

Dr. Yogesh Singh

Assistant Professor
NIT Silchar

 # Department of Mechanical Engineering, Silchar, 788010 ##

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OBJECTIVE

Highly Self-motivated, Versatile and Logical thinking person seeking an excellent opportunity/a challenging area to apply existing skills, and to continue the learning and providing positive growth for my organization.

EDUCATION

Program	Institution	% / CGPA	Year of completion
PhD in Engineering Design	Indian Institute of Technology Indore	9.45	2016
M. Tech in Machine Design	National Institute of Technology, Rourkela	9.21	2012
B E in Mechanical Engineering	Government Engineering College, Jagdalpur	7.8	2008
XII	St. Joseph Higher Secondary School, Jairamnagar	72	2002
X	St. Joseph Higher Secondary School, Jairamnagar	75.4	2000

RESEARCH AREAS AND WORK:

- Design and development of planar parallel manipulator
- Design and development of shape memory alloy actuation techniques
- Design and development of compliant mechanism
- Design and development of Micro-stereolithography mechanism
- Design and development of micro milling machine
- Design and development of lower limb rehabilitation robotic device
- Design and development of AUMS
- Design and development of mobile robotic manipulator system

POSITIONS OF RESPONSIBILITY

- **Teaching assistant** for kinematics and dynamics of machine lab in the Discipline of Mechanical Engineering at Indian institute of Technology Indore. **(July, 2012 to Dec. 2016)**
- **Senior Research Fellow** position at IIT Indore for a planar parallel manipulator based vertical milling machine research work. **(May, 2016 to Dec. 2016)**
- **Member of Hindi Committee** at NIT Silchar **(Jan, 2019 to till today)**
- **Departmental Placement Coordinator at NIT Silchar** **(July 2020 to till today)**
- **Convenor of Departmental Infrastructure Committee at ME department of NIT Silchar** **(Oct 2024 to till today)**
- **Laboratory Incharge of Dynamics & Machinery Lab at ME department of NIT Silchar** **(July 2020 to till today)**

- **Developed Advanced Robotics Research Laboratory at NIT Silchar** **(July 2022 to till today)**
- **Boys Hostel Warden, NIT Silchar** **(April 2026 to till today)**
- **Organizing Secretary, 6th International Conference on Recent Advancements in Mechanical Engineering (ICRAME 2025) from 28th Feb-2nd March 2025**
- **Joint Organizing Secretary, 5th International Conference on Recent Advancements in Mechanical Engineering (ICRAME 2024) from 2-4 Feb 2024**
- **Joint Organizing Secretary, 3rd International Conference on Recent Advancements in Mechanical Engineering (ICRAME 2022) from 4-6 Feb 2022**
- **Joint Organizing Secretary, 2nd International Conference on Recent Advancements in Mechanical Engineering (ICRAME 2021) from 7-9 Feb 2021**
- **General Secretary of NIT Silchar Teachers' Association** **(March 2023 to April 2025)**
- **Ex-officio of NIT Silchar Teachers' Association** **(April 2025 to April 2026)**
- **Member of Capacity Building for Design & Entrepreneurship (CBDE) at NIT Silchar** **(January 2025 to till today)**
- **Secretary of the DUPC at ME Dept. of NIT Silchar** **(September 2026 to till today)**
- **Hostel Warden of NIT SIlchar** **(April 2026 to till today)**

PROFESSIONAL EXPERIENCE

Assistant Professor in Mechanical Engineering Deptt. of NIT Silchar, Assam **(July, 2018 to Cont.)**

SERB International Post Doctoral Fellow at Hanbat National University, South Korea **(Jan, 2024 to July 2024)**

Research Assistant Professor in Mechanical Engineering Department of SRMIST, Chennai **(Jul., 2017 to July, 2018)**

Post-doctoral Fellow in Mechanical Engineering Department of IIT Bombay, MH **(Jan., 2017 to July, 2017)**

PhD scholar in Mechanical Engineering Department of IIT Indore, MP **(July., 2012 to Dec, 2016)**

Lecturer in Mechanical Engineering at Government Engineering College, Bilaspur. **(Sept., 2009 to Dec, 2009)**

Lecturer in Mechanical Engineering at Government Polytechnic College, Korba. **(March, 2009 to June, 2009)**

SCHOLASTIC ACHIEVEMENTS

- **Secured First rank in BE Mechanical Engineering at Government Engineering College Jagdalpur, Chhattisgarh**
- **Secured Second rank in M Tech Machine Design at NIT Rourkela, Odisha**
- **Awarded MHRD India fellowship from July 2012 to June 2016 for pursuing Ph.D. at IIT Indore**
- **Awarded CSIR SRF FELLOWSHIP at IIT Indore from July 2016 to December 2026**
- **Awarded IIT Bombay Institute Post Doctoral fellowship from Jan 2017 to July 2017**
- **Awarded SERB SIRE fellowship to visit Hanbat National University, Daejeon, South Korea from Jan 2024 to July 2024**

