Name: Pushparaj Mani Pathak

Designation: Associate Professor

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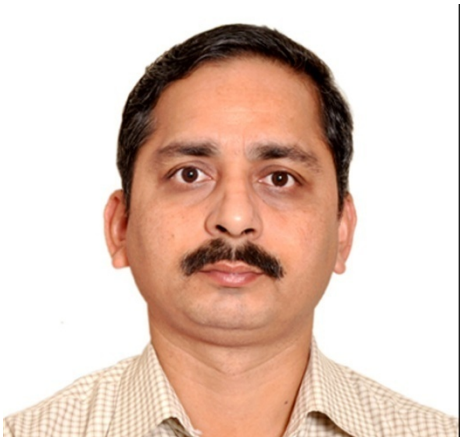


Areas of Specialisation
Robotics, Dynamics, Control, Bond graph modeling, Design

Education

Degree	Discipline/ Specialisation	Institution	Year
Ph.D.	Space Robotics	Indian Institute of Technology, Kharagpur	2005
M.Tech	Solid Mechanics & Design	Indian Institute of Technology, Kanpur	1998
B.Tech	Mechanical Engg.	National Institute of Technology, Calicut	1988

Teaching Experience

Duration	Designation	Organisation	Area(s)
23-02-2006-Continuing	Assistant Professor	I.I.T. Roorkee	Robotics, CAD, Mechatronics, Machine Design, Machine Drawing, Engineering Graphics
07-01-2004-22-02-2006	Reader	Indira Gandhi Government Engineering College, Sagar	Machine Design, Dynamics of Machines, Vibration, Modelling & Simulation, Mechatronics
01-11-2002 – 06-01-2004	Senior Lecturer	Indira Gandhi Government Engineering College, Sagar	Machine Design, Dynamics of Machines, Vibration, Modelling & Simulation
07-01-1999 – 31-10-2002	Senior Lecturer	Government Engineering College, Raipur	Mechanics of solids, Machine Design, CAD, Engineering Graphics, Engineering Mechanics
07-01-1994 – 06-01-1999	Lecturer	Government Engineering College, Raipur	Mechanics of solids, Machine Design, CAD, Engineering Graphics, Engineering Mechanics

Industrial Experience

Duration	Organisation	Area(s)
11-06-1990 to 06-01-1994	Western Telecom region, Pithampur (Madhya Pradesh)	Maintenance of UHF & Microwave equipments
	Western Telecom region, Seoni (Madhya Pradesh)	Maintenance of coaxial Telecom transmission equipments
16-10-1989 to 30-06-1990	Regional Telecom Training Center, Hyderabad	Maintenance of Telecom transmission equipments
02-1989 to 06-1989	Gajra Gears Limited	Design of Spur and Helical gears

Prizes/Medals/Awards/Honours

- Member International Federation for the Promotion of Mechanism and Machine Science (IFToMM) Technical committee for Multi Body Dynamics.
- Declared one of the top ten teams in India in best B Tech project 2011 by QuEST Ingenium Design Contest 2011 held at Bangalore.(Role: project supervisor).
- Best paper award in the 4th International Conference on Integrated Modeling and Analysis in Applied Control and Automation (IMAACA 2010), Fes, Morocco.
- B Tech best project award 2009,(Role: project supervisor).
- Chaired session on Dynamics and Control session of NACOMM 2011 held at IIT Chennai.
- Chaired session on Robotics and Control session of NACOMM 2009 held at NIT Durgapur.
- Paper Figure on cover page of proceeding of 9th International conference on Bond Graph Modelling and Simulation (ICBGM 2009), Orlando, Florida.
- Worked as organizing secretary for one week science day celebration program at Indira Gandhi Engineering College, Sagar. Program was sponsored by Govt. of India & Madhya Pradesh Council for Science & Technology.
- Sponsored in March 2004 by AICTE, CSIR and IIT Kharagpur for paper presentation at 15th International Conference on Modelling and Simulation, organized by Association of Science and Technology for Development (IASTED), at Marina Del Ray, California.

