Curriculum Vitae

Name Dr. DILIP KUMAR PRATIHAR, BE (Hons.), M.Tech., Ph.D., FNAE, FIE, SMIEEE, MASME, AvH Fellow (Germany)

Address
Professor (HAG Scale)
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Website https://sites.google.com/site/softcomputinglaboratory/home
Gender Male
Nationality Indian
Date of birth 2nd day of April, 1965
Present Status
Professor (HAG Scale)
Dept. of Mechanical Engg.,
Indian Institute of Technology Kharagpur
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Vill. Goaltore,
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EDUCATIONAL QUALIFICATIONS

Sl. No.	Qualification	University/ Institution	Year	Subject(s)/ Topic(s)	% of marks obtained	Distinctions Etc.
1.	Ph.D.	IIT Kanpur	2000	Mechanical Engg. (Robotics)	Course Work 8.5/10	-
2.	M. Tech.	REC (NIT) Durgapur	1994	Design and Production Engg.	86.7 (CGPA)	1st Class
3.	BE (Hons.)	REC (NIT) Durgapur	1988	Mechanical Engineering	85.6 (CGPA)	1st Class, First Position: University Gold Medalist
4.	Higher Secondary	Ramakrishna Mission Vidyamandira Belurmath,	1984	Science	75.9%	1st Division

		Howrah				
5.	**Secondary Education**	**Pingboni High School, West Midnapore, WB**	**1982**	**General**	**82.5**	**1st Division, 44-th Rank in the WB Board**

He completed his post-doctoral studies at Kyushu Institute of Design, Fukuoka, Japan, for six months (in 2000) and then, at Darmstadt University of Technology, Germany, for one year (2001-2002) under the Alexander von Humboldt Fellowship.

SCHOLARSHIP AND AWARDS RECEIVED:

1. **District Scholarship** at school level (for 3 years)
2. **National Scholarship**, 1982-88
3. **University Gold Medal** for securing highest marks in the University, 1988
4. **A. M. Das Memorial Medal** for securing highest marks in Power Plant Engineering, 1987
5. **Post-doctoral Research Fellowship** at **Kyushu Institute of Design, Fukuoka, Japan**, June 2000 to November 2000
6. **AvH (Humboldt) Fellowship, Germany, 1.6.2001 to 31.5.2002**
7. **Institution Medal** for a paper from the **Institution of Engineers (I)**, 2002
8. **Certificate of Merit for 2003-2004** for publishing a paper in the Journal of the Institution of Engineers (I), 2004
9. **Shastri Institutional Collaborative Research Grant (SICRG 2019-21) (Indo-Canada)**
10. **INSA Teachers' Award 2020**
11. **New Code Of Education 2021 Award**
12. **World's top 2% Scientists honor in the field of Image Analysis and Artificial Intelligence in a survey carried out by Stanford University, USA, in 2020, 2021, 2022, 2023**
13. **Distinguished Alumnus Award 2021 from NIT Durgapur**
14. **Outstanding Researcher (h-index and award) 2021, 2022, 2023 reported by Research.com (www.research.com)**
    https://**research.com/scientists-ranking/engineering-and-technology**
15. **Institute Chair Professor Award 2022 by IIT Kharagpur**
16. **Technologist of the Year Award by IEEE India Council, 2022**
17. **Mentor, Chanakya Fellowship 2022-23, 2023-24 TIH-IoT, IITB**
18. **Faculty Excellence Award 2023 by IIT Kharagpur**
19. **VASVIK Award 2022 for the Industrial Research**

Other Information:

- A small write-up has been published on activities of our Soft Computing Lab. in design and development of autonomous and intelligent robots in the Newspaper: Financial Chronicle, 2nd June 2009.
  Website: http://www.mydigitalfc.com/print/37517
- Our work on intelligent and autonomous robots has been published in the web-site: http://dst.gov.in/about_us /ar07-08/engg-scie.htm
- Our work on humanoid robots has been reported in one French Magazine: Planete Robots.
- News on Cooling Jacket: www.epaper.eisamay.com/Details.aspx?id=45584&boxid=36680 on 8.1.2019

- A write-up on robotics research by me has been published in the Hindu Businessline. https://www.thehindubusinessline.com/news/science/c-dac-iit-kharagpur-developing-robot-for-pesticide-spraying/article32563169.ece?utm_campaign=amp_article_share&utm_medium=referral&utm_source=whatsapp.com
- Development of an agro-robotic solution for plant disease management: https://kgpchronicle.iitkgp.ac.in/iit-kgp-develops-robotic-solution-for-farm-sector/
- Got a place in World Rank of top 2% scientists from India: http://shorturl.at/bdix8
- Published in interview in Awaaz, IIT Kharagpur: https://awaaziitkgp.com/prof-dilip-kumar-pratihar/
- Bonobo Optimizer (BO) algorithm: https://kgpchronicle.iitkgp.ac.in/bonobos-several-interesting-facts-have-paved-the-way-to-the-solution-of-the-optimization-problem/
- Delivered an Awareness Lecture to the Industries on Artificial Intelligence in Modern Industries. The Video of the Lecture is available in the Link given below.
https://drive.google.com/file/d/1tuHUmInqHAtjuO4aMV52l5F1WNfLeraI/view

EXPERIENCE

Sl. No.	Post	Organization/ University	Duration		Experience
			From	To	
1.	Professor (HAG scale)	IIT Kharagpur	18.08.2015	Till date	7 years 7 months
2.	Professor	IIT Kharagpur	21.10.2008	17.08.2015	6 years 10 months
3.	Associate Professor	IIT Kharagpur	09.08.2004	20.10.2008	4 years 2 months
4.	Assistant Professor	IIT Kharagpur	01.01.2003	08.08.2004	1 year 7 months
5.	Assistant Professor	REC (NIT) Durgapur	24.4.2001	31.12.2002	1 year 8 months
6.	Lecturer	REC (NIT) Durgapur	25.10.1990	23.4.2001	10 years 6 months
7.	Management Trainee, Design Engineer	Hooghly Dock and Port Engineers' Ltd., Calcutta	7.9.1988	23.10.1990	2 years 1 month

- Post-doctoral research at **Technische Universitat Darmstadt, Germany**: June, 2001 to May, 2002.
- Post-doctoral research at **Kyushu Institute of Design, Fukuoka, Japan**: June 2000 to November 2000.
- Doctoral research at **Indian Institute of Technology, Kanpur, India**: 3 years (1996 to 1999). On Robotics, Fuzzy Logic Technique, Genetic Algorithms.

TEACHING EXPERIENCE

Sl. No.	Subjects Taught	Institution	Years taught	Level
1.	Robotics	IIT Kharagpur	2003- till date	PG
2.	Robots and Computer-Controlled Machines (Robotics part)	Do	2003- till date	UG
3.	Knowledge-Based Systems in	Do	2003-till date	PG

	Engineering			
4.	**Soft Computing**	**Do**	**2003-till date**	**UG**
5.	**Machine Tools**	**REC (NIT) Durgapur**	**1990-1996**	**UG**
6.	**Theory of Machines**	**Do**	**1990-1996**	**UG**
7.	**Power Plant Engineering**	**Do**	**1990-1996**	**UG**
8.	**Works, Organization and Management**	**Do**	**1990-1996**	**UG**
9.	**Robotics**	**Do**	**1999-2000**	**PG**

Contributions in Research

- **Made notable contributions in all four modules of Robotics, namely Kinematics, Dynamics, Control Schemes and Intelligent issues**
- **Has research experience on various types of Robots, namely Manipulators, Wheeled Robot, Tracked Vehicle, Multi-legged Robots, Drones**
- **Published seminal work on Dynamics of 7 dof Biped Robot in 2007, and recently completed study on dynamics and dynamic stability of 29 dof Humanoid Robot**
- **Designed, developed and tested Orthotic and Prosthetic devices for disabled people.**
- **Has research experience on multi-body dynamics of six-legged robot and co-authored a Research Monograph, which is published by the Springer**
- **Developed intelligent Agricultural Robot for pesticides spraying.**
- **Made significant contributions in Electron Beam Welding of Similar, Dissimilar and Reactive materials.**
- **Developed intelligent and autonomous systems in various fields of Engineering, namely Robotics, Manufacturing Science, Medical Diagnosis, and others.**
- **Developed several soft computing-based approaches, namely genetic-fuzzy, genetic-neural and neuro-fuzzy systems, and developed dimensionality reduction techniques for the ease of visualization of the higher dimensional data, fuzzy clustering tool, fuzzy reasoning tool etc.**
- **Proposed an Intelligent Optimization Tool named Bonobo Optimizer for single- and multi-objective optimization, for which the Copyright has been granted.**
- **Filed four Patents (out of which, one has been granted) and transferred optimal design of leaf spring to a manufacturing industry.**

THESIS SUPERVISION:

1. Post Graduate Thesis supervision: M.Tech. (Completed 83); Ph.D. (25 completed. 2 Thesis submitted, 11 in progress at IIT Kharagpur and CSIR-CMERI, Durgapur)
2. B. Tech. project supervision: More than 170
3. Provided Summer Training to more than 20 students
4. Provided Short-Term Research Visit to Muhammad Lawan Jibril, Modibbo Adama University of Technology, Yola, Nigeria

Ph.D. THESIS COMPLETED UNDER MY SUPERVISION:

1. Application of Statistical Methods and Fuzzy Logic Techniques to Predict Bead Geometry in Welding - by J.P. Ganjigatti (2006).
2. Fuzzy Logic-based Expert Systems for Screening and Prediction of Adult Psychoses by S. Chattopadhyay (2007).
3. Design and Development of Adaptive Motion Planners for Wheeled Robots by Nirmal Baran Hui (2007).
4. Modelling of Moulding Sand Systems Using Conventional Regression Tools and Neural Network-Based Approaches by M.B. Parappagoudar (2008)
5. Gait Generation of Dynamically Balanced Biped Robots Using Soft Computing by V. Pandu Ranga (2009)
6. Experimental Investigations and Input-Output Modeling of Electron Beam Welding Process Using Statistical Regression Analysis and Soft Computing by Vidyut Dey (2011)
7. Modeling and simulations of six-legged walking robots: analytical and soft computing-based approaches by Shibendu Shekhar Roy (2011)
8. Synergy of CFD, experimentation and soft computing techniques for modelling, optimization and prediction of thermo-fluid problems by Suman Ghosh (2011)
9. Forward and reverse modeling of plasma spray coating process: experimental observations, statistical analyses and soft computing-based approaches by Somak Datta (2012)
10. Modeling and simulations of robotic systems using soft computing by Rega Rajendra (2012)
11. Analysis of multi-stage forming process of mono-block railway wheel using finite element method and soft computing by Tapas Gangopadhyay (2012 at NIT, Durgapur)
12. Electron beam welding of similar, dissimilar and reactive metals: Experimental studies, modeling and analysis by MN Jha (2013)
13. Biomechanical analyses of the pelvic bone and optimal design considerations for uncemented acetabular prosthesis by Rajesh Ghosh (2013)
14. Analysis and synthesis of sheet metal forming by laser heating using finite element method and soft computing by Kuntal Maji (2014)
15. Studies on Inventory, Maintenance and Joint Inventory-Maintenance Models Using Non-Traditional Optimization Tools by N.K. Samal (2015)
16. Shape optimization of cementless femoral implant using genetic algorithms by Souptick Chanda (2015)
17. Studies on electron beam welding of Cu-Cr-Zr alloy plates and spiking phenomenon in ETP copper weldment by P. Kalyan Chakravarthy K (2017)
18. Multi-body dynamic modeling and simulation of six-legged robots maneuvering over varying terrains by Abhijit Mahapatra (NIT DGP, 2018)
19. On the budget influence maximization and related problems in social network by Suman Banerjee (2020)
20. Predictive tools for bead-geometry, cooling rate, micro-porosity, natural frequency of vibration and residual stress in electron beam welded stainless steel plates by Debasish Das (2020)
21. Laser beam welding of NiTinol: Experimental study, modeling and optimization using nature-inspired techniques by Susmita Datta (2020)
22. Design and development of orthotic device for assisting knee and hip joints, and analysis of sit-to-stand motion of human-beings by Abhishek Rudra Pal (2021)
23. Design and development of powered ankle prosthetic and knee orthotic devices and associated algorithms for autonomous control by Saikat Sahoo (2021)
24. Design and development of intelligent optimization algorithm by Amit Kumar Das (2021)
25. Experimental investigations and defect characterization of electron beam welded ETP copper and CuCrZr alloy using machine learning approaches by Sanjib Kr. Jaypuria (2022)