ACADEMIC PROJECTS

- **PhD Level:** Performance investigations on mechanical design and motion control of planar parallel manipulators. **(July 2012 to Dec 2016)**
- **PG Level**: Free vibration analysis of the laminated composite beam with various boundary conditions. **(July 2011 to June 2012)**
- **UG Level:** Development of the bladeless turbine (Tesla Turbine). **(July 2007 to June 2008)**

PROFESSIONAL MEMBERSHIP

IEEE Robotics and Automation Society Membership **(March 2023 to till today)**

COURSES

- Robotics and Robot Applications
- Robotic Control Systems
- Engineering Mechanics
- Theory of Machine and Mechanism
- Dynamics of Machinery
- Machine Design
- Measurement and Instrumentation
- CAD/CAM automation
- Mechanics of Solid

PROFESSIONAL SKILLS

- Matlab, Simulink, LabView
- AutoCAD, SolidWorks, CATIA
- Kinematics and Dynamic modelling
- Control System
- Robot Operating System, Python
- Mathematica, Maple
- Latex, Word, Excel, Origin, Powerpoint, Linux, C/C++
- MSC Adams View, Nastran, Patran, ANSYS, Workbench
- Python
- ROS

NUMBER OF PUBLICATIONS

International Journals: 27
International conferences :44
Book chapters: 13
Patents: 05 (granted), 06 (filed and published)

PUBLICATIONS (JOURNALS, CONFERENCES, BOOK CHAPTERS) JULY 2012 ONWARDS

1. Vinoth, V., Yogesh Singh, and M. Santhakumar. "Indirect disturbance compensation control of a planar parallel (2-PRP and 1-PPR) robotic manipulator." Robotics and Computer-Integrated Manufacturing 30, no. 5 (2014): 556-564. DOI: 10.1016/j.rcim.2014.03.010

2. Singh, Yogesh, and M. Santhakumar. "Inverse dynamics and robust sliding mode control of a planar parallel (2-PRP and 1-PPR) robot augmented with a nonlinear disturbance observer." Mechanism and Machine Theory 92 (2015): 29-50.DOI: 10.1016/j.mechmachtheory.2015.05.002

3. Singh, Yogesh, V. Vinoth, Y. Ravi Kiran, Jayant Kumar Mohanta, and Santhakumar Mohan. "Inverse dynamics and control of a 3-DOF planar parallel (U-shaped 3-PPR) manipulator." Robotics and Computer-Integrated Manufacturing 34 (2015): 164-179. DOI: 10.1016/j.rcim.2015.02.007

4. Singh, Yogesh, and Mohan Santhakumar. "Performance investigations on optimum mechanical design aspects of planar parallel manipulators." Advanced Robotics 30, no. 10 (2016): 652-675.

5. Londhe, P. S., Yogesh Singh, M. Santhakumar, Belasahab M. Patre, and L. M. Waghmare. "Robust nonlinear PID-like fuzzy logic control of a planar parallel (2PRP-PPR) manipulator." ISA transactions 63 (2016): 218-232.

6. Mohanta, Jayant Kumar, Yogesh Singh, and Santhakumar Mohan. "Kinematic and dynamic performance investigations of asymmetric (U-shape fixed base) planar parallel manipulators." Robotica 36, no. 8 (2018): 1111-1143.

7. Singh, Deep, Rutupurna Choudhury, Yogesh Singh, and Manidipto Mukherjee. "Workspace analysis of 3-DOF U-shape base planar parallel robotic motion stage using shape memory alloy restoration technique (SMART) linear actuators." SN Applied Sciences 3 (2021): 1-22.

8. Singh, Akhileshwar, Krishna Murari Pandey, and Yogesh Singh. "Triggering the Splitting Dynamics of Low-Viscous Fingers through Surface Wettability Inside Bifurcating Channel." Mathematical Problems in Engineering 2022, no. 1 (2022): 3462844.

9. Singh, Deep, Rutupurna Choudhury, Manidipto Mukherjee, and Yogesh Singh. "Development of non-linear models to evaluate the NiTi SMA spring actuator." Journal of Mechanical Engineering and Sciences 16, no. 1 (2022): 8754-8769.

10. Biswas, Shatarupa, Yogesh Singh, Manidipto Mukherjee, Shubhabrata Datta, Swapan Barman, and Manivannan Raja. "Design of multi-material model for wire electro-discharge machining of SS304 and SS316 using machine learning and MCDM techniques." Arabian Journal for Science and Engineering 47, no. 12 (2022): 15755-15778.

11. Choudhury, Rutupurna, and Yogesh Singh. "Design development and control of a shape memory alloy linear actuation based XYθ motion stage." Engineering Research Express 5, no. 2 (2023): 025011.

12. Choudhury, Rutupurna, Pandurang Londhe, Santhakumar Mohan, and Yogesh Singh. "A simplified approach to develop fuzzy logic controller with disturbance estimator for control of a planar parallel (2PRP-PPR) motion platform." Proceedings of the Institution of Mechanical Engineers, Part C: Journal of Mechanical Engineering Science 237, no. 10 (2023): 2413-2427.

13. Choudhury, Rutupurna, and Yogesh Singh. "Planar parallel manipulators: A review on kinematic, dynamic, and control aspects." Proceedings of the Institution of Mechanical Engineers, Part E: Journal of Process Mechanical Engineering 238, no. 4 (2024): 1991-2016.