Reviewer in following journals

- Robotics and Computer Integrated Manufacturing
- International Journal of Computer and Graphics
- Journal of Simulation Modelling Practice and Theory
- Journal of Sound and Vibration.
- International Journal of Simulation
- International Journal of Systems
- The Vibration Institute of India (Journal)
- Journal of Aerospace Sciences and Technologies

Reviewed the following books

- Industrial Robotics by Groover, Weiss, Nagel, and Odrey, for McGraw Hill

- Mechanical Vibrations by S. Grahm Kelly, for McGraw Hill
- Bond Graph in Modeling, Simulation and fault Identification. A. Mukherjee, R. Karmakar and A.K. Samantaray, CRC Press, FL, 2006, for Association of Machines and Mechanisms Newsletter.
- Reviewer for Applied Mechanics course under *National Mission Project on Education through ICT*, Ministry of Human Resource Development, Government of India, Anchored by: Indian Institute of Technology, Kharagpur

Reviewer in following conferences

- National Conference on Machines and mechanisms 2011
- The 5th International Conference on Integrated Modeling and Analysis in Applied Control and Automation (part of the 8th International Mediterranean and Latin American Modelling Multiconference I3M2011); September 28-30, 2011, Rome, Italy.
- National Conference on Machines and mechanisms 2009
- IEEE Region 10 Colloquium and Third International Conference on Industrial and Information Systems, 8-10 December 2008, IIT Kharagpur, India.
- XXXII NATIONAL SYSTEMS CONFERENCE NSC – 2008 December 17-19 2008, Roorkee
- Sixth (6th) International Conference of Numerical Analysis and Applied Mathematics, Greece, 2008
- National Conference on Design, Dynamics and Manufacturing (NCDDM-07), SLIET, Longowal, Punjab, 2007.
- Second international Congress on Computational Mechanics and Simulation, December 8-10, 2006, I.I.T. Guwahati.
- First International & 22nd All India manufacturing, technology, Design and Research Conference, Dec 21-23, 2006, IIT Roorkee.

Member Editorial Board

Journal of Intelligent Control and Automation,
International Journal of Artificial Intelligence and Computational Research (IJAICR)

Member International/National Advisory Bodies

- The 6th International Conference on Integrated Modeling and Analysis in Applied Control and Automation (part of the 9th International Mediterranean and Latin American Modelling Multiconference I3M2011); September 19-21, 2012, Vienna, Austria.
- The 5th International Conference on Integrated Modeling and Analysis in Applied Control and Automation (part of the 8th International Mediterranean and Latin American Modelling Multiconference I3M2011); September 28-30, 2011, Rome, Italy.
- Industrial. Problems on Machines and. Mechanisms (IPRoM 2010) at NIT Jaipur.
- Member national advisory, National Conference on Design, Dynamics & manufacturing (NCDDM-07, SLIET, Longowal (Punjab), March 2007.

- Member Internal program/advisory body International Conference on Emerging Technologies and Applications in Engineering Technologies and Sciences, 13-14 January 2008.

Membership of Professional Bodies
Association of Machines and Mechanisms (AMM)

Other Activities/Responsibilities:
- Organising secretary, National Conference on Machines and Mechanisms (NACOMM 2013)
- Staff advisor, Model and Robotics, Hobbies Club (2006-continuing).
- In charge Robotics & Control Laboratory (2006-continuing).
- In charge maintenance (East Block), Mechanical and Industrial Engineering Department (July 2010-continuing)
- Staff adviser IIT Roorkee ROBOCON team (2009, 2010, 2011, 2012)
- Coordinator, project of CAD, CAM & robotics M. Tech students
- Coordinator- CE 101-Engineering Graphics (2010)
- Coordinator- MI-261-Machine Drawing (2010, 2011)
- Member Department research committee(2006-2008)
- Member Department under graduate committee(2007-2008)
- Member for personal interview board, MBA admissions: IIT Roorkee 2009, 2010.
- Member AIMTDR sub-committee on inauguration and valedictory, technical sessions, proceedings (2006).
- Organised brain storming session on Mechatronics Curricula Design for Different Levels of Technical Education, event sponsored by Project No. MIT-249-MSD, "National competitiveness in the knowledge economy on 18th September 2010.