26. Experimental investigation of Laser beam welded and post-weld heat treated Nb-1%Zr-0.1%C alloy and process innovation aided by Artificial Intelligence to make welding economical by Santosh Kumar Gupta (submitted in 2024)
27. Multi-objective optimization of electrochemical micro-drilling of Ti6Al4V using In Situ-fabricated high aspect ratio WC micro-tool by Biswesh Ranjan Acharya (submitted in 2024)

M.TECH. THESIS COMPLETED UNDER MY SUPERVISION:

1. Multi-objective Optimization in Turning Using a Genetic Algorithm - by Kishan Choudhuri (2000)
2. Collision-free, Time-optimal Path Planning of a Robotic Manipulator - Using a GA-Fuzzy Approach - by Shibendu Shekhar Roy (2001).
3. Optimal Design of Machine Elements - Using a Genetic Algorithm - by Asim Kumar Das (2001)
4. Prediction of Power Requirement and Surface Finish in Grinding - Using a GA-Fuzzy Approach - by Arup Kumar Nandi (2001)
5. Path Planning of Multiple Robots Working in the Same Workspace – Potential Field Approach - by Dilip Kumar Biswas (2003)
6. Ditch Crossing Gait Generation of a Two-legged Robot – Using Genetic-Fuzzy System - by Balvinder Singh (2004 at IIT KGP)
7. Mobile Robot Navigation - Using a Neuro-Fuzzy Approach – V. Mahendar (2004 at IIT KGP)
8. Design Automation Through Bond Graphs and Genetic Programming – T. Praveen (2004 at IIT KGP) (joint guidance with Prof. A. Mukherjee)
9. An interview-based screening tool for adult psychiatric disorders – Dr. Subhagata Chattopadhyay, MSc. in Bio-informatics, Sikkim Manipal University, 2004
10. Modeling the fuzziness of a finite element analysis using combined GA-FL approach – Venkata Subba Rao Amara (2005 at IIT KGP)
11. Neural network-based expert system to predict the results of finite element analysis – Onkar Pradeeprao Bhise (2005 at IIT KGP)
12. Multi-objective optimization in abrasive flow machining and turning using genetic algorithm: a modified NSGA-II approach – Pavan Kumar Vishnubhatla (2006 at IIT KGP)
13. Modeling of abrasive flow machining process using radial basis function network – Asfak Ali Mollah (2006 at IIT KGP)
14. Dynamic stability analysis of six-legged robot – Biradar Avinash (2007 at IIT KGP)
15. Image compression using self-organizing map – Nishant Neeraj (2007 at IIT KGP)
16. Mobile robot navigation in dynamic environment using adaptive potential field method – Anirban Ghosal (2007 at IIT KGP)
17. Genetic fuzzy-neural network for adaptive path planning of car-like robots – Ijjina Earnest Paul (2007 at Computer Sc. Deptt., IIT KGP)
18. Forward and reverse mappings of TIG welding process using Radial Basis Function Networks – M.V.V. Amarnath (2008 at IIT KGP)
19. Mobile robot navigation in dynamic environment using Adaptive Potential Field Method – A Subba Rao (2008 at IIT KGP).
20. Modeling of MIG welding process using Fuzzy Logic techniques – Y. Surender Reddy (2008 at IIT KGP)
21. Modeling and analysis of 11 dof two-legged robot – Tushar (2008 at IIT KGP)
22. Reservoir parameterization using well log data with the aid of soft computing tools – Krishan Chander (Joint guidance, 2008 at IIT KGP)
23. Modeling and Optimization of Die-Sinking Electrical Discharge Machining Process using Adaptive Neuro-Fuzzy Inference System and Genetic Algorithm – Kantal Maji (2009 at IIT KGP)

24. Fuzzy clustering of MIG welding data – Umesh Mishra (2009 at IIT KGP).
25. Modelling Input-Output Relationships of Bead-on-Plate Electron Beam Welding on Copper – Prashant Bhardwaj (2009 at IIT KGP)
26. Kinematic and Dynamic Analysis and Control of Parallel Manipulator – Varun Joshi (2009 at IIT KGP).
27. Multi-objective optimization in staircase handling problems of a biped robot – Satyadev Manepalli (2010 at IITKGP)
28. Predictions of temperature distributions in electron-beam welding using finite element analysis and neural networks – Y.A. Dhanunjaya Reddy (2010 at IIT KGP)
29. Design optimization of two-finger robotic gripper – Amit Kumar (2010 at IIT KGP, jointly with Dr. S. Deb)
30. An approach to self-organizing assembly process using genetic algorithms – K. Gururaj (2010 at IITKGP)
31. Tuning of neural networks using particle swarm optimization to model MIG welding process – Rakesh Malviya (2011 at IIT KGP)
32. Optimization of fuzzy economic order quantity inventory models with and without backordering – Ashish Kumar (2012 at IIT KGP)
33. Forward kinematics of parallel manipulators using support vector machines – Deepanshu (2012 at IIT KGP)
34. Modification of initial blank shape to minimize earing in deep drawing process – Partha Das (2013 at IIT KGP)
35. Restructuring and optimization of commodities price index – Sachin Sharma (2013 at IIT KGP)
36. Task allocation of a centralized multi-agent robotic system for industrial plant inspection using heuristic methods – Kelin Jose (2014 at IIT KGP)
37. Some studies on decentralized multi-agent systems in robotics and holonic manufacturing system – Chalapathi Kumar Y. (2014 at IIT KGP)
38. Electron beam butt welding of Cu-Cr-Zr alloy: Experiments, modeling and analysis – J. Meher (2014 at IIT KGP)
39. Detection and mitigation of actuator failure on an airborne hexacopter – Prasann Jain (2015)
40. Optimized task allocation in a centralized multi-agent robotic system for industrial plant inspection using genetic algorithms – Aakash Gupta (2015)
41. Design optimization of parabolic leaf spring using genetic algorithm – Rohan Tiwari (2015)
42. Enhanced stock index tracking using genetic algorithms – K.V. Shashank (2015)
43. Modeling of multi-agent system of robots using genetic neuro-fuzzy technique – Subhayan Samanta (2015)
44. Study on innovative design principles in multi-objective optimization – Amit Kumar Das (2016)
45. Group formation control of multiple wheeled robots – Surajit Mondal (2016)
46. Adaptive tuning of a PID controller using genetic-neural networks – Surya De (2016)
47. Stress analysis of misaligned and malrotated total knee replacement for static and dynamic conditions – Soumya Ghosh (2016)
48. Inverse dynamics learned gait cycle trajectory planning of a biped robot for negotiating staircases, slopes and ditches using knowledge based systems – Abhishek Arijit (2016)
49. Efficient optimization tool using visualization and genetic algorithm, particle swarm optimization – Sahil Grover (2016)
50. Evolutionary algorithms-based approach of multi-objective portfolio optimization – K. Adarsh (2016)
51. Portfolio optimization with CUPULA-GARCH-CVaR model; Estimating the risk neutral density for the DOWJONES industrial average index and for its stock components – Pulkit Gupta (2017)
52. Design optimization and dynamic analysis of parabolic leaf springs – Sayan Ghosh (2017)
53. Task allocation of a computerised multi-agent robotic system for industrial plant inspection using heuristic methods – Aditya Jha (2018)
54. Optimal design of parabolic leaf spring – Aayush Batra (2018)

55. Studies on electron beam welded CuCrZr/stainless steel alloy butt joints – Nirav Vipulbhai Doshi (2018)
56. Nozzle shape optimization and controller design for a pesticide spraying robot – Kuldeep Kumar (2019)
57. study to propose regions of interest (ROIs) for object detection via convolutional neural networks (CNNs)- Athitya Kumar
58. A synergetic approach of genetic algorithm and heuristic search methods to find the collision-free optimized path in a centralized multi-robot industrial inspecting stations – Pritam Sarkar (2019)
59. Identification of weld defects in electron beam welding using image analysis- K. Pareen Jain (2019)
60. Gait analysis of humanoid robots using deep reinforcement learning – Dyutimoy Nirupam Das (2020)
61. Design and simulation of a pesticide spraying robot – Himanshu Raj Khandelwal (2020)
62. Real-time wholebody motion planning for supervisory control of a legged mobile manipulator – Sulthan S.F. (2020)
63. Kinematic and dynamic analysis of 29 degrees of freedom biped robot – Prabhakar R. (2020)
64. Vision-based system for plant disease identification – Jatin Agrawal (2021)
65. Deep learning model for vision-based plant disease detection – Prafull Kumar (2021)
66. Real-time control system modeling of a powered knee orthotic device using LSTM networks – Shivam Kumar Panda (2021)
67. Deployment of vision system for plant disease diagnosis – Abhishek Kumar Pandey (2021)
68. Creation of an image database for detection of rust using deep learning – Harish Nandan (2021)
69. A few steps towards achieving real-time detection of diseased tomato plant leaves – S. Nath (2022)
70. Dynamic analysis and trajectory tracking control of tracked mobile manipulator – S. Vineet (2022)
71. A many objective Bonobo Optimizer – Shivangi Srivastava (2022)
72. Control of artificial micro-swimmers using deep reinforcement learning – Yugam Tiwari (2022)
73. Data driven control of uncertain dynamical systems: an autonomous racing perspective – Adarsh Patnaik (2022)
74. Dust identification on rotating blades – D. Sumanth (2023)
75. Study of the effects of process parameters on Butt welding of Ti-6Al-4V and Inconel 718 plates: Abaqus simulation and analysis (2023)
76. Head pose estimation using MediaPipe for attention based media planning – Mehendale Shounak Deepak (2023)
77. Feature-based image stitching using scale invariant feature transform and random sample consensus – Sarvesh Deshpande (2023)
78. Path estimation for multirotor crafts – Debayu Maiti (2023)
79. Mobile application-based remote controller for agricultural robot – Golla Bala Venkata Sabarinadh (2023)
80. Technology solution for attention-based media planning – Vivek Bhati (2023)
81. Investigating the impact of Osteoarthritis and Parkinson's disease severity on gait patterns – Drirav Choudhary (2023)
82. Learning biped robot walk on inclined plane using reinforcement learning – Miryala Nikhil Maharaj (2023)
83. Wall climbing robot – Devank Thawre (2023)