14. Biswas, Shatarupa, Amrit Raj Paul, Yogesh Singh, and Manidipto Mukherjee. "Enhanced prediction and optimization of WEDM for titanium alloy (grade 5) with hybrid artificial neural network based meta-heuristics." International Journal on Interactive Design and Manufacturing (IJIDeM) (2024): 1-21.

15. Biswas, Shatarupa, Yogesh Singh, and Manidipto Mukherjee. "Unified supervised learning and optimization technique for wire electrical discharge machining of various grades of alloys: stochastic

algorithm combined neural network approach." Proceedings of the Institution of Mechanical Engineers, Part C: Journal of Mechanical Engineering Science 238, no. 9 (2024): 3818-3834.

16. Biswas, Shatarupa, Amrit Raj Paul, Ananda Rabi Dhar, Yogesh Singh, and Manidipto Mukherjee. "Multi-material modeling for wire electro-discharge machining of Ni-based superalloys using hybrid neural network and stochastic optimization techniques." CIRP Journal of Manufacturing Science and Technology 41 (2023): 350-364.
17. Choudhury, Rutupurna, and Yogesh Singh. "Development and performance investigations of the planar parallel robotic manipulators using shape memory alloy linear actuation technique." Proceedings of the Institution of Mechanical Engineers, Part E: Journal of Process Mechanical Engineering (2023): 09544089231216022.
18. Singh, Akhileshwar, Deepak Kumar Singh, Yogesh Singh, and Krishna Murari Pandey. "Splitting morphology of low-viscous finger at different junctions of microchannels." International Journal of Modern Physics C 35, no. 10 (2024): 2450124.
19. Singh, Akhileshwar, Deepak Kumar Singh, Yogesh Singh, and Krishna Murari Pandey. "Effects of viscosity ratio and surface wettability on viscous fingering instability in rectangular channel." International Journal of Modern Physics C 35, no. 06 (2024): 2450072.
20. Singh, Akhileshwar, Krishna Murari Pandey, and Yogesh Singh. "TUNING THE SPLITTING BEHAVIOR OF LOW-VISCOUS FINGER IN BIFURCATING NETWORK BY SURFACE WETTABILITY." International Journal of Fluid Mechanics Research 50, no. 3 (2023).
21. Singh, Deep, Rutupurna Choudhury, Yogesh Singh, and Santhakumar Mohan. "Design and Development of a Novel Rotary Actuator Based on Shape Memory Alloy and Permanent Magnet System." In Asian Conference on Multibody Systems, pp. 73-81. Singapore: Springer Nature Singapore, 2022.
22. Singh, Deep, Rutupurna Choudhury, and Yogesh Singh. "Robotic Systems Deployed to Combat COVID-19 Pandemic: A Review." Recent Advancements in Mechanical Engineering: Select Proceedings of ICRAME 2021 (2022): 179-196.
23. Biswas, Shatarupa, Yogesh Singh, and Manidipto Mukherjee. "Optimization of MRR and KW of SS 304 in Wire EDM by RSM Technique." In Recent Advancements in Mechanical Engineering: Select Proceedings of ICRAME 2021, pp. 57-68. Singapore: Springer Nature Singapore, 2022.
24. Biswas, Shatarupa, Yogesh Singh, and Manidipto Mukherjee. "A Review on Importance of Dielectric Fluids for Electro Discharge Machining (EDM)." Recent Advances in Smart Manufacturing and Materials: Select Proceedings of ICEM 2020 (2021): 43-55.
25. Singh, Akhileshwar, Krishna Murari Pandey, and Yogesh Singh. "Numerical investigation of immiscible liquid-liquid displacement in Hele-Shaw cell." Materials Today: Proceedings 45 (2021): 7151-7155.
26. Padhan, Ashutosh, and Yogesh Singh. "Design and Development of a XY Positioning Stage Using Shape Memory Alloy Spring Actuator." In Recent Advances in Mechanical Engineering: Select Proceedings of ICRAME 2020, pp. 593-600. Springer Singapore, 2021.
27. Singh, Abhimanyu Pratap, Atanu Paul, Yogesh Singh, and Koena Mukherjee. "Mechanical design of a modular underwater rov for surveillance and cleaning purpose." In Recent Advances in Mechanical Engineering: Select Proceedings of ICRAME 2020, pp. 779-793. Springer Singapore, 2021.

28. Choudhury, Rutupurna, Deep Singh, Anuj Kumar, Yogesh Singh, and Chinmaya Kumar Sahoo. "Development and workspace study of a 4-PP planar parallel XY positioning stage using SMA actuators." In Recent Advances in Mechanical Engineering: Select Proceedings of ICRAME 2020, pp. 21-31. Springer Singapore, 2021.

29. Biswas, Shatarupa, Yogesh Singh, and Manidipto Mukherjee. "An overview of wire electrical discharge machining (WEDM)." Recent Advances in Mechanical Engineering: Select Proceedings of ICRAME 2020 (2021): 643-652.