Ph.D. Dissertations Guided

S.No.	Name	Year of Completion	Title of Thesis	Co-guides
1	Amit Kumar	2010	Modelling and Simulation of Vision based Control of Space Robot	Dr. N. Sukavanam (Mathematics Deptt.)
2	V. L. Krishnan	2011	Modelling and Control of Walking Robots with Flexible Legs	Prof. S.C. Jain (MIED.)
3	Haresh Patolia	2012	Modelling and Control of Dual Arm Space Robots	Prof. S.C. Jain (MIED.)
4	Prabha Kiran	2012	Studies in Stirred Cast Alluminum Alloys.	Dr. D. K. Dwivedi MIED, IIT Roorkee
5	Mihir	On going	Design and Control of In Vivo Robot	Dr N.K. Mehta MIED, IIT Roorkee
6	Atul	On going	Reverse Engineering	Prof. P.K. Jain (MIED)
7	Vivek	On going	Dynamics and Control of Rail Vehicle	Dr. Vikas Rastogi (SLIET Longowal)

8	Mehul Gor	On going	Fault Tolerant Control and Reconfiguration of Walking Robots with Flexible Legs	----
9	Vijay	On going	Space Robots: Dynamics & Control	----

M. Tech Dissertations Guided

S.No.	Name	Year of Completion	Title of Thesis	Co-guides (if any)
1	Sonam	2012	Modelling and Control of Bionic Arm	Prof B.K. Mishra MIED
2	Rohit Khandekar	2012	Reconfiguration of Walking Robots	-
3	Osmah	2012	Control of In Vivo Robots	-
4	Anand Kumar Mandal	2012	Advances in Hybrid Joining Technique	Dr. D. K. Dwivedi MIED, IIT Roorkee
5	Ganesh Kumar K.	2011	Dynamic Modelling and Trajectory Planning of four Legged Walking Robot with Flexible Legs	-
6	Rishikesh Rameshchandra Rathee	2011	Dynamic Modelling and Trajectory Planning of Dual Arm Free Flying Space Robot	-
7	Jatin Mania	2010	Creation of Virtual Objects to be Used with Haptic Device for Motor Rehabilitation	Dr. B. K. Mishra MIED, IIT Roorkee
8	Pushpendra Kumar	2010	Modelling and Dynamic Analysis of Rocker Bogie Rover for Space Exploration	--
9	Balkrishna V. Jagdale	2010	Dynamic Modelling and Experimental Studies on Four Legged Walking Robot	--
10	Lalit Karalia	2010	Fracture Studies of Ultra Fine Grained Al Alloys	Dr. I.V. Singh MIED, IIT Roorkee
11	Mahesh Gupta	2009	A Scheme for Reconfigurability of Mobile Robots	Dr. D. K. Dwivedi MIED, IIT Roorkee
12	Narendra Kumar	2009	Modelling of Residual Stresses in Butt Weld of Stainless Steel-304 Using FEM and It's Experimental Validation	Dr. D. K. Dwivedi MIED, IIT Roorkee
13	Prasanta Kumar Mahanta	2009	Fracture and Fatigue Studies of Stir Cast Al-Si-Mg Alloys	Dr. D. K. Dwivedi MIED, IIT Roorkee
14	Abhijit V. Deokar	2009	Trajectory Tracking of an Unmanned Air Vehicle	Dr. S P. Harsha MIED, IIT Roorkee

15	Sreenadha Reddy K.	2008	Control of In Vivo Robots in Workspace for Biopsy	Dr. A. K. Sharma, MIED, IIT Roorkee
16	Deshpande Nachiket Prakash	2008	Modelling and Trajectory Control of Multi Arm Planar Space Robot	Prof. S. C. Jain MIED, IIT Roorkee
17	Abhishek Pyasi	2008	Analysis of Buckling Performance of Laminated Cylindrical Shell with Cutout	Dr. Inderdeep Singh MIED, IIT Roorkee
18	Vijay Kumar Ojha	2008	Analysis and Control of Unbalance in Raw Mill Separator due to Wear.	Dr. D. K. Dwivedi MIED, IIT Roorkee
19	G Surya Kiran	2008	Dynamic Modelling and Trajectory Control of Co-operative Flexible Space Robot System	Dr. N. Sukavanam, Dept. of Mathematics, IIT Roorkee
20	Bende Vikrant Vinay	2008	Trajectory and Attitude Control of Underwater Robot for Minimum Energy Consumption	Dr. S P. Harsha MIED, IIT Roorke
21	M. Satish Chandra	2008	Tool Path Generation for Freeform Surfaces	Prof. N. K. Mehta MIED, IIT Roorkee
22	Raj Kumar Jain	2007	Design and Fabrication of Planer Space Robot	-
23	Kedar Dixit	2007	Dynamic Modelling and Control of Underwater Robot	-
24	Abhay Joshi	2007	Modelling and Simulation of Six Legged Walking Robot	-
25	Bhupendra Chandekar	2007	Modelling and Dynamic Analysis of Biocomatible Robotic Arm	Dr. A.K. Sharma MIED, IIT Roorkee
26	Santosh Bhangare	2007	Development of Meaningful Discretization Scheme for Finite Element Analysis of Stress Concentration Problem	-
27	Harshal Kumar Bhange	1999	Analysis of Drip Irrigation Submain Unit by Finite Element Method	Shri A.P. Mukherjee, Dr. R.R. Saxena, Dr. S. Patel