SPONSORED PROJECT:

1. Title: Application of genetic algorithm for minimization of machining time and CL-data file size in CNC machining of free form surfaces (FFS)
   Investigators: Dr. A. RoyChoudhury (PI), Dr. S. Paul (Co-PI), Dr. D.K. Pratihar (Co-PI)

Funding agency: MHRD, New Delhi
Duration: 2 years (w.e.f. May'03)
Cost: 7 lakhs
Status: Completed

2. Title: Design and development of adaptive robot controller – using soft computing
Investigators: Dr. D.K. Pratihar (PI), Dr. A. RoyChoudhury (Co-PI)
Funding agency: DST, New Delhi
Duration: 2 years 3 months (w.e.f. January'04)
Cost: 8.35 lakhs
Status: Completed
3. Title: Establishment of an advanced research facility for EB welding and process development related to programs of interest to DAE
Investigators: Prof. GL Datta (PI), Prof. I. Manna (Co-PI), Dr. D.K. Pratihar (one of the members of Project Implementation Committee)
Funding agency: BRNS, DAE, Mumbai
Duration: 3 years w.e.f. 7.3.2007
Cost: Total: Rs. 1,32,53,900 (portion of IIT Kharagpur: Rs.42,53,900)
Status: Completed
4. Title: Intelligent data mining for forward and reverse modelling of manufacturing processes
Investigators: Dr. D.K. Pratihar (PI), Dr. P. P. Bandyopadhyay (Co-PI)
Funding Agency: DST, NEW DELHI
Duration: 3 years w.e.f. 02.05.2008
Cost: Rs. 14,16,166
Status: Completed
5. Title: Soccer Robots: Small Sized League (SSR)
Investigators: Prof. J. Mukhopadhyay (PI), Prof. S. sarkar (PI), Dr. D.K. Pratihar (Co-PI), Dr. G. Harit (Co-PI)
Funding Agency: SRIC, IIT KGP
Duration: 1 year
Cost: Rs. 4,80,000
Status: Completed
6. Title: Pre-clinical analysis of failure mechansims and design optimization of acetabular prosthesis
Investigators: Prof. S. Gupta (PI), Prof. D.K. Pratihar (Co-PI), Dr. S.K. Marya (Co-PI)
Funding Agency: DBT, New-Delhi
Duration: 3 years (w.e.f. 17.06.2010)
Cost: Rs. 23,38,000
Status: Completed
7. Title: Biological assessment of current and novel total knee replacements
Consultants: Prof. S. Gupta (PI), Prof. M. Browne (PI), Prof. D.K. Pratihar (Co-PI), Prof. A. Dickinson (Co-PI)
Funding Agency: UK INDIA Education and Research Initiative, British High Commission
Duration: 23 months (W.E.F. 01.02.2012)
Cost: Rs. 10,41,810
Status: Completed
8. Title: Rehabilitation Robotics (RCR)
Investigators: Dr. D.K. Pratihar (PI), Dr. S. Gupta (Co-PI)
Funding Agency: SRIC, IITKGP
Duration: 2014 to March, 2019
Cost: Rs. 4,50,000/-
Status: Completed
9. Title: Robo-Soccer research by Kharagpur Robot Soccer Students Group (KRS)
Investigators: Prof. J. Mukhopadhyay (PI), Prof. D.K. Pratihar (Co-PI), and others

Funding Agency: SRIC, IITKGP
Duration: 1.5.2014 up to March, 2019
Cost: Rs. 57,52,700/-
Status: Completed

10. Title: User emotion classification from keyboard keystroke (UEK)
Investigators: Prof. D.K. Pratihar (PI), Prof. P.P. Chakrabarti (Co-PI)
Funding Agency: SRIC, IITKGP
Duration: 3 years w.e.f. 11.4.2014
Cost: Rs. 40,000/-
Status: Completed

11. Title: Research on AGV (GAV)
Investigators: Prof. D. Chakravarty (Mining) (PI), Prof. P.P. Chakrabarti (Co-PI), Prof. D.K. Pratihar (Co-PI), and others
Funding Agency: SRIC, IITKGP
Duration: 3 years w.e.f. 27.06.2014
Cost: Rs. 2,68,30000/-
Status: Completed

12. Title: E-Business Center of Excellence (ECO)
Investigators: Prof. M.K. Tiwari (PI), Prof. M. Jenamani (PI), Prof. D.K. Pratihar, and others (Co-PI)
Funding Agency: MHRD, Deptt. of Higher Education, New-Delhi
Duration: 4 years w.e.f. 8.8.2014
Cost: Rs. 3,76,79,053/-
Status: Completed

13. Title: Understanding EB welding of Copper-Chromium-Zirconium alloy through real experiments and data analysis using soft computing
Investigators: Prof. D.K. Pratihar (PI), Prof. D. Chakrabarti (Co-PI), Dr. M.N. Jha (PC)
Funding Agency: DAE (BRNS), Govt. of India, Mumbai
No. 34/14/66/2014-BRNS/34074 Date 24.5.2018
Duration: 01.04.2015 -
Cost: Rs. 26,79,325/-
Status: Completed

14. Title: Cooperative multi-UAV exploration
Investigators: Prof. P.K. Biswas (ECE) (PI), Prof. D.K. Pratihar and others (Co-PI)
Funding Agency: SRIC, IITKGP
Duration: 3 years w.e.f. 25.2.2015
Cost: Rs. 15,20,000/-
Status: Completed

15. Autonomous aerial navigation (AUA)
Investigators: Prof. S. Kumar (PI); Prof. D.K. Pratihar and others (Co-PI)
Funding Agency: SRIC, IIT KGP
Duration: 1 year w.e.f 10.1.15
Cost: Rs. 39,57,120/-
Status: Completed

16. Optimal Design and Development of Powered Ankle Prosthetic Device for Human Locomotion (ODL)
Investigators: Prof. D.K. Pratihar (PI) and Prof. Sudipta Mukhopadhyay (Co-PI)
Funding Agency: MHRD
Duration: 01.04.2016 up to 31.03.2019
Cost: Rs. 11,49,816/-
Status: Completed

17. Drone for vaccine delivery (TPV)

Investigators: Prof. S. Kumar (PI), Prof. D.K. Pratihar (Co-PI), and others
Funding Agency: ICMR, New Delhi
Duration: 23.05.2018 – 23.05.2021
Cost: Rs. 50,09,766/-
Status: Completed

18. Hybrid Mobile Manipulator: Uninterrupted manipulation and Locomotion on Uneven Terrain
Investigator: Prof. D.K. Pratihar (PI)
Funding Agency: SRIC, IIT KGP
Duration: 2 years w.e.f. 1.7.2018
Cost: Rs. 4,96,000/-
Status: Completed

19. Large scale 3D scene reconstruction using visual-inertial sensor fusion
Investigator: Prof. Rambabu Roy (PI), Prof. D.K. Pratihar (Co-PI)
Funding Agency: SRIC, IIT KGP
Duration: 2 years w.e.f. 15.7.2018
Cost: Rs. 9,50,000/-
Status: Completed

20. Development of autonomous multipurpose agricultural robotic platform
Investigators: Prof. D.K. Pratihar (PI), Prof. A.K. Deb (Co-PI)
Funding Agency: Ministry of Electronics and Information Technology, Govt. of India
Duration: 28.06.2019 to 27.12.2021
Cost: Rs. 47,60,339/-
Status: Completed

21. High speed walking gait control of a life size humanoid robot targeted for defence and humanitarian aid applications
Investigator: Prof. D.K. Pratihar (PI), Shashtri Fellowship along with Prof. (Dr.) Alex, University of Calgary, Canada
Funding Agency: Shashtri Institute, Delhi
Duration: 22.3.2019 to 30.09.2021
Cost: Rs. 1,65,643/-
Status: Completed

22. Development of Intelligent Wheeled Mobile Manipulator as Agricultural Robot
Investigator (as Mentor): Prof. D.K. Pratihar of 2 UG and 2 PG students
Funding Agency: TIH Foundation for IoT and IoE (coordinated by IIT Bombay, and funded by the DST, Govt. of India)
Duration: 27.03.2023 for 14 months
Cost: Rs. 7,37,200
Status: Completed

23. Development of Intelligent and User-friendly Prosthetic for Real-World Applications
Investigator (as Mentor): Prof. D.K. Pratihar of 2 UG and 2 PG students
Funding Agency: TIH Foundation for IoT and IoE (coordinated by IIT Bombay, and funded by the DST, Govt. of India)
Duration: 19.02.2024 for 24 months
Cost: Rs. 8,61,200
Status: On-going

CONSULTANCY PROJECT:

1. Title: Pressure drop characteristics of Y- and Basket-type strainers
   Consultants: Prof. B. Maiti (PI); Dr. D.K. Pratihar (Co-PI)
   Funding Agency: Sarojini Enterprises, 11 Subol Chandra Lane, Kolkata 700009
   Duration: 04.02.2008 - 11.02.2008
   Cost: 0.51574 lakhs
   Status: Completed
2. Title: Optimal design of leaf springs
   Consultant: Prof. D.K. Pratihar (PI)
   Funding Agency: Soni Auto & Allied Industries Ltd.
   Duration: 15.03.2014 - 14.06.2014
   Cost: 1.11012 lakhs
   Status: Completed
3. Title: Failure study of GT-PAC through IIT Kharagpur
   Consultant: Prof. D.K. Pratihar (PI)
   Funding Agency: MATIX Fertilisers and Chemicals Ltd., Panagarh, Dist. Bardhaman, W.B.
   Duration: 23.11.2023 – 22.05.2023
   Cost: 8.0 Lakhs
   Status: Completed
4. Title: Failure Analysis of Reformer PIGTAILS
   Consultant: Prof. D.K. Pratihar (PI); Prof. D. Chakrabarti (Co-PI)
   Funding Agency: MATIX Fertilisers and Chemicals Ltd., Panagarh, Dist. Bardhaman, W.B.
   Duration: 30.01.2023 – 29.07.2023
   Cost: 9.8176 Lakhs
   Status: Completed
5. Title: Failure Analysis of Rotor Blade
   Consultant: Prof. D.K. Pratihar (PI)
   Funding Agency: MATIX Fertilisers and Chemicals Ltd., Panagarh, Dist. Bardhaman, W.B.
   Duration: 20.02.2023 – 19.08.2023
   Cost: 9.00340 Lakhs
   Status: Completed
6. Title: Blade Failure Study and Root Cause Analysis of High Pressure Carbamate Pump Failure
   Consultant: Prof. D.K. Pratihar (PI)
   Funding Agency: MATIX Fertilisers and Chemicals Ltd., Panagarh, Dist. Bardhaman, W.B.
   Duration: 29.12.2023 – 28.03.2024
   Cost: 2.74456 Lakhs
   Status: Completed

SPECIALIZATION:

1. Robotics
2. Soft Computing (Genetic Algorithms, Fuzzy Logic Controller, Neural Networks and their different combinations)
3. Metal Cutting and Machine Tools
4. Welding (Electron Beam Welding)

LIST OF PUBLICATIONS:

A1. Textbook

- **Soft Computing**, Narosa Publishing House, New Delhi, India, 2008 and Alpha Science International Ltd., Oxford, UK, 2008.
  In Chinese Language by Science Press, China, 2009.
- **Analytical Engineering Mechanics**, Narosa Publishing House, New Delhi, India, 2012, written jointly by S.K. Bose, D. Chattoraj, D.K. Pratihar.
- **Soft Computing: Fundamentals and Applications**, Narosa Publishing House, New Delhi, India, 2014, Alpha Science International Ltd., Oxford, UK, 2014.
- **Fundamentals of Robotics**, Narosa Publishing House, New-Delhi, India, 2017, Alpha Science International Ltd., Oxford, UK, 2017.
- **Soft Computing: Fundamentals, Advances and Applications**, Narosa Publishing House Pvt. Ltd., New-Delhi, India, 2023 (in press)
- **Fundamentals of Robotics and AI**, Narosa Publishing House Pvt. Ltd., New-Delhi, India, 2023 (in press)

A2. Edited Book

- **Intelligent Autonomous Systems: Foundation and Applications**, Springer-Verlag, Germany, 2010 (http://www.springer.com/engineering/book/ 978-3-642-11675-9)
- Will be editing jointly **Advances in Materials and Manufacturing Engineering – Proc. of ICAMME2019, Springer Nature Singapore Pte Ltd., Singapore, ISBN: 978-981-15-1306-0, Edited by L. Li, D.K. Pratihar, S. Chakraborty, P.C. Mishra**

A3. Reference Book

- **Modeling and Analysis of Six-legged Robots**, LAP LAMBERT Academic Publishing, Germany, 2012 (https://www.lap-publishing.com/catalog/details//store/gb/book/978-3-8484-4977-4/modeling-and-analysis-of-six-legged-robots) by S.S. Roy and D.K. Pratihar (ISBN: 978-3848449774)
- **Modeling and Simulations of Robotic Systems Using Soft Computing**, LAP LAMBERT Academic Publishing, Germany, 2012 by Rega Rajendra and D.K. Pratihar (ISBN: 978-3-659-26483-2)
- **Modeling and Analysis of Laser Metal Forming Processes by Finite Element and Soft Computing Methods**, LAP LAMBERT Academic Publishing, Germany, 2016 by Kuntal Maji, D.K. Pratihar, A.K. Nath (ISBN: 978-3-659-91903-9)
- **Multi-body Dynamic Modeling of Multi-legged Robots**, Springer Pte. Ltd., 2019 by Abhijit Mahapatra, S.S. Roy, D.K. Pratihar, ISBN: 978-981-15-2952-8

A4. NPTEL On-line Course (MOOC)

1. **Traditional and Non-Traditional Optimization Tools:**
   https://onlinecourses.nptel.ac.in/noc23_me40/preview
2. **Robotics: https://elearn.nptel.ac.in/shop/nptel/robotics/**
   https://swayam.gov.in/nd1_noc19_me74/preview
3. **Fuzzy Logic and Neural Networks:** https://swayam.gov.in/nd1_noc20_ge09/preview
   https://onlinecourses.nptel.ac.in/noc23_ge15/preview

4. Online Virtual Course on **Artificial Intelligence in Robotics** (2022)
   Organized by Shastri Indo-Canadian Institute, New-Delhi
   https://www.shastriinstitute.org/sici-iitkgp-short-term-virtual-course-on-artificial-intelligence-in-robotics
5. Online Course on Robotics and Artificial Intelligence (in Bengali Language) for the School Children starting from Class-IX to Class-XII, organized by RKMVERI, Belur-Math, 2023

https://www.youtube.com/playlist?list=PLiuTvXtM4PTZ0MnbdgqZ0q3XXKCryibsJ

6. NPTEL Course on **Experimental Robotics**
   https://onlinecourses.nptel.ac.in/noc24_ge31/preview

B. As Book-Chapters

1. S. Datta, M.S. Raza, K. Chirikuri, P. Saha, D.K. Pratihar, "Influence of process parameters on weld quality and evolution of microstructural and microhardness in laser welding of NiTinol-SS304 dissimilar combination," A guide to Laser Welding, NOVA Science Publishers, pp. 123-139, 2023.
2. Pushpendra Gupta, Vidyapati Kumar, D.K. Pratihar, K. Deb, Multi-objective Optimization of Rotational Magnetorheological Abrasive Flow Finishing Process in *Nanofinishing of Materials for Advanced Industrial Applications*, Faiz Iqbal, Dilshad Ahmad Khan, Zafar Alam (Eds.), CRC Press (in press)
3. Vidyapati Kumar, Pushpendra Gupta. D.K. Pratihar. A Research Perspective on Ankle-Foot Prosthetics Designs for Transtibial Amputees, Mechanical Engineering in *Biomedical Application: Bio-Materials, Implant Design, Bio-3D Printing, Computational, Tissue & Biofluid Mechanics,* Wiley-Scrivener Publisher (in press)
4. Anitesh Kumar Singh, K.S. Bal, D. Dey, A.R. Pal, D.K. Pratihar, A. RoyChoudhury, Optimization of wire-EDM process parameters for Ti6Al4V alloy cutting using Mayfly Algorithm, *Advances in Modern Machining Processes,* Springer, pp. 243-255, 2023.
5. Anitesh Kumar Singh, K.S. Bal, D.K. Pratihar, A. RoyChoudhury, An empirical statistical and experimental analysis of direct laser metal deposition of WC-12 Co-mixed powder on SS304 substrate, *Advances in Micro and Nano Manufacturing and Surface Engineering,* Springer*, pp. 187-197, 2023*
6. Datta, S., Raza, M. S., Saha, P., Pratihar, D., A review on Laser welding of Ni-Ti based shape memory Alloy, "A guide to laser welding", Nova Science Publisher, pp. 97-122, 2023.
7. Pratihar, D.K., Effective online teaching and evaluation methods, *Book on Engineering Pedagogy,* U.S. Dixit (Ed.), Springer Nature, Singapore Pte. Ltd., 2023, pp. 63-68, https://doi.org/10.1007/978-981-19-8016-9_5.
8. Anupam Kundu, Dilip Pratihar, Debalay Chakrabarti, Vidyapati Kumar, Introduction to New Emerging Micro-Electron Beam Welding Technology: A Sustainable Manufacturing, FM-PARC 2022: Futuristic Manufacturing, Perpetual Advancement and Research Challenges, CRC Press, Taylor & Francis
9. Anupam Kundu, Sanjib Jaypuria, D.K. Pratihar, Debalay Chakrabarti, Debasish Das, Electron beam welding: current trends and future scopes, *HOW 2020 book, Nova Science Publishers, USA*
10. Debasish Das, Sanjib Jaypuria, Santosh Gupta, Anupam Kundu, D.K. Pratihar, G.G. Roy, Role of numerical simulations in weld analysis, *HOW 2020 book, Nova Science Publishers, USA*
11. Das A.K., Das D., Pratihar D.K., Multi-objective optimization and cluster-wise regression analysis to establish input-output relationships of a process, *Multi-objective Optimization: Evolutionary to Hybrid Framework*, Springer Nature, Singapore, DOI:10.1007/978-981-13-1471-1_14, 2018
12. Kondalarao B., Sahoo S., Pratihar D.K., Character recognition using entropy-based fuzzy c-means clustering, *Hybrid Intelligence for Image Analysis and Understanding*, John Wiley, UK (October 2017) DOI:10.1002/9781119242963.ch2, pp. 25–45.
13. Pratihar D.K., Pandu Ranga V., Rajendra R., Humanoid body control using neural networks and fuzzy logic, *Springer Meteor: Humanoid Robotics: a Reference, Neural Net and Fuzzy Logic Control*, A. Goswami, P. Vadakkaepat (eds.), https://doi.org/10.1007/978-94-007-7194-9-50-1, 2019
14. Pratihar D.K., Realizing the need for intelligent optimization tool, *Handbook of Research on Natural Computing for Optimization Problems*, J. Mandal, and others (Eds.), DOI:10.4018/978-1-5225-0058-2.ch001, May 2016, IGI Global

15. Maji K., Pratihar D.K., Nath A.K., Numerical and experimental studies on pulsed laser forming of sheet metal, *Laser Based Manufacturing*, Joshi, Dixit (Eds.), Springer, DOI: 10.1007/978-81-322-2352-8-4, pp. 55–68, 2014.
16. Pratihar D.K., Traditional vs. non-traditional optimization tools, *Computational Optimization and Applications*, K. Basu, S. Kar (Eds.), Narosa Publishing House, New Delhi, pp. 25–33, 2012.
17. Pratihar D.K., Some studies on data mining, Handbook on *Reasoning-based Intelligent Systems*, K. Nakamatsu, L.C. Jain (Eds.), World Scientific Publishers, pp. 61–80, 2012.
18. Pratihar D.K., Dey V., Bapat A.V., Kandaswamy E., Electron beams for macro and micro welding applications, *Micromachining*, V.K. Jain (Ed.), pp. 221–240, 2012.
19. Pratihar D.K., Jain L.C., Towards intelligent autonomous systems, *Intelligent Autonomous Systems: Foundations and Applications*, edited by D.K. Pratihar, L.C. Jain, Springer-Verlag, Germany, 2010, pp. 1–4.
20. Hui, N.B., Pratihar D.K., Design and development of intelligent autonomous robots, *Intelligent Autonomous Systems: Foundations and Applications*, edited by D.K. Pratihar, L.C. Jain, Springer-Verlag, Germany, 2010, pp. 29–56.
21. Vundavilli P.R., Pratihar D.K., Gait planning of biped robots using soft computing: an attempt to incorporate intelligence, *Intelligent Autonomous Systems: Foundations and Applications*, edited by D.K. Pratihar, L.C. Jain, Springer-Verlag, Germany, 2010, pp. 57–85.
22. Chattopadhyay S., Pratihar D.K., Towards developing intelligent autonomous systems in psychiatry: its present state and future possibilities, *Intelligent Autonomous Systems: Foundations and Applications*, edited by D.K. Pratihar, L.C. Jain, Springer-Verlag, Germany, 2010, pp. 143–166.
23. Ganjigatti J.P., Pratihar D.K., Design of knowledge bases for forward and reverse mappings of TIG welding process, *Intelligent Data Analysis: Developing New Methodologies Through Pattern Discovery and Recovery*, pp.185–200, 2009, H. Wang (ed.), IGI Global.
24. Pratihar D.K., Non-linear dimensionality reduction techniques, *Encyclopedia of Data Warehousing and Mining*, IGI Global, pp. 1416-1424, 2009, J. Wang (ed.).
25. Tushar, Roy S.S., Pratihar D.K., Determination of optimal clusters using a genetic algorithm, *Book Chapter - Advances in Data Warehousing and Mining*, Book Series on Data Mining and Knowledge Discovery Technologies, D. Taniar, Editor-in-Chief, IGI Global, pp. 1-20, 2008.
26. Tushar, Pratihar D.K., Cluster-wise design of Takagi and Sugeno approach of fuzzy logic controller, Edited book on *Engineering Evolutionary Intelligent Systems*, A. Abraham, C. Grosan, W. Pedrycz (Eds.), Springer-Verlag, Berlin, Germany, Springer-Verlag, Berlin, Germany, 82, pp. 211-250, 2008 (DOI:10.1007/978-3-540-75396-4).
27. Pratihar D.K., Hui N.B., Evolution of fuzzy controllers and applications, *Studies in Computational Intelligence (SCI)*, L.C. Jain (Ed.), Springer Verlag, 66, pp. 47–69, 2007.
28. Pratihar D.K., Adaptive robot controller using soft computing, *Frontiers in Robotics Research*, Max A. Denket (Ed.), NOVA Science Publishers, Inc. NY, USA, pp. 153–187, 2006.