30. Singh, Deep, Rahul Kumar, Rutupurna Choudhury, Ashutosh Padhan, and Yogesh Singh. "Development of Feature Extraction-Based Currency Recognition System Using Artificial Neural Network." In Recent Advances in Mechanical Engineering: Select Proceedings of ICRAME 2020, pp. 259-270. Springer Singapore, 2021.

31. Khilji, Irshad Ahamad, Sunil Pathak, Siti Nadiah Binti Mohd Saffe, Shatarupa Biswas, and Yogesh Singh. "Opportunities and Challenges in Nanoparticles Formation by Electrical Discharge Machining." Recent Advances in Mechanical Engineering: Select Proceedings of ICRAME 2020 (2021): 203-210.

32. Choudhury, Rutupurna, Deep Singh, Anuj Kumar, and Yogesh Singh. "Design and Fabrication of Android Application-Based Grass Cutter Robotic System." In Recent Advances in Mechanical Engineering: Select Proceedings of ICRAME 2020, pp. 271-281. Springer Singapore, 2021.

33. Singh, Akhileshwar, Krishna Murari Pandey, and Yogesh Singh. "Interfacial Instabilities in Rotating Hele-Shaw Cell: A Review." Recent Advances in Mechanical Engineering: Select Proceedings of ICRAME 2020 (2021): 911-917.

34. Sharma, Vikas, Anand Parey, Abhimanyu Pratap Singh, Atanu Paul, and Yogesh Singh. "Detection of Fault in a Bevel Gearbox Under Varying Speed Conditions." In Recent Advances in Mechanical Engineering: Select Proceedings of ICRAME 2020, pp. 697-709. Springer Singapore, 2021.

35. Biswas, Shatarupa, Yogesh Singh, and Manidipto Mukherjee. "A Study on Austenitic Stainless-Steel Machining by Wire EDM." In International Conference on Advances in Materials Processing & Manufacturing Applications, pp. 353-366. Singapore: Springer Singapore, 2020.

36. Singh, Deep, Rutupurna Choudhury, Yogesh Singh, and Manidipto Mukherjee. "Development and workspace analysis of smart actuation based planar parallel robotic motion stage." In IOP Conference Series: Materials Science and Engineering, vol. 912, no. 3, p. 032063. IOP Publishing, 2020.

37. Biswas, Shatarupa, Yogesh Singh, and Manidipto Mukherjee. "A study on optimization techniques of electro discharge machining." In Intelligent Manufacturing, pp. 1-35. Cham: Springer International Publishing, 2020.

38. Singh, Deep, Yogesh Singh, and Manidipto Mukherjee. "Behaviour of NiTi based smart actuator for the development of planar parallel micro-motion stage." In Advances in Mechanical Engineering: Select Proceedings of ICAME 2020, pp. 221-228. Singapore: Springer Singapore, 2020.

39. Singh, Deep, Rutupurna Choudhury, and Yogesh Singh. "Kinematic, dynamic and stiffness analysis of an asymmetric 2PRP-PPR planar parallel manipulator." In Advances in mechanical engineering: Select proceedings of ICAME 2020, pp. 91-98. Singapore: Springer Singapore, 2020.

40. Singh, Akhileshwar, Yogesh Singh, and Krishna Murari Pandey. "A review on viscous fingering pattern formation in lifted Hele-Shaw cell." In Journal of Physics: Conference Series, vol. 1455, no. 1, p. 012022. IOP Publishing, 2020.

41. Singh, Akhileshwar, Yogesh Singh, and Krishna Murari Pandey. "Viscous fingering instabilities in radial Hele-Shaw cell: A review." Materials Today: Proceedings 26 (2020): 760-762.

42. Singh, Akhileshwar, Krishna Murari Pandey, and Yogesh Singh. "CFD analysis of viscous fingering in Hele-Shaw cell for air-glycerin system." Materials Today: Proceedings 45 (2021): 6381-6385.

43. Singh, Deep, and Yogesh Singh. "Development and analysis of a five degrees of freedom robotic manipulator serving as a goalkeeper to train the football players." In IOP Conference Series: Materials Science and Engineering, vol. 402, no. 1, p. 012092. IOP Publishing, 2018.

44. Singh, Yogesh, Saumya P. Shah, and Prasanna S. Gandhi. "High resolution flexible 4-PPR U-base planar parallel microstage robotic manipulator." In IOP Conference Series: Materials Science and Engineering, vol. 402, no. 1, p. 012034. IOP Publishing, 2018.

45. Singh, Yogesh, and Santhakumar Mohan. "Development of a planar 3PRP parallel manipulator using shape memory alloy spring based actuators." In Proceedings of the 2017 3rd International Conference on Advances in Robotics, pp. 1-6. 2017.

46. Mohan, Santhakumar, and Yogesh Singh. "Task space position tracking control of an autonomous underwater vehicle with four tilting thrusters." In OCEANS 2016-Shanghai, pp. 1-3. IEEE, 2016.

47. Santhakumar, Mohan, Jin Whan Kim, and Yogesh Singh. "A Robust Task Space Position Tracking Control of an Underwater Vehicle Manipulator System." In Advances in Robotics (2nd International Conference of Robotics Society of India). Robotics Society of India, 2015.