B. Tech Dissertations Guided

S.No.	Name	Year of Completion	Title of Thesis	Co-guides (if any)
1	Ankit Katiyar Tanvir Kaur (Electrical Engg. Deptt.)	2012	Model Predictive Control of a Robot	Dr. G. N. Pillai Electrical Engg. Deptt.

2	Subrot Kant Bera (Electrical Engg. Deptt.)	2012	Fuzzy Logic Control of a Robotic Arm	Dr. G. N. Pillai Electrical Engg. Deptt.
3	Saurabh Gupta Achin Garg Chandrasen Vikram	2011	Design and Development of In Vivo Robot for Biopsy	Dr. A.K. Sharma MIED, IIT Roorkee
4	Ankur Bansal Somnath Das (Electrical Engg. Deptt.)	2011	Design of Controller for a Robotic Arm	Dr. G. N. Pillai Electrical Engg. Deptt.
5	Shailabh Suman, Sunil kumar Yadav	2009	Fabrication of Low Cost EMG Controlled Prosthetic Hand	Dr. D. K. Dwivedi MIED, IIT Roorkee
6	Himanshu Lohani, Anshul Pandey, Anurag Mittal	2009	Dynamics of a Four Legged Walking Robot	-
7	Apoorv Bhargava, Ravi Prakash Sharma, Vipin Agrawal	2008	Low Cost Automation	Prof. S.C. Jain, MIED, IIT Roorkee
8	Rahul Maheshwari, Rahul Gupta, Rachit Jaiwant	2007	Design and Control of Cooperative Space Robots	-

Short Term Courses Organised

S.N.	Title of Course	Institute	Duration	Co-Coordinator
1	Modelling & Simulation of Mechatronic Systems	IIT Roorkee	June 18-22, 2007	Prof. B. K. Mishra MIED, IIT Roorkee
2	Dynamics and Control of Robots	IIT Roorkee	April 15-19, 2008	Dr. N. Sukavanam Maths Deptt.
3	Computer Aided Design for Mechanical Engineering curricula	IIT Roorkee	December 21-25, 2009	Prof. B. K. Mishra MIED, IIT Roorkee

Brain Storming Session Organised on

Mechatronics Curricula Design for Different Levels of Technical Education on 18th September 2010.

Organising special and invited session/track on

Bond Graph Modeling, Simulation and Applications; Chair: P.M. Pathak and Anand Vaz, India at the 5th International Conference on Integrated Modeling and Analysis in Applied Control and Automation; part of the 8th International Mediterranean and Latin American Modelling Multiconference I3M2011; September 12-14, 2011; Ergife Palace Hotel, Rome, Italy

Research Projects

Period	Sponsoring Organisation	Title of Project	Amount of Grant	Co-Investigators (if any)
November 2011	Department of Science and Technology, (DST), Government of India And Ministry of Education, Science & Technology of the Republic of Korea	Fault Tolerant Control and Reconfiguration of Walking Robots with Flexible Legs	` 19.64 Lacs	A. K. Samantaray, IIT Kharagpur Jung-Min Yang Catholic University of Daegu, South Korea Seong Woo Kwak, Keimyung University, , South Korea
November 2009	Department of Science and Technology, (DST), Government of India	Design and Development of Miniature Robot for Biopsy and In Vivo Surgery	Rs. 25.14 Lacs	Dr. A. K. Sharma Prof N. K. Mehta Dr Vinay Gupta(MD) (Vinay Nursing Home, Roorkee)
January 2009	Indian Space Research Organisation (ISRO)	Modelling, Simulation and Control of Space Robots	Rs. 5.92 Lacs	Prof. S.C.Jain MIED
June 2008	Sponsored Research & Industrial Consultancy (SRIC), IIT Roorkee	Adviser for ROBOCON 2009 IIT Roorkee Team	Rs. 1.6 Lacs	-
June 2008	Sponsored Research & Industrial Consultancy (SRIC), IIT Roorkee	Walking Robot With Flexible Legs	Rs. 7.5 Lacs	
January 2007	Sponsored Research & Industrial Consultancy (SRIC), IIT Roorkee	Design & Fabrication of a Planer Cooperative Space Robot	Rs. 1.0 Lacs	-