C: Papers In International Journals (I: Impact Factor; C: Citation)

1. **Bhrigu Chakraborty, Ranita Pal, Dilip Pratihar, Pratim Chattaraj, "Bonobo Optimizer: A New Tool Towards the Global Optimization of Small Atomic Clusters," *The Journal of Physical Chemistry* (Accepted, in Press)**
2. **D.K. Pratihar, "AI-assisted Intelligent Humanoid Robot," Transactions of the INAE, DOI: https://doi.org/10.1007/s41403-024-00468-5, Springer Nature**
3. **Biswesh Ranjan Acharya, A. Sethi, A.K. Das, P. Saha, D.K. Pratihar, "Parametric optimization of micro-tool fabrication through sheet-EDG using nature-inspired algorithms," *Journal of Brazilian Society of Mechanical Sciences and Engineering*, 46(2), 72, 2024**
4. **Santosh Kumar Gupta, Sanjib Jaypuria, D.K. Pratihar, P. Saha, "Effects of thermal ageing**

time and temperature during heat-treatment of the mechanical properties of fiber Laser welded Nb-1%Zr-0.1%C alloy in continuous wave mode," *Materials Characterization*

5. **Santosh Kumar Gupta, Sanjib Jaypuria, D.K. Pratihar, P. Saha, "Corrosion analysis of welded Nb-1% Zr-0.1% C alloy in Lead-Bismuth eutectic solution," *Journal of Alloys and Compounds* https://doi.org/10.1016/j.jallcom.2023.172273**
6. **Biswesh Ranjan Acharya. A. Sethi, P. Saha, D.K. Pratihar, "High Aspect Ratio Shaped Microtool Fabrication using Sheet-EDG," *Materials and Manufacturing Processes. https://doi.org/10.1080/10426914.2023.2260455***
7. **Santosh Kr. Gupta, Sanjib Jaypuria, Amit Kr. Das, D.K. Pratihar, P. Saha, "Study on pulsed wave mode laser welding of Nb-Zr-C alloy and many-objective optimization using meta-heuristic techniques," *Welding in the World,* https://doi.org/10.1007/s40194-023-01582-8**
8. **Datta, S., Chakraborty, R., Raza, M.S., Saha, P. and Pratihar, D.K., Comparative Study on Weld Characterization and Corrosion Performance of Fibre Laser Welded NiTinol Sheets, *Science and Technology of Welding and Joining,* https://doi.org/10.1080/13621718.2023.2231255**
9. **Pushpendra Gupta, D.K. Pratihar, Kalyanmoy Deb, "Analysis and optimization of gait cycle of 25 dof robot using particle swarm optimization and genetic algorithms", *International Journal of Humanoid Robotics,* https://doi.org/10.1142/S0219843623500111, vol. 21, no. 2, article No. 2350011, 2024**
10. **Susmita Datta, M.S. Raza, G. Gopinath, D. Pratihar, P. Saha, The effect of different Laser head angles and shielding gas supply systems to maximize the depth of penetration by minimizing the plasma shielding effect in fiber laser welding of 3 mm thick NiTinol sheet," *Optik – International Journal for Light and Electron Optics,* 283 (2023), 170903 (I:2.84)**
11. **Biswesh Ranjan Acharya, A. Sethi, A.K. Das, P. Saha, D.K. Pratihar, Multi-objective optimization in electro-chemical micro-drilling of Ti6Al4V using nature-inspired techniques," *Materials and Manufacturing Processes, Evolutionary Computation issue, https://doi.org/10.1080/10426914.2023.2195906,* 38(15), 1942-1954, 2023 (I:4.783)**
12. **Amit Kumar Das, Saikat Sahoo, D.K. Pratihar, "An improved design of knee orthosis using Self-adaptive Bonobo Optimizer (SaBO)," *Journal of Intelligent and Robotic Systems*, 107:8, 2023 (**10.1007/s10846-022-01802-1**) (I:3.071)**
13. **Susmita Datta, M.S. Raza, A.K. Das, P. Saha, D.K. Pratihar, "Laser beam welding of NiTinol sheets in butt joint arrangement and optimization of the process using desirability function analysis and metaheuristic techniques," *Proc. of the Institution of Mechanical Engineers, Part E: Journal of Process Mechanical Engineering, https://doi.org/10.1177/09544089221144509*, (I: 1.822)**
14. **Sanjib Jaypuria, Venkatasainath Bondada, Santosh Kumar Gupta, D.K. Pratihar, Debalay Chakrabarti, M.N. Jha, "Prediction of electron beam weld quality from weld bead surface using clustering and support vector regression", *Expert Systems with Applications,* 211 (2023) 118677, https://doi.org/10.1016/j.eswa.2022.11877, (I: 8.665)**
15. **Susmita Datta, Amit Kr. Das, M.S. Raza, P. Saha, D.K. Pratihar (2022), "Study on laser beam butt-welding of NiTinol sheet and input-output modeling using neural networks trained by metaheuristic algorithms," *Materials Today Communications*, 32, pp. 104089, DOI://doi.org/10.1016/j.mtcomm.2022.104089, 32 (2022) 104089, https://doi.org/10.1016/j.mtcomm.2022.104089**
16. **Sanjib Jaypuria, Amit Kr. Das, P.K.C. Kanigalpula, Debasish Das, D.K. Pratihar, D. Chakrabarti, M.N. Jha, "Swarm intelligence-based modeling and multi-objective optimization of welding defect in electron beam welding", *Arabian Journal for Science and Engineering, DOI:10.1007/s13369-022-07017-8*, (I: 2.807)**

17. **Debasish Das, Soumitra Kumar Dinda, Amit Kr. Das, D.K. Pratihar, G.G. Roy, "Study on micro-porosity in electron beam butt welding," *International Journal of Advanced Manufacturing Technology,* DOI:10.1007/s00170-022-09359-x (I:3.563)**

18. Debasish Das, D.K. Pratihar, G.G. Roy, "Modeling of beam divergence," *Optik,* 256 (2022) 168747 https://doi.org/10.1016/j.ijleo.2022.168747 (I:2.84)

19. Saikat Sahoo, Shivam Kumar Panda, D.K. Pratihar, S. Mukhopadhyay, "Locomotion modes and environmental features recognition using laser distance sensors," *IEEE Sensors,* 22, 5, pp. 4625-4633, DOI:10.1109/JSEN.2022.3144332 (I:4.325)

20. **Debasish Das, Kalinga Bal, D.K. Pratihar, G.G. Roy, "Correlating the weld bead's 'macro-, micro-features with the weld pool's fluid flow for electron beam welded SS201 plates," *International Journal of Mechanical Sciences,* 210 (2021) 106734, DOI: https://doi.org/10.1016/j.ijmecsci.2021.106734 (I: 6.772)**

21. Anitesh Kumar Singh, Abhjit Sadhu, Amit Kumar Das, D.K. Pratihar, A. Roy Choudhury, "An approach towards energy and material efficient additive manufacturing: Multi-objective optimization of stellite-6 deposition on SS304," *Optics and Laser Technology,* https://doi.org/10.1016/j.optlastec.2021.107799, 148, 107799, 2022 (I:4.939)

22. **Suman Banerjee, M. Jenamani, D.K. Pratihar, "An approximate marginal spread computation approach for the budgeted influence maximization with delay," *Computing, Springer,* https://doi.org/10.1007/s00607-021-00987-x, 104, 657-680, 2022 (I:2.420)**

23. Santosh Gupta, Sanjib Jaypuria, D.K. Pratihar, P. Saha, "Experimental investigation on mechanical strength of laser welded Nb-1%Zr-0.1%C alloy," *Materials Engineering and Performance* DOI:10.1007/s11665-021-05979-8 (I:2.036, C:1)

24. Anitesh Kr. Singh, K.S. Bal, D. Dey, A.K. Das, A.R. Pal, D.K. Pratihar, A. RoyChoudhury, "Experimental investigation and parametric optimization for minimization of dilution during direct laser metal deposition of Tungsten carbide and Cobalt powder mixture of SS304 substrate," *Powder Technology*, 390, 339-353, 2021 (I:5.64, C:9)

25. **Amit Kr. Das, D.K. Pratihar, "Bonobo Optimizer (BO): An intelligent heuristic with self-adjusting parameters over continuous spaces and its application to engineering problems," *Applied Intelligence* DOI:10.1007/s10489-021-02444-w (I: 5.019, C:7)**

26. **Debasish Das, Amit Kumar Das, Abhishek RudraPal, Sanjib Jaypuria, D.K. Pratihar, G.G. Roy, "Meta-heuristic algorithms-tuned Elman vs. Jordan recurrent neural networks for modeling of electron beam welding process," *Neural Processing Letters,* DOI:10.1007/s11063-021-10471-4, 53(2), 1647-1663, 2021 (I:2.565, C:2)**

27. **Amit Kr. Das, D.K. Pratihar, "Solving engineering optimization problems using an improved real-coded genetic algorithm (IRGA) with directional mutation and crossover," *Soft Computing,* DOI: 10.1007/s00500-020-05545-9, vol. 25, 7, 5455-5481, 2021 (I: 3.732, C:5)**

28. Amit Kumar Das, Bitan Pratihar, D.K. Pratihar, "Evolving fuzzy reasoning approach using a novel nature- inspired optimization tool," *Expert Systems with Applications,* https://doi.org/10.1016/j.eswa.2021.114577, vol. 170, 2021, 114577 (I: 8.665, C:1)

29. **Kondalarao Bhavanibhatla, Sulthan Suresh-Fazeela, D.K. Pratihar, "A study on determining optimal base location of a serial manipulator mounted on a hexapod mobile robot." *Journal of the Brazilian Society of Mechanical Sciences and Engineering,* DOI:10.1007/s40430-021-02937-2 (I:1.7552.361)**

30. **Kondalarao Bhavanibhatla, Sulthan Suresh-Fazeela, D.K. Pratihar, "A novel on-line whole-body motion planning algorithm for supervisory control of a legged mobile manipulator," *Institution of Engineers (I),* DOI:10.1007/s40032-021-00681-z (I:0.75) Invited Paper, 102(3), pp. 563-575, 2021.**

31. **Amit Kr. Das, Debasish Das, Sanjib Jaypuria, D.K. Pratihar, G.G. Roy, "Input-output modeling and multi-objective optimization of weld attributes in EBW," *The Arabian Journal for Science and Engineering,* DOI:10.1007/s13369-020-05248-1, vol. 46, 4087-4101, 2021 (I:2.807, C:1)**

32. Saikat Sahoo, D.K. Pratihar, S. Mukhopadhyay, "A locomotion mode adaptive strategy for real-time detection of gait events during negotiating staircases," IEEE *Trans. on Instrumentation and Measurement,* DOI:10.1109/TIM.2020.3047500 (I:5.332)