48. Singh, Yogesh, and Mohan Santhakumar. "Comparative kinematic and dynamic performance analysis of planar parallel manipulators." In Proceedings of the 2015 conference on advances in robotics, pp. 1-6. 2015.

49. Vinoth, V., Yogesh Singh, Jayant Kumar Mohanta, and M. Santhakumar. "Robust disturbance observer based sliding mode control of a planar parallel (3-PPR) manipulator." In 2014 Students Conference on Engineering and Systems, pp. 1-6. IEEE, 2014.

50. Singh, Yogesh, V. Vinoth, and M. Santhakumar. "Dynamic Modellingand Control of a 3-DOF Planar Parallel Robotic (XYθZ Motion) Platform." Procedia Materials Science 5 (2014): 1528-1539.

51. Singh, Deep, Rutupurna Choudhury, Yogesh Singh, and Santhakumar Mohan. "Design and Development of a Novel Rotary Actuator Based on Shape Memory Alloy and Permanent Magnet System." In Asian Conference on Multibody Systems, pp. 73-81. Singapore: Springer Nature Singapore, 2022.

52. Choudhury, Rutupurna, Deep Singh, Anuj Kumar, Yogesh Singh, and Chinmaya Kumar Sahoo. "Development and workspace study of a 4-PP planar parallel XY positioning stage using SMA actuators." In Recent Advances in Mechanical Engineering: Select Proceedings of ICRAME 2020, pp. 21-31. Springer Singapore, 2021.

53. Singh, Akhileshwar, Krishna Murari Pandey, and Yogesh Singh. "Interfacial Instabilities in Rotating Hele-Shaw Cell: A Review." Recent Advances in Mechanical Engineering: Select Proceedings of ICRAME 2020 (2021): 911-917.

54. Saurabh, Sunny Kumar, and Yogesh Singh. "Comparative Analysis of Flexure Hinge Design: Stress and Deflection Perspectives." In International Conference on Recent Advancements in Mechanical Engineering, pp. 653-662. Singapore: Springer Nature Singapore, 2024.

55. Saurabh, Sunny Kumar, and Yogesh Singh. "Design and Development of NiTi Alloy (SMA) Based Compliant Linear Actuator." In International Conference on Recent Advances in Mechanical Engineering Research and Development, pp. 319-328. Singapore: Springer Nature Singapore, 2022.

56. Ghatak, Arpan, Prashant Shakya, Mallidi Yashwanth Reddy, Koena Mukherjee, and Yogesh Singh. "Modeling and Analysis of an Underactuated Underwater Vehicle Manipulator System (UVMS) for Underwater Intervention." In International Conference on Emerging Electronics and Automation, pp. 123-135. Singapore: Springer Nature Singapore, 2023.

57. Ghatak, Arpan, Koena Mukherjee, and Yogesh Singh. "Classification on unmanned underwater vehicles: A review." International Journal of Vehicle Autonomous Systems 17, no. 3-4 (2023): 192-220.

58. Vellaiyan, Venkatesan, R. Venkateshkumar, Vishwanath Bijalwan, and Yogesh Singh. "Structural optimization and parameter investigation of trapezoidal shape soft pneumatic actuator." Engineering Research Express 6, no. 4 (2024): 045510.

59. Biswas, S., A. R. Paul, M. Mukherjee, and Y. Singh. "RSM-Based GA Model for Optimization of Machining Parameter of Ti–6Al–4 V in WEDM Process." In Advances in Modern Machining Processes: Proceedings of AIMTDR 2021, pp. 295-308. Singapore: Springer Nature Singapore, 2022.

60. Sharma, Vikas, Anand Parey, Abhimanyu Pratap Singh, Atanu Paul, and Yogesh Singh. "Detection of Fault in a Bevel Gearbox Under Varying Speed Conditions." In Recent Advances in Mechanical Engineering: Select Proceedings of ICRAME 2020, pp. 697-709. Springer Singapore, 2021.

61. Vellaiyan, Venkatesan, R. Venkateshkumar, Vishwanath Bijalwan, and Yogesh Singh. "Structural optimization and parameter investigation of trapezoidal shape soft pneumatic actuator." Engineering Research Express 6, no. 4 (2024): 045510.

62. Yogesh Singh, Venkatesan Vellaiyan & Youngshik Kim, “Design, development and control of a new ankle/lower-limb rehabilitation robotic system”, Journal of the Brazilian Society of Mechanical Sciences and Engineering, Volume 47, October, 2025.

63. Venkatesan Vellaiyan, Abdul Manan Khan, Vishwanath Bijalwan, Yogesh Singh, Buhyun Shin, Youngshik Kim, “Design of soft glove for stroke patient rehabilitation using pretrained SMA actuators”, Sensors and Actuators A: Physical, Volume 399, March, 2026

64. Amos Thounaojam, Abhijith Sahadevan, Yogesh Singh, Sunilkumar Dhasan, “Refining Dual-Phase Steel: The Fine Line between hardness Boost and corrosion Risk in multipass FSP”, Materials Letters, Volume 400, Issue 1, December, 2025

65. Narayan P., Thapar R. K, Saurabh, S.K., Singh, Y. (2025). Linear Displacement Sensing of SMA (Shape Memory Alloy) Based Linear Actuator. 10th International and 31st All India Manufacturing Technology, Design & Research (AIMTDR 2025) Conference.