Consultancy Projects

S No.	Title of Project	Funding Agency	Financial Outlay	Year of start & total period	Name of P.I. and other investigators	Status Started or completed or in progress
1	BOPET Film Manufacturing Equipment Design Study, Gap Analysis and New Design	SRF limited, Kashipur	5.75 Lacs	2009	Prof. V. K. Agrawal (PI), Chemical Deptt. Dr. C.B.	Completed

2	Dynamics and Control of Robots	AICTE recognized institutes	0.97 Lacs	April 2008	N. Sukavanam (co-cordinator)	Completed
3	Root cause analysis of problems caused by excessive of separator fan and related imbalance	ACC,Gaggal (HP)	0.62 Lacs	2008 (one month)	Umesh Sharma (PI)(CED) P.M. Pathak (CI) D.K. Dwivedi	Completed
4	Recommendation to lower the vibrations caused by erosive wear in separator fan	ACC,Gaggal (HP)	3.93Lacs	2008	P.M. Pathak (PI) D.K. Dwivedi (CI)	Completed

Administrative Experience

Period	Organisation	Nature of Responsibility
One year	Government Engg. College, Raipur	Hostel Warden
Two year	Government Engg. College, Raipur	Assistant Superintendent University Examinations
One year	Indira Gandhi Engg. College, Sagar	College campus water supply in charge
Six months	Indira Gandhi Engineering College, Sagar	Deputy Coordinator (Nodal Center), RGPV, Bhopal
Three Year	I.I.T. Roorkee	Staff Adviser, robotics and Model Section, Hobbies Club
Five Year	I.I.T. Roorkee	OC, Robotics & Control Lab
Two Year	I.I.T. Roorkee	Member Department Research Committee
One Year	I.I.T. Roorkee	Member Department Undergraduate Committee

Special Lecture Delivered

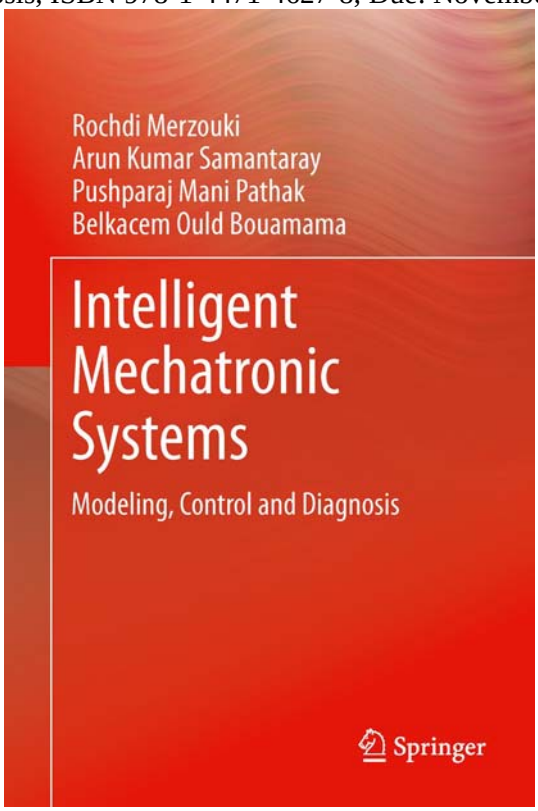
Title of Lecture	Date	Place
Bond Graph Modeling and Control of Rigid and Flexible Legged Walking Robots	20 Jan 2012	DRDO, R&DE(E), Pune
Modelling of Robots	January 2011	SLIET, Lonowal, Punjab
Modelling of Space Robots	January 2009	NIT Jalandhar
Solid Modelling	January 2008	IIT Roorkee
Advance Robotics	February 2008	NIT Hamirpur
Failure Predictions. When to take corrective actions?	2007	IIT Roorkee
Examples of Mechatronic System Modelling	June 2007	IIT Roorkee
Multi body system & Approaching Control system	June 2007	IIT Roorkee
Modelling of Mechanical & Electrical Systems	June 2007	IIT Roorkee
Introduction to Mechatronic Systems	June 2007	IIT Roorkee