33. **Debasish Das, Sanjib Jaypuria, D.K. Pratihar, G.G. Roy, "Weld optimization," *Science and Technology of Welding and Joining,* https://doi.org/10.1080/13621718.2021.1872856, 26(3), 181-195, 2021 (I: 2.4, C:3)**
34. **Suman Banerjee, M. Jenamani, D.K. Pratihar, "Earned benefit maximization in social networks under budget constarints," *Expert Systems with Applications (accepted, in press)* (I: 8.665, C:1)**
35. **P. Rath, Alex Ramirez-Serrano, D.K. Pratihar, "Real-time moving object detection and removal from 3D pointcloud for humanoid navigation in dense GPS-denied environments," *Engineering Reports*, DOI: 10.1002/eng2.12275**
36. **Susmita Datta, M.S. Raza, P. Saha, D.K. Pratihar, "Study on mechanical performance of laser welded NiTinol sheet," *IMechE Part B, Jl. of Engineering Manufacture (accepted, in press)* (I: 2.759)**
37. **Amit Kumar Das, A.K. Nikum, S.V. Krishna, D.K. Pratihar, "Multi-objective Bonobo Optimizer (MOBO): An intelligent, heuristic for multi-criteria optimization," *Knowledge and Information Systems,* DOI: 10.1007/s10115-020-01503-x, vol. 62, pp. 4407-4444, 2020 (I: 2.531, C:14).**
38. **Debasish Das, Amit Kumar Das, D.K. Pratihar, G.G. Roy, "Prediction of residual stress in electron beam welding of stainless steel from process parameters and natural frequency of vibrations using machine learning algorithms with Monte-Carlo reliability test," *IMechE, Part C,* DOI:10.1177/09544062209503431(I: 1.758)**
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42. Suman Banerjee, M. Jenamani, D.K. Pratihar, "Properties of a projected network of a bipartite network," 6-th IEEE International Conference on Communication and Signal Processing, 6-8th April, 2017.
43. Aditya Jha, D.K. Pratihar, M.K. Tiwari, "Many-objective energy efficient scheduling with load management in intelligent manufacturing systems," *Proc. of 67–th Annual Conference and Expo of the Institute of Industrial Engineers*, 2017, pp. 151–156.
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47. Abhishek Arijit, D.K. Pratihar, R. Maiti, "Study on inverse dynamics of full-body powered pseudo-anthropomorphic exoskeleton using neural networks," HIS2015, South Korea, A. Abraham et al. (eds.), Hybrid Intelligent Systems, Advances in Intelligent Systems and Computing 420, pp. 295–306.
48. D. Das, D.K. Pratihar, G.G. Roy, "Electron beam melting of steel plates: temperature measurement using thermocouples and prediction through finite element analysis," CARS AND FOF Conference, Kolaghat, 2016. D.K. Mandal, C.S. Syan (eds.), CAD/CAM, Robotics and Factories of the Future, Lecture Notes in Mechanical Engineering, *DOI*:10.1007/978–81–322–2740–3$_1$0, Springer India, pp. 579–588.
49. A. Rudra Pal, A.O. Mundada, D.K. Pratihar, "Predictions of hip and knee power consumptions of patients having different body heights and masses during normal walking," CARS AND FOF Conference, Kolaghat, 2016. D.K. Mandal, C.S. Syan (eds.), CAD/CAM, Robotics and Factories of the Future, Lecture Notes in Mechanical Engineering, *DOI*:10.1007/978–81–322–2740–3$_1$0, Springer India, pp. 149–157.
50. A. Mahapatra, S.S. Roy, D.K. Pratihar, "Constrained inverse dynamics and feet-terrain interaction modelling of a staircase climbing hexapod robot," *iNACOMM'15 Conference*, IIT Kanpur, India
51. S. Chanda, S. Gupta, D.K. Pratihar, "Shape optimization of femoral implant based on a machine learning framework and assessment of the optimum design using evolutionary interface," *International Society for Technology in Arthroplasty Conference*, 30-th Sept. to 3rd Octo. 2015, Vienna, Austria.
52. A. Mahapatra, K. Bhavanibhatla, S.S. Roy, D.K. Pratihar, "Energy-efficient inverse dynamic model of a hexapod robot," *Proc. of IEEE Intl. Conf. on Robotics, Automation, Control and Embedded Systems, RACE2015*, Chennai, India, 18-21 Feb., 2015.
53. K. Maji, D.K. Pratihar, A.K. Nath, "Finite element analysis on pulsed laser forming of sheet metal," *Proc. of 5-th Intl., 26-th AIMTDR Conference*, IIT Guwahati, India, 12-14 Dec., 2014, pp. 636-1–636-6.

54. A. RudraPal, D.K. Pratihar, S. Gupta, "Design and analysis of an orthotic device with torque reducing mechanism for knee joint during normal walking," *Proc. of iNaCoMM2013*, IIT Roorke, India, 18–20 Dec., 2013.
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59. S.S. Roy, D.K. Pratihar, "Study on energy consumption in turning motion of hexapod walking robots, *World Congress on Engineering (WCE 2011)* 6-8 July, 2011, London, UK.
60. S.S. Roy, D.K. Pratihar, Dynamic modeling, stability and energy consumption analysis of turning motion of realistic hexapod walking robots, *Proc. of the ASME 2011 International Design Engineering Technical Conference & Computers and Information in Engineering Conference 2011*, August 29-31, 2011, Washington, DC, USA, pp. 1–10.
61. S.S. Roy, D.K. Pratihar, Dynamic modeling and energy consumption analysis of crab walking of a six-legged robot, Proc. of *3-rd IEEE International Conference on Technologies for Practical Robot Applications*, Greater Boston Area, Massachusetts, USA, April 11-12, 2011, pp. 82–87.
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65. V. Dey, D.K. Pratihar, G.L. Datta, Hybrid optimization scheme for radial basis function neural network, *Proc. of SEAL-10*, IIT Kanpur, India, pp. 613-622, 2010 (K. Deb et al. (Eds.), LNCS 6457), Springer-Verlag, Germany
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83. Pratihar D.K., Deb K., Ghosh A., Design of a Genetic-Fuzzy System for Planning Optimal Turning-Gait of a Six-legged Robot, Proc. of the *International Conference on Information Technology - CIT'99*, Bhubaneswar, India, December 20-22, 1999, pp. 109-114.
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F. Papers in National Conference/Workshop

1. A.K. Singh, K.S. Bal, D.K. Pratihar, A. RoyChoudhury, "An empirical statistical and experimental analysis of direct laser metal disposition of WC-12 CO-mixed powder on SS 304 substrate," *AIMTDR 2021 Conference,* PSG College of Engineering, Coimbatore
2. B.R. Acharya, A. Sethi, A. Dindigala, P. Saha, D.K. Pratihar, "A study on micro-tool and micro-feature fabrication in micro-EDM," *AIMTDR 2018 Conference, College of Engineering, Guindy, Anna University, Chennai.*Lecture Notes on Multidisciplinary, Industrial Engineering, Part F165, 191-202, https://doi.org/10.1007/978-981-32_9471-4_16
3. Sanjib Jaypuria, Santosh Kr. Gupta, D.K. Pratihar, "Comparative study of feed-forward and recurrent neural networks in modeling of electron beam welding," *AIMTDR 2018 Conference, College of Engineering, Guindy, Anna University, Chennai,* In: Shunmugam M,… (eds.) Advances in Additive Manufacturing and Joining. Lecture Notes on Multidisciplinary Industrial Engineering, Springer, Singapore, DOI: https://doi.org/10.1007/978-981-32-9433-2_45
4. Santosh Kr. Gupta, Sanjib Jaypuria, D.K. Pratihar, P. Saha, "Numerical simulations and experimental verification of laser welding of Nylon 6," *COMSOL Conference,* Bangalore, 10th August 2018.
5. S.S. Dhanjal, D.K. Pratihar, "Design and development of board cleaning serial manipulator," *IEEE Uttar Pradesh Section Conference on Electrical, Computer and Electronics, IEEE UPCON 2015*, IIIT Allahabad.
6. S .N. Mohanty, D.K. Pratihar, D Suar, "Influence of positive mood states on information processing during decision making: a combined neuro-fuzzy approach," *National Conference on Paradigm for Sustainable Business: People, Planet and Profit*, IIT Roorke, India, 2013.
7. P. Das, S.K. Panda, D.K. Pratihar, "Modification of initial blank shape to minimize earing in deep drawing process," *Proc. of ICMPC-2013*, Hyderabad, India.
8. S.S. Roy, A.K. Singh, D.K. Pratihar, "Analysis of Six-legged Walking Robots," 14-th National Conference on Machines and Mechanisms (NaCoMM-09), NIT, Durgapur, India, December, 2009, pp. 259–265.
9. Pratihar D.K., "Design and development of adaptive robot motion planner," Proc. of IEEE Conference on Computational Intelligence, Control and Computer Vision in Robotics & Automation (CICCRA-2008), NIT Rourkela, India, 10-11 March 2008, pp. 1–14.
10. Hui N.B., Pratihar D.K., "Fuzzy logic-based navigation of a mobile robot among static obstacles," Proc. of the Conference on Smart Communication Technologies and Industrial Informatics – 2007, NIT Rourkela, India, 2-3 February 2007, pp. 89–95.
11. Chattopadhyay S., Pratihar D.K., De Sarkar S.C., "Study on some similarity-based fuzzy clustering algorithms," CSI-EAIT2006 Conf., Kolkata, 10-11 Feb. 2006, pp. 279–282.
12. Chattopadhyay S., Pratihar D.K., De Sarkar S.C., "Statistical modeling of psychosis data," CSI-EAIT2006 Conf., Kolkata, India, 10-11 Feb. 2006, pp.77–80.
13. Mahendar V., Pratihar D.K., Mobile robot navigation - using a neuro–fuzzy approach, Proc. of ISPR 2004, IIIT Allahabad, Feb. 2004.

14. Singh B., Pratihar D.K., Ditch crossing gait generation of a two-legged robot–using soft computing, Proc. of ISPR 2004, IIIT Allahabad, Feb. 2004.
15. Biswas D.K., Pratihar D.K., Ghosh S., Path Planning of Multiple Robots Working in a Common Workspace – Potential Field Approach, Proc. of AMR'04, CMERI, Durgapur, India, Jan. 2004.
16. Nandi A.K., Pratihar D.K., Banerjee M.K., Design of an expert system based on fuzzy logic for external cylindrical plunge grinding process, Proc. of *National Conference on Advances in Manufacturing Systems, AMS 2003*, Jadavpur University, Calcutta, India, March 28-29, 2003, pp.220-226.
17. Nandi A.K., Pratihar D.K., Banerjee M.K., Prediction of Surface Finish in Grinding – Using GA-Fuzzy Approach, XVI National Convention of Production Engineers & National Seminar on "Emerging Trends in Manufacturing", ITBHU, Varanasi, India, Jan 19-20, 2002, pp.176-181.
18. Roy S.S., Pratihar D.K., Mukherjee A., Collision-free, Near-optimal Path Planning of a Manipulator – Using a GA-Fuzzy Approach, *NaCoMM-01*, IIT Kharagpur, India, Dec. 2001, pp.201-208.
19. Pratihar D.K., Deb K., Ghosh A., Mobile Robot Navigation Among Moving Obstacles Using GA-Fuzzy Approaches, Proc. of *National Conference on Machines and Mechanisms - NACOMM-99*, IIT Bombay, India, December 16-17, 1999, pp. 394-403.
20. Pratihar D.K., Optimum Design of Four-bar Function Generator Using Genetic Algorithms, Proc. of *NACOMM-97*, I.I.T., Kanpur, India, 1997, pp.A-47-A-53.
21. Pratihar D.K., Computer Aided Manufacturing of Cams, Proc. of *NACOMM-95*, C.M.E.R.I., Durgapur, India, 1996, pp.C-57-C-61.
22. Pratihar D.K., Application of Group Technology in Ship-building Industry, Proc. of *AIEPIT*, M.N.REC, Allahabad, India, 25-26 February, 1995, pp.A-28-A-34.