66. R. K. Yadav, R. Nathasarma, T. Swaraj and Y. Singh, "A Comparative Study of Nonlinear MPC and Funnel Control for autonomous differential drive mobile robot Trajectory Tracking," *2026 IEEE*

North-East India International Energy Conversion Conference and Exhibition (NE-IECCE), Sohra, India, 2026, pp. 1-6, doi: 10.1109/NE-IECCE69680.2026.11665909

67. R K Yadav,M R Barman, B H Talukdar, Y Singh "Think Follow Avoid: A ROS-Based Autonomous Robot" ICRAME 2026 International Conference on Recent Advancements in Mechanical Engineering 2026 .

68. R K Yadav , R K Sinha,S Samanta, Y Singh, L Roy "Performance Analysis of an RL-ANN Posture Control Algorithm for 7-DOF Manipulators Tracking Complex 3D Trajectories" International Conference on Emerging Electronics & Automation (E2A) 2027

69. Harshavardhan, B.V., Kumar, P.S., Saurabh, S.K., Meher, S., Singh, Y. (2026). A Cost-Effective Controller for the Micro-Stereolithography. In: Singh, Y., Negi, S., Palani, I.A., Mohan, S. (eds) Recent Advancements in Design and Automation. ICRAME 2025. Lecture Notes in Mechanical Engineering. Springer, Singapore. https://doi.org/10.1007/978-981-95-3975-8_22.

70. Yogesh Singh, and S. K. Saurabh. "Design and Analysis of a 3-DOF Rigid Motion Stage". *Journal of Advanced Research in Mechanical Engineering and Technology*, vol. 12, no. 3&4, Mar. 2026, pp. 1-5, https://adrjournalshouse.com/index.php/mechanical-engg-technology/article/view/2406.

71. Saurabh, S.K., Podder, R. R, Singh, Y. (2026). Design and Development of Shape Memory Alloy Based Robotic Gripper. Recent Advancements in Design and Automation. ICRAME 2026. Lecture Notes in Mechanical Engineering. Springer, Singapore.

72. Podder, R. R., Saurabh, S.K., Singh, Y. (2026). Kinematic Modelling and Comparative Trajectory Analysis of a Kinova Gen3 Lite 6-DOF Robotic Manipulator Using MATLAB. Recent Advancements in Design and Automation. ICRAME 2026. Lecture Notes in Mechanical Engineering. Springer, Singapore.

GUIDANCE

Name of student/research scholar	Title of Thesis	Doctorate/Master's/ B tech	Institute	Year of Completion	Supervisor (if any)
Surya Narayan Mahanta	Composite Material and Robotics	PhD	NIT SIlchar	Ongoing	Dr. Yogesh Singh, Dr. Sudipta Halder
Rishi Kumar Yadav	Analyses of Dynamic Obstacle Avoidance of Mobile Robotic Manipulator	PhD	NIT SIlchar	Ongoing	Dr. Yogesh Sing, Dr. A. B. Deoghare
Sunny Kumar Saurabh	Design, Development and Control of Compliant Actuation based PPM	PhD	NIT SIlchar	Ongoing	Dr. Yogesh Singh
Ritwik Poddar	Design, Development and Control of 4-PR PPM based Lower Limb Rehabiliation Robotic Device	PhD	NIT SIlchar	Ongoing	Dr. Yogesh Singh
Dr.Akhileshwar Singh	NUMERICAL INVESTIGATION OF VISCOUS FINGERING INSTABILITY IN IMMISCIBLE FLUIDS DISPLACEMENT	PhD	NIT Silchar	2024	Prof. K. M. Pandey, Dr. Yogesh Singh
Dr.Shatrupa Biswas	Development of Wire Electrical Discharge Machining (WEDM) Parametric Correlation Model and Process Optimization for Different Alloys	PhD	NIT Silchar	2023	Dr. Yogesh Singh, Dr. Manidipto Mukherjee
Dr. Rutupurna Choudhury	Design, Development and Control of Three Degrees of Freedom Micro Motion Positioning Stages UsingSmart Actuation Techniques	PhD	NIT Silchar	2024	Dr. Yogesh Singh