Modelling & Simulation of Robots	2005 (February)	Indira Gandhi Engineering College, Sagar (M.P.)
Bond Graph Modelling of Dynamic Systems	2004 (December)	Government Engineering College, Raipur

Publications

Book

R. Merzouki, A. K. Samantaray, P. M. Pathak, B. Ould Bouamama, Intelligent Mechatronic Systems: Modeling, Control and Diagnosis, ISBN 978-1-4471-4627-8, Due: November 30, 2012



Book Chapter

Shailabh Suman, Sunil Kumar, Pushparaj Mani Pathak, Development of Low Cost Electromyography (EMG) Controlled Prosthetic Hand, *Mechatronic & Innovative Applications*, 2012, 37-54

Papers

2012

1. Coralie Escande, Rochdi Merzouki, Pushparaj Mani Pathak and Vincent Coelen, Geometric Modelling of Multisection Bionic Manipulator: Experimental Validation on RobotinoXT, IEEE International conference on Robotics and Biommetics (ROBIO12), December 11-14, 2012, Guangzhou, China.

2. K. Ganesh, Pushparaj Mani Pathak, Modelling and Simulation of Four Legged Jumping Robot with Compliant Legs in Sagital Plane, Robotics and Autonomous Systems, Accepted.
3. J. M. Yang, S. W. Kwak, P. M. Pathak, A. K. Samantaray, Enhancing Stability of Fault-Tolerant Gaits of a Quadruped Robot Using Moving Appendage, 3rd International Conference on CIRCUITS, SYSTEMS, CONTROL and SIGNALS (CSCS '12), Barcelona, Spain October 17-19, 2012, accepted
4. M. M. Gor, P. M. Pathak, A. K. Samantaray, Jung-Ming Yang, Seong Woo Kwak, Jacobian based control of walking robot with compliant legs, The 6th International Conference on Integrated Modeling and Analysis in Applied Control and Automation, Part of I3M'2012, The 9th International Multidisciplinary Modeling & Simulation Multiconference, Wien, Austria , September 19-21, 2012, pp.171-177.
5. Sonam Behl, Coralie Escande, Pushpraj Mani Pathak, Rochdi Merzouki, Bhanu Mishra, Dynamic Modelling of Multi Section Bionic Manipulator: Application To Robotino-XT, The 6th International Conference on Integrated Modeling and Analysis in Applied Control and Automation, Part of I3M'2012, The 9th International Multidisciplinary Modeling & Simulation Multiconference, Wien, Austria , September 19-21, 2012, pp.247-252.
6. Haresh Patolia, P. M. Pathak, S. C. Jain, Reduced Model Based Trajectory Control of Multi-Arm Space Robot, Journal of Advances in Vibration Engineering, Accepted.
7. Lalit Kralia, I. V. Singh, P. M. Pathak, and R. Jayaganthan, An Experimental Study of Mechanical and Fatigue Behavior of Cryorolled Al 6063 Alloy, International Journal of Mechanical and Materials Engineering, accepted.
8. Mihir Kumar Sutar, P. M. Pathak, A. K. Sharma, N. K. Mehta, V. K. Gupta, Forward kinematic analysis of in-vivo robot for stomach biopsy, J Robotic Surg, DOI 10.1007/s11701-012-0375-y, 2012
9. Vikrant Bende, Pushparaj M Pathak, Kedar S Dixit and SP Harsha, Energy optimal trajectory planning of an underwater robot using a genetic algorithm, Proc IMechE Part I: J Systems and Control Engineering, published online
10. P. Kaur, D.K. Dwivedi, and P.M. Pathak, Effects of electromagnetic stirring and rare earth compounds on the microstructure and mechanical properties of hypereutectic Al-Si alloys. *International Journal of Advanced Manufacturing Technology,* 1-6, 2012.
11. V.L. Krishnan, P.M. Pathak, S.C. Jain, and A.K. Samantaray, Reconfiguration of four-legged walking robot for actuator faults. *Proceedings of the Institution of Mechanical Engineers.Part I: Journal of Systems and Control Engineering, 226*(1), 11-26, 2012.
12. H. Patolia, P.M. Pathak, and S.C. Jain, Design of a virtual foundation for impedance control in a dual arm cooperative space robot. *Simulation, 88*(6), 731-745, 2012.
13. Mihir Kumar Sutar, **P.M. Pathak**, A. K. Sharma, N. K. Mehta, V. K. Gupta, Bond graph modelling of in vivo robot for biopsy, MATHMOD 2012 -7th Vienna International Conference on Mathematical Modelling, February 15 - 17, 2012
14. Mihir Kumar Sutar, Achin Garg, Chandra Sen Vikram, Saurabh Gupta, **P.M. Pathak**, A. K. Sharma, N. K. Mehta, V. K. Gupta, Design of *In-Vivo* Robot for Biopsy, International Conference on Microactuators and Micromechanism, Jan 19-20, 2012, CMERI, Durgapur.