PATENT/COPYRIGHT Filed/Granted:

- An automatized flow control based dispensing system adapted for pesticide flow rate control for agricultural robot by D.K. Pratihar, Ujjawal Arya, Himanshu Raj Khandelwal, Deepak Deshmukh. File No. 201931034082; Date: 23.8.2019 (**Granted Patent No. 495100, Dated: 05.01.2024**)
- A robotic system for inspection of railway tracks and like by D.K. Pratihar, Anand Ronald, Swapnajoy Saha, Soumobrata Ghosh, Apoorv Singh, Vasu Chhirolya. File No. 201931042198; Date: 17.10.2019
- Design and development of an intelligent and nature-inspired optimization technique, namely Bonobo Optimizer (BO), **Registration No. SW-15557/2022 Dated 30-th June, 2022**.
- Good touch and bad touch doll-toy for sensitizing children on child abuse by Atanu Jana, Dilip Kumar Pratihar, Pradeep Nahak. File No. 202331026333 Dated 8.4.2023.
- Semi-Automatic Tracked Mobile Manipulator as Agricultural Robot Capable of Vision-based Disease Detection and Spraying Pesticides by D.K. Pratihar, Pradeep Nahak, Atanu Jana, Deepak Deshmukh, Anand Ronald. Alokkanti Deb, Hena Ray, Alokesh Ghosh, File No. 202331031634 Dated 03.05.2023.

MEMBERSHIP OF THE PROFESSIONAL BODY:

- Fellow of the Indian National Academy of Engineering (FNAE), 2023
- Fellow of the Institution of Engineers (India), 2008
- Member of IEEE, 2009; Member of CIS, 2017; Senior Member of IEEE 2017; Member of Robotics and Automation Society, 2018
- Life Member of Association for Machines and Mechanisms, 2010
- Member of ASME 2017.

- Member, Association for the Advancement of Artificial Intelligence (AAAI), 2022

IEEE Activities:

1. Proctor of IEEE Xtreme 16.0 Coding Competition at IEEE Kharagpur Section
2. Member, Kharagpur Section, IEEE India Council, Industry Academia Young Professional Sub-Committee (IAYPSC-2023)
3. IEEE Region 10 Ethics Champion Certificate (Softpin)
4. Chair, Industry-Academia Interactions, IEEE Kharagpur Section, 2023

MEMBER OF THE EDITORIAL BOARD:

- International Journal of Advanced Intelligence Paradigms (IJAIP); ISSN: 1755-0386 (published by InderScience Publishers), 2008
- Guest Editor of a special issue on "Hybrid Computing" for International Journal of Computational Intelligence Studies, 2010.
- International Journal: Intelligent Control and Automation, Scientific Research Publishing, USA, 2011
- International Journal of Applied Intelligence, Springer, 2012
- ICTACT Jl. on Soft Computing, 2016
- Journal of Advanced Manufacturing Systems, World Scientific, 2017
- Journal of Micro-Manufactuing, SAGE Publications, 2018
- Associate Editor, Journal of Intelligent and Fuzzy Systems, IOS Press, w.e.f. 01.08.2020
- Associate Editor, Sadhana Journal, w.e.f. 11.11.2022

MEMBER OF PROGRAM COMMITTEE, SESSION CHAIR: More than 140 Conferences

CONDUCTED SHORT-TERM COURSE/TUTORIAL:

1. STC on Robotics, AI, Soft Computing for the Scientists of CSIR-CMERI, Durgapur, 29-th to 31-st May, 2023
2. Coordinator of AICTE-QIP STC on Robotics, 13-th to 19-th Nov., 2019.
3. Coordinator of a Lecture Series on Optimization by Prof. K. Deb, 15th July to 19th July 2019
4. Coordinator of a Lecture Series on “Optimization and Its Use in Practice” by Prof. K. Deb, 23rd July to 1st August 2018
5. Coordinator of GIAN course on "Optimization for Innovation in Research and Practice" 27-th June to 8-th July 2016.
6. Joint Coordinator of GIAN/ISWT course on "Special Topics in Robotics" Dec. 7 21, 2015 at IIT KGP.
7. Short-term Course on "Fundamentals of Robotics," RDCIS Ranchi, 14-18th September 2015.
8. Short-term Course on "Introduction to Robotics", RDCIS Ranchi, 6-7 July, 2015.
9. Short-term Course on "Optimization and Genetic Algorithms" for PG students, IIT KGP, 12-14 Dec., 2011.
10. Short-term Course on "Knowledge-based Systems in Engineering/ Soft Computing" for PG students, IIT KGP, 13-17 Dec., 2010.
11. Short-term Course on "Reconfigurable Manufacturing Systems" at IEM Deptt., IIT KGP, 15-th – 19-th February 2010.

12. General Co-Chair of RoboCup Challenge@India2009, held at IIT KGP, 28-th – 30-th August 2009.
13. Short-term Course on "PLM and PDM for DRDO" at IEM Deptt., IITKGP, 18th–29th August 2008.
14. Conducted a Short-term Course on "Soft Computing in Robotics" at Central Mechanical Engineering Research Institute, Durgapur, India, during the period –19th to 23rd February 2001.
15. Held tutorial on *GA-Fuzzy Approach to Mobile Robot Navigation* at Bhubaneswar, India on December 19, 1999, as a pre-conference tutorial of the International Conference on Information Technology - CIT99.

KEYNOTE ADDRESS/INVITED LECTURE: 80

1. Invited Lecture on "Introduction to AI/ML" organized by ASME Student Section, IIT Kharagpur, on 19.03.2024
2. Invited Lecture on "AI and Robotics" organized by IIM Mumbai, on 16.03.2024
3. Invited Lecture on "Intelligent Optimization Tool" in FDP conducted by IEM, Kolkata, on 6.3.2024
4. Invited Lecture on "AI in Robotics" in FDP conducted by JNTU, Hyderabad, on 24.02.2024, 26.02.2024, 01.03.2024
5. Invited Lecture on "Artificial Intelligence" in Bengali, Kathamangal, 20.02.2024
6. Invited Lecture on "Artificial Intelligence in Aircraft Maintenance and Production," HAL, Bangalore, 17.02.2024
7. Invited Lecture on 'Multi-objective Optimization', IIM Mumbai, 9.2.2024
8. Invited Lecture on "Introduction to Optimization and Artificial Intelligence" in one Webinar organized by the Operational Research Society of India (ORSI), Durgapur Chapter, 27.01.2024
9. Invited Lecture on "AI and Robotics" in one Webinar organized by the Institution of Engineers (I), West Bengal State Centre, Electronics and Telecommunication Engineering Division, 14-th October 2023 (Video: AI and Robotics - YouTube)
10. Invited Lecture on Fundamentals and Applications of AI, RK Mission, Vidyamandira, Belur-Math, Howrah, on11-th September 2023
11. Invited Lecture on Artificial Intelligence and Robotics at ISP, Burnpur, on 6-th September 2023.
12. Invited Lecture on AI in Healthcare for Screening of the Patients and Carrying out Diagnosis of the Diseases, TATA Medical Center, Kolkata, 26-th August 2023
13. Invited Lecture on Industry-Academia Collaboration, in the IEEE YP AG Leaders Conclave on 5-6 August, 2023.
14. Invited Talk on Membership Development and Quality Conference in the Event: Hear from Unheard organized by IEEE India Council, 0n 30-th July 2023.
15. Invited Expert Lecture on Multi-Sensors date Fusion Using AI Tools for Security and Surveillance, in SERB sponsored Karyashala held at CSIR-CMERI, Durgapur, on 24.07.2023
16. Invited Lecture on AI Tools for Robotics at RoBoNeeRs, organized by IEEE Kharagpur, on 15.07.2023
17. Invited Lecture on Role of Intelligent Robots in Modern Industries at 14-th Edition of Business IT Conclave 2023, organized by "The Bengal Chamber of Commerce and Industry" held at Taj City Centre, Kolkata on 30-th June 2023 (https://drive.google.com/file/d/1teeWMV30qHPBmHc0l4Nbj1X2Zosw19up/view)
18. Invited Lecture on Role of AI in Modern Steel Industries in the Short-Term Course organized by ME Department, IIT Kharagpur, on 26-th June 2023.
19. Invited Lecture on Study on Humanoid Robots in ICMDM 2023 Conference, IIEST Shibpur, Howrah, on 28.4.2023
20. Invited Lecture on Role of AI to Develop Intelligent and Emotional Robot in the Karyashala entitled "Application of Artificial Intelligence (AI) and Machine Learning (ML) Techniques in Robotics", held at CMERI, Durgapur during Jan 06-13, 2023.

21. Invited Lecture on Intelligent Robots in FDP on Advanced Remanufacturing Technology organized by NIFFT Ranchi, 12-th December 2022
22. Keynote Address on Role of Soft Computing for Developing Robotic Soldier, icSoftComp2022 Conference
23. Invited Lecture on Role of AI in Overhaul of Aircrafts on 29.11.2022, HAL Overhaul Division, Bangalore
24. Invited Lecture on AI-assisted Robotic Soldier on 4.11.2022, ME Department, IIT Kanpur
25. Invited Lecture on Motion on Motion Planning and Gait Generation for Legged Robots in CEP Course on Control of Robotic Systems, 15.09.2022, organized by R&DE(E), Pune
26. Invited Lecture on Study on Welding of Dissimilar Materials Using Electron Beam, in DAE-BRNS Theme Meeting on Advanced Technologies in Dissimilar Metal Welding (DMW-2022) and DAE Technology Awareness Meet-II, 16-th July 2022
27. Invited Lecture on Artificial Intelligence in Modern Industries, Soni Auto & Allied Industries Ltd., Jamshedpur, on 2.7.2022
28. Invited Lecture on Intelligent Optimization Algorithms, CS Deptt., RKM Vivekananda Educational and Research Institute, Belur-math, on 03.06.2022
29. Invited Lecture on Computational Intelligence in Robots in "Recent Trends in Robotics and Automation – RTRA-2022", Workshop organized by Anna University, MIT campus, Chennai, 24.5.2022
30. Invited Lecture on Effective Online Teaching and Evaluation Methods in Online Lecture Series on Evolution of Classical Mechanics and Symposium on Engineering Pedagogy, 20-th March 2022, organized by IIT Guwahati
31. Invited Lecture on Robotics and Allied Mechanical Components in an on-line course organized by CDAC Kolkata, 22nd to 28th September 2021
32. Invited Lecture on *Intelligent Optimization Tool,* in FDP on Emerging Optimization Techniques for Engineering Applications by IIITDM Kurnool, AP, 21.4.2021
33. Invited Lecture on *Intelligent Robots,* in FDP organized by IGIT Sarang, Odisha, 8-th Feb., 2021
34. Invited Lecture on *Digital Transformation,* organized by IISCO Steel Plant, Burnpur, 19-th Feb., 2021
35. Invited Lecture on *Neural Networks- and Fuzzy Logic-based Optimization*, in ATAL Academic Programme on "Optimization Technique in Engineering Application at NIT Jamshedpur, 19-th- 20-th Jan 2021
36. Keynote Lecture on *Intelligent Robots,* in ICoFT 2020, NIT Puduchery, 30-th Dec., 2020.
37. Invited Talk on *DH-parameters and Robot Kinematics,* STTP organized by IIT Roorkee, 3.12.2020.
38. Invited Lecture on *Input-output modeling of manufacturing processes,* FDP organized by VSST, Burla, Odisha on 19-th and 20-th Nov., 2020
39. Invited Lecture on *Computational intelligence in robots,* STTP organized by Shree Ramchandra College of Engineering, Pune
40. Invited Lecture on *Uncertainty modeling using fuzzy sets and fuzzy logic,* Short-Term Course (on-line), organized by NIT Rourkela on 28.9.2020
41. Invited Lecture on *Recent trends of optimization techniques,* Short-Term Course (on-line) organized by MCKVIE, Liluah, Howrah on 5.10.2020
42. Invited Lecture on *Incorporating intelligence in robots,* Short-Term Course (on-line) organized by NIT Durgapur on 6.10.2020
43. Keynote Address: Humanoid Robots in Workshop on Systems and Technologies for Advanced Robotics – Futuristic Perspective, Pune, organized by R&D (Engrs.), 30-31 Aug. 2019
44. Keynote Address: Rehabilitation Robotics, in ICAMME Conference, KIIT Bhubaneswar, 15-th March, 2019
45. Invited lecture on Rehabilitation Robotics in Workshop on Robotics and Assistive Technologies on 3.1.2019.
46. Eminent Alumni Lecture on *Role of computational intelligence in robotics research* at NIT DGP on 4.5.2018.

