - 26th 2013, DTU Proceeding
11. **Tameshwer Nath**, Vikas Rastogi, "Dynamic Behavior and control of Quarter/Half/Full car model with Active suspension (PID controller)," 28th - 29th 2012, ISBN: 978-81-925922-0-6
12. **Tameshwer Nath**, Ruchi chaudhary, Ajit Katiyar, "future of supply chain management in various food production" April 26th , & 28th , 2013, ISBN: 97881925922-1-3

Technical Tools

- **Modelling and Simulation**
MATLAB (Simulink), Bond Graph (Symbol Sonata), Ansys, solid works, Comsol 4.0, CAD, CATIA
- Graph and Analysis**
Origin Pro
- Technical Report Writing**
LaTex

Technical Skills

- **Characterization Techniques** i.e. SEM, TGA, XRD, EDAX

References

Prof. (Dr.) Vijay Bhatnagar (Ex-Pro-VC and Research In-charge)
Subharti University, Subhartipuram, NH-58,
Delhi-Haridwar By Pass, Meerut,
Uttar Pradesh 250005
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Simrol Campus, Indian Institute of Technology Indore,
Pincode - 453552, MP, India
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Prof. (Dr.) Vikas Rastogi (Professor and DOSA)
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Delhi Technological University, Formerly Delhi College of Engineering,
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CFEES, Defence Research and Development organization,
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