Name of student/research scholar	Title of Thesis	Doctorate/Master's/ B tech	Institute	Year of Completion	Supervisor (if any)
Amos Thounaojam	Surface Modification of DP780 steel through Friction Stir Processing	M. Tech	NIT Silchar	2025	Dr. Yogesh Singh, Dr. Sunil Kumar
Prashant Shakya	Design and Analysis of hybrid underwater vehicle for cleaning and surveillance	M. Tech	NIT Silchar	2024	Dr. Yogesh Singh
ABHISHEK KUMAR	DESIGN AND DEVELOPMENT OF 4PR PARALLEL LOWER LIMB REHABILITATION ROBOTIC SYSTEM	M. Tech	NIT Silchar	2023	Dr. Yogesh Singh
Leonard A.L	Design and Analyses of a Robot towards the Drawing and Learning Approach for	M. Tech	NIT Silchar	2022	Dr. Yogesh Singh
PUTREVU VENKATA KRISHNA CHAITANYA	Numerical Modelling of SMA Actuated Positioning Stage	M. Tech	NIT Silchar	2021	Dr. Yogesh Singh
Sunny Kumar Saurabh	Design and development of the Ni-Ti alloy (SMA) based compliant linear actuator	M. Tech	NIT Silchar	2020	Dr. Yogesh Singh
Anuj Kumar	Design & development of XYθ Planar Parallel motion platform for precision movement of an object	M. Tech	NIT Silchar	2020	Dr. Yogesh Singh
Ashutosh Padhan	DESIGN AND DEVELOPMEN T OF A XY POSITIONING STAGE USING SHAPE MEMORY ALLOY SPRINGS	M. Tech	NIT Silchar	2020	Dr. Yogesh Singh
Rahul Kumar	To Develop a Currency Recognition Technique from Feature Extraction	M. Tech	NIT Silchar	2019	Dr. Yogesh Singh
DEEP SINGH	DESIGN OF 3-DOF PLANAR PARALLEL ROBOTIC MANIPULATOR FOR MICRO – MOTION STAGE USING SMART ACTUATION	M. Tech	(SRM INSTITUTE OF SCIENCE & TECHNOLOGY)	2019	Dr. Yogesh Singh, Dr. Manidipto Mukherjee
Mriganka Raj Barman, Boktiar Hussain Talukdar, Dishan Medhi, Md. Didarul Islam	Design and Implementation of an Autonomous Line Following and Obstacle Avoidance Robot using ROS	B. Tech	NIT Silchar	2026	Dr. Yogesh Singh
Priyadarshi Narayan, Ranjan Kr Kapar	LINEAR DISPLACEMENT SENSING OF SMA (SHAPE MEMORY ALLOY) BASED LINEAR ACTUATOR	B. Tech	NIT Silchar	2025	Dr. Yogesh Singh
Bontalakoti Venkata Harshavardhan, Pampana Suraj	A Cost-Effective Controller For The Micro-Stereolithography	B. Tech	NIT Silchar	2025	Dr. Yogesh Singh
Swaraj Singh, Bedabrat Bora	Design and development of the lower limb rehabilitation robotic system using shape memory alloy actuation	B. Tech	NIT Silchar	2024	Dr. Yogesh Singh
Girish Kumar Munda, Nidasanemetla Abinava Koushik	DYNAMIC AND KINEMATIC ANALYSIS OF 3PPR PLANAR PARALLEL MANIPULATOR	B. Tech	NIT Silchar	2024	Dr. Yogesh Singh
MONALISHA MILI, MANALI GOGOI, SMITA BARUAH, SAKSHI RATNA	SMART GRIPPER: Design and Development of Shape Memory Alloy Based Robotic Gripper	B. Tech	NIT Silchar	2023	Dr. Yogesh Singh
T H V Sandhya Rani, D Sai Prudhvi, G Akshay Varma, A Bhanu Sai Prakash	OBSTACLE DETECTION AND AUTONOMOUS NAVIGATION OF MOBILE ROBOT MANIPULATOR	B. Tech	NIT Silchar	2023	Dr. Yogesh Singh

Name of student/research scholar	Title of Thesis	Doctorate/Master's/ B tech	Institute	Year of Completion	Supervisor (if any)
Md Farhan Ahmad, Rajwant Yadav, Vishnu Kumar, Amitesh Kumar	Design and Analysis of a Comfortable Robotic Chair Assistant with Sanitizing and Screening test for Covid-19	B. Tech	NIT Silchar	2021	Dr. Yogesh Singh
AKASH KAMAL, NITISH KUMAR, SHASHANK PAL, REKHRAJ MEENA	DESIGN, MODELLING AND SIMULATION OF STEWART PLATFORM AND ITS APPLICATION FOR THE LOWER LIMB REHABILITATION	B. Tech	NIT Silchar	2020	Dr. Yogesh Singh

DETAILS OF ONGOING/COMPLETED PROJECTS

SN	Title	Cost in Lakh	Status	Role as PI/Co-PI	Agency
1	Design and Development of a High Speed Three Dimensional Pinter with a Large Range of Micro Motion using a Scanning Stereolithography Technique	27 lakhs	Completed (2020-2023)	PI	CSIR
2	Design and development of a three dimensional printer based on shape memory alloy smart actuator and micro stereo-lithography (MSL) technique	30 lakhs	Completed (2020-2022)	PI	SERB
3	Design and Development of a SMART (shape memory alloy restoration technique) Actuation based Lower Limb Rehabilitation Robotic System	33 Lakhs	Completed (2022-2026)	PI	SEED-TIDE DST
4	Design and Development of a SMART Lower Limb Rehabilitation Robotic System	2.5 Lakhs	Completed (2021-2023)	PI	DMIMS NewGen IEDC DST
5	Design & Implementation of a hybrid under water vehicle manipulator (HUVM) for cleaning of bio-fouling on a submerged pipeline in a sea	39 Lakhs	Completed (2022-2026)	Co-PI	ANRF
6	Design and development of bath chair for safe bathing for elderly	8 Lakhs	Completed (2021-2026)	Co-PI	SEED-TIDE DST