47. Invited Lecture on *Role of optimization in business research* at MDC and VRS, 2018, March 14, 2018, IIT KGP
48. Invited lecture on *Design and development of intelligent and autonomous agricultural robots*, National Seminar on "Trends and Applications of ICT in Agriculture (TRACT)" on 13.3.2018
49. Invited Lecture on *Fundamentals of Neural Networks* at RKM Narendrapur on 5-th Jan., 2018.
50. Invited Lecture on *Introduction to Robotics and its Applications*, 24th March 2018, Midnapore Collegiate School
51. Invited Lecture on *GA vs. PSO for Optimization Problems* at NIT DGP (SCOTEES) on 16th Oct. 2017
52. Invited Lecture on *Realizing the need for intelligent optimization tool* at TOPAS2017 Conference at IIT KGP on 17.12.2017
53. Invited Lecture on *Humanoid body control* at NIT Rourkela, 26th August 2017.
54. Invited Lecture on *Multiobjective optimization using genetic algorithms* at NIT DGP, 25-th March 2017.
55. Keynote Address lecture on *Need for robust, intelligent and fast optimization tool* at MicroCom2016 Conference held at NIT DGP, 23rd January 2016.
56. Invited Lecture on *Fundamentals of soft computing and a few applications* at CV Raman College of Engineering, Bhubaneswar, 10th June, 2015.
57. Invited Lecture on *Intelligent data mining using soft computing* at VGSOM, IITKGP, 11th Feb. 2015.
58. Keynote Address on *Role of soft computing to develop intelligent robots* at Kalyani University, India, 9-th Jan., 2015.
59. Invited Talk on *Intelligent data mining using computational intelligence* in ICCIDM'14 Conf., 20-th December, 2014 at Burla, India
60. Plenary Talk on *Future applicatons of robotics in industries* in ISIOPAC-II Conf., 13-th December 2014 at MECON, Ranchi, India
61. Invited Lecture on *Concepts of fuzzy sets, fuzzy reasoning, classification and clustering* in Workshop of Computational Intelligence, 27th June, 2014, at KIIT Bhubaneswar, India
62. Invited Lecture on *Role of soft computing to design and develop intelligent robots* in 1st SERB-DST Summer School on Robotics, 7th June, 2014, at IIIT Allahabad, India
63. Invited Lecture on *Do we really need so many optimization tools?* in Workshop on Advanced Optimization Tools and Applications (OTA2014) held at NIT Durgapur, India, on 10th June 2014
64. Invited Lecture on *Realizing the need for intelligent optimization tool* in Intl. Workshop on Optimization in Engineering, OPTENG2014, May 30th, 2014, BUIE, Bankura, India
65. Invited Lecture on *Design and development of intelligent robots* in a National Conference on Mechatronics, Robotics and Automation, held at Bankura Unnayani Engineering College, Bankura, India, 23rd January 2014.
66. Invited Lecture on *Modeling and analysis of mechanical systems using soft computing* at the Short-term Course held at College of Engineering and Management, Kolaghat, India, 16th January 2014.
67. Invited Lecture on *Design optimization* in a Short-term Course held at NIT, Durgapur, India, 10th January 2014.
68. Keynote address on *Introduction to optimization, a few tools and some applications* at the National Workshop on Optimization and Applications, CMERI, Durgapur, India, 13th September 2013.
69. Keynote Lecture on *Introduction to soft computing and its applications* at the Workshop: OTA-2013 held at NIT Durgapur, India, 5 August 2013.
70. Invited Lecture on *Modeling and simulations of robotic systems using soft computing* in a Short-Term Course on "Advances in Robotics and Mechatronics" at CEMK, Kolaghat, India, June 2013.
71. Invited Lecture on *Use of soft computing in engineering solutions* at ME Department, NIT Durgapur, 28th June 2013.
72. Invited Lecture on *Applications of Soft Computing in Robotics and Manufacturing Science* in a Workshop on "Soft Computing and Applications" held at ITER, Bhubaneswar, India, 13-15 January 2011.

73. Invited Lecture on *Traditional Vs. Non-Traditional Optimization Techniques* in a Workshop on "Advances in Computational Optimization and Applications" held at NIT Durgapur, 8-12 November, 2010.
74. Invited Lecture on *Electron Beam Micro-Welding*, AICTE-BARC sponsored Short-term Course on "Micromanufacturing" held at IIT Kanpur, 2-8 September, 2010.
75. Guest Lecture on *Design and Development of Intelligent and Autonomous Robots* in a Seminar on Intelligent System and Robotics, at St. Thomas College of Engineering and Technology, Kolkata, 26th – 29th March 2010.
76. Invited Lecture on *Design and Development of Adaptive Robot Motion Planner* in IEEE Conference on Computational Intelligence, Control and Computer Vision in Robotics & Automation (CICCRA-2008), March 2008, NIT Rourkela, Orissa, India.
77. Keynote Address: *Soft Computing: An Overview* in the DST-sponsored Seminar on "Applications of Soft Computing in Mechanical Engineering," Siddartha Engineering College, Vijayawada, AP, India, 28-29 January 2008.
78. Invited Lecture on *Robot Motion Planning Using Soft Computing* in the Short Term Course held at BE College, Shibpore, Howrah, 7th January 2006.
79. Invited Lecture on *Soft computing and its applications in hydraulic control systems* in the short term course entitled "Recent Advances in Hydraulic Control Systems" held at Jadavpur University, Kolkata, 7th July 2005.
80. Invited Lecture on *Applications of soft computing in robot motion planning* in the short term course entitled "Computational Intelligence and its Applications" held at NIT, Durgapur, May, 2005

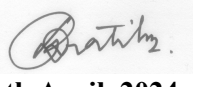
THESIS EXAMINATION OF OTHER UNIVERSITIES/INSTITUTES; MEMBER OF ASSESSMENT COMMITTEE; MEMBER OF EXPERT COMMITTEE:

- **Ph.D.**: 4 (JU,Kolkata) + 3 (BESU, Shibpur) + 2 (University of South Australia) + 1 (NIT, Durgapur) + 3 (IIT, Kanpur) + 1 (Swinburne University of Technology, Australia) + 1 (Sikim Manipal University) + 2 (MNIT, Allahabad)+9 (NIT, Rourkela) + 4 (IIITA) + 2 (IITM) +1 (BITS Pilani) + 1 (IIITHyd.) + 1 (CSIR-CMERI)
- **M.Tech.**: 1 (JU, Kolkata); 3 (IIIT Allahabad); 9 (IEM, IIT KGP); 1 (NIT, Rourkela); 3 (EE, IITKGP); 1 (IITM); 5 (NITDGP) ; 1 (CS, IITKGP, MS)
- Member of the Assessment Committee held at CGCRI, Kolkata (on 22.4.2009)
- Member of the Assessment Committee held at CGCRI, Kolkata (on 27.2.2010)
- Member of the Expert Committee for faculty selection at NIT, Rourkela, 2013
- Member of the Expert Committee for selection of Supdt. of Workshop, BESU, Shibpur (on 18.7.14)
- Member of the Expert Committee of IIEST, Shibpur (16.2.2015)
- Member of the Expert Committee for faculty selection at NIT Rourkela (21-22.4.2015); 2017
- Member of the Expert Committee of AMT Panel, DST
- Expert of Academic Council, NITTTR Kolkata, 2018
- Expert of TATA Endowment Fellowship, 2018
- Expert of Faculty Selection Committee, IIT Bhilai, 2018, 2019, 2021
- Expert of M.Tech. Curriculum Committee, IIT Palakkad, 2019
- Expert of Faculty Selection Committee, IIPE, Vizag, 2019
- Expert of Faculty Selection Committee, IIEST, Shibpur, 2019
- Expert of Faculty Progression Committee, IIT Bhilai, 2020
- Member of Selection Committee, IGIT Sarang, 2020
- Expert of Faculty Progression Committee, IIT Bhilai, 2022
- Member of the Faculty Selection Committee, IIT Madras, 2024
- Official Nominator of the VinFuture Prize, a Global SCI-Tech Prize, Vietnam

- General Chair, icSoftComp2024, Sixth Intl. Conf. on Soft Computing and its Engineering Applications, Dec., 2024

ADMINISTRATIVE WORK:

1. Associate Dean (FoBTBS), IIT Kharagpur, w.e.f. 02.02.2024
2. Member of the Committee responsible for studying the pParadigm Shift in Teaching..
3. Member of the Board of STEP, IIT Kharagpur, 2024
4. Member of the Committee to examine the Draft Base Document of IIT Kharagpur Research Park Foundation
5. Member of the Computer Purchase and Network Maintenance Committee (CP & NMC) for 1year w.e.f. 26.07.2023
6. Member of the Committee for the Selection of Chanakya Fellowship and Position (AI4ICPS2. PIC, Examinations: October 2019- September 2023
7. Coordinator, NRC-ME 2019-
8. Prof.-in-Charge of Centre for Robotics: 2018-2021.
9. Faculty Adviser of UG (ME Department): 2003–2007.
10. Prof.-in-Charge of Central Time-Table of the Institute: 2009–2013.
11. Member of Departmental Time-Table Committee: 2003–2009.
12. Member of a Sub-Committee responsible for looking into the issues related to subject deregistration/revocation, additional subject registration, minor registration, late registration etc..
13. Member of a Sub-Committee responsible for looking into the issues related to malpractices during examination.
14. Member of Write-off Committee of ISE, IIT KGP.
15. Member of Thin Specialization Committee
16. Chairman, UGPEC, Mechanical Engg. Deptt., 2015-2018
17. Member of a Sub-Committee for handling the cases of academically weak students



17-th April, 2024

Dilip Kumar Pratihar