PATENTS (FILED/PUBLISHED/GRANTED)

SN	Details	National or International	Status
1	Santhakumar Mohan, Yogesh Singh, A MECHANISM OF 2PRP-PRR PLANAR PARALLEL MANIPULATOR AND A METHOD THEREOF, 4678/MUM/2015, Indian Patent, 2024	National	Granted

2	Bipul Das, Rajeev Nayan Gupta, Yogesh Singh, Jasper Ramon, Devjani Devi, Bedanta Kumar Saharia, A MANUALLY OPERATIVE SYSTEM FOR MANUFACTURING BOTTLE USING BAMBOO POWDER, 2023/02617, South African Patent, 2024	International	Granted
3	Deep Singh, Yogesh Singh, Manidipto Mukherjee, Dr. Alfa Bisoi, PLANAR PARALLEL MANIPULATOR USING SHAPE MEMORY ALLOY ACTUATION, 202031003989, Indian patent, 2025	National	Granted
4	RUTUPURNA CHOUDHURY, Dr. YOGESH SINGH, Dr. KOENA MUKHERJEE, RECONFIGURABLE POSITIONING MECHANISM, 202031003986, Indian patent, 2024	National	Granted
5	Sunny Kumar Saurabh, Yogesh Singh, Santhakumar Mohan, A VOICE COIL ACTUATED MOTION STAGE SYSTEM FOR OBJECT TRANSLATION BASED ON A COMPLIANT MECHANISM, 202431003135, Indian Patent, 2024	National	Filed
6	Yogesh Singh, A SHAPE MEMORY ALLOY ACTUATION-BASED 4-PR LOWER LIMB REHABILITATION MECHANISM SYSTEM, 202431003414, Indian patent, 2024	National	Filed
7	Yogesh Singh; Rutupurna Choudhury and Deep Singh, A SHAPE MEMORY ALLOY ACTUATION-BASED 3D PRINTER MOTION STAGE SYSTEM, 202231050441, Indian Patent, 2022	National	Granted
8	Yogesh Singh; Rutupurna Choudhury and Deep Singh, Sumitra Sharma, Manidipto Mukherjee, SHAPE MEMORY ALLOY BASED CONTACTLESS ROTARY ACTUATOR, 202131009671, Indian Patent, 2021	National	Granted
9	Kommuri Satyanand, Kaushik Biswas, Kuchipudi Sai Kiran Chowdary, Yogesh Singh, Chinmaya Kumar Sahoo, BATHING SYSTEM FOR COMFORTABLE BATHING AND DRYING, 202331038531, Indian Patent, 2023	National	Published
10	Yogesh Singh, Arpan Ghatak, Koena Mukherjee, Prashant Shakya, AN AUTOMATED SYSTEM FOR AN UNMANNED MARINE VEHICLE WITH A MANIPULATOR, 202531009412, Indian Patent, 2025	National	Filed
11	NATIONAL INSTITUTE OF TECHNOLOGY SILCHAR, BIPUL DAS, YOGESH SINGH, RAJEEV NAYAN GUPTA, SUNIL, KUMAR D, MART BREATHER FUEL CAP, 51461-001, Indian Patent, 2026	National	Filed

OTHER PROFESSIONAL ACTIVITIES

1. **Organized GIAN course on** "Modeling of aerial and parallel robotic manipulators using Lie group and screw theory" from 24/02/2025 to 28/02/2025.

2. **Organized SERB Karyashala on** "High end Workshop on: Hands on training on the high end equipment related to the current emerging fields of Robotics and Mechatronics"from 25/07/2023 to 31/07/2023.

3. **Organized AICTE ATAL FDP on** "3D PRINTING DESIGN AND TECHNOLOGY" from 19/07/2021 to 23/07/2021.

4. **Organized TEQIP-III sponsored FDP on** "Electronic Systems for Mechanical Automation and Robotic Technology (eSMART 2020)"from 12/09/2020 to 16/09/2020.

5. **Organized TEQIP-III sponsored FDP on** "Electronic Systems for Mechanical Automation and Robotic Technology (eSMART 2019)"from 20/05/2019 to 24/05/2019.

COURSES TAUGHT

Subject Code	Subject Name	UG/PG
ME 1208	Instrumentation and Measurement	UG
ME 1308	Machine Design-II	UG
ME 541	Robotics & Automation	PG
ME 1304	Machine Design-I	UG
ME 1433	Robotics and Robot Applications	UG
ME 1313	Workshop Practice	UG
ME 1403	Computer Aided Design & Manufacturing	UG
ME 1506	Robotics & Automation	PG
ME 101	Engineering Mechanics	UG
ME 5235	Soft Computing	UG
ME 202	Theory of Machines	UG
ME 436	Computer Aided Design	UG
ME 310	Dynamics and Control of Machinery	UG
ME 5202	Computer Aided Design	UG/PG
ME 5106	Robotics & Automation	UG
ME 302	Machine Design-I	UG
ME 209	Instrumentation and Measurement	UG

REFERENCES:

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