2011

1. Prabhkiran Kaur, Dheerendra K. Dwivedi, **Pushparaj M. Pathak**, Sergio Haro Rodriguez, An effect of Electromagnetic stirring and Cerium oxide addition on dry, sliding and reciprocating wear of Al-Si alloy, Proceedings of the Institution of Mechanical Engineers, Part J, Journal of Engineering Tribology, 226(3) 251–258, 2011.
2. Prabhkiran Kaur, D K Dwivedi, P M Pathak, An effect of electromagnetic stirring on microstructure, mechanical properties and wear behavior of 390 aluminium-silicon alloy, International Conference on Advances in Materials and Materials Processing, IIT Kharagpur Dec 9-11, (*Accepted*)
3. Mihir Kumar Sutar, **P.M. Pathak,** Kinematic Analysis of In-Vivo Robot for Stomach Biopsy, International conference on soft computing for problem solving, IIT Roorkee, December 20-22, 2011, accepted.
4. Ganesh Kumar and **P. M. Pathak**, Dynamic Modelling and Simulation of Four Legged Walking Robot with Flexible Legs, NACOMM, IIT Chennai, November 30- December 2, 2011, accepted.
5. Vivek Kumar, Vikas Rastogi and **Pushparaj Mani Pathak**, Modeling and simulation of rail wheelset on irregular tangent track for stability analysis, International conference on soft computing for problem solving, IIT Roorkee, December 20-22, 2011, accepted.
6. Rishikesh Rathi and **P. M. Pathak**, Trajectory Planning of Dual Arm Free Flying Space Robot using Polynomial Approach, NACOMM, IIT Chennai, November 30- December 2, 2011, accepted.
7. Coralie Escande, **P. M. Pathak**, Rochdi Merzouki and Vincent Coelen, Modelling of Multisection Bionic Manipulator: application to RobotinoXT, IEEE International conference on Robotics and Biomimetics, Phuket, Thailand, 2011, pp. 92-97.
8. V. L. Krishnan, **P. M. Pathak** and S. C. Jain, Study of coupled dynamics between body and legs of a four legged walking robot, The 5th International Conference On Integrated Modeling And Analysis In Applied Control And Automation (IMAACA 2011), Rome, Italy, pp.98-107.
9. Amit Kumar, Pushparaj Mani Pathak, N. Sukavanam, Bond Graph Modeling and Computational Control Analysis of a Rigid-Flexible Space Robot in Work Space, International Journal of Intelligent Mechatronics and Robotics (IJIMR), pp. 18-30, 2011.
10. Amit Kumar, **Pushparaj Mani Pathak**, N. Sukavanam, Reduced Model Based Control of Two Link Flexible Space Robot, *Intelligent Control and Automation*, 2011, 2, 112-120
11. Pushpendra Kumar and **Pushparaj Mani Pathak**, Dynamic Modeling, Simulation and Velocity Control of Rocker-Bogie Rover for Space Exploration, International Journal of Intelligent Mechatronics and Robotics (IJIMR), 1(2), 2011, 27-41.
12. Haresh Patolia, **P. M. Pathak** and S. C. Jain, Reduced Model-Based Trajectory Control of Multi-Arm Space Robot, International Conference on Multi Body Dynamics 2011,Vijayawada, India. pp. 83–97.

2010

1. V. L. Krishnan, **P. M. Pathak**, S. C. Jain, Force Control at the Body of a Flexible Legged Monopod Robot, 10th National Conference on Industrial Problems on Machines and Mechanisms, (IPRoMM-2010) December 17-18, 2010, Malaviya National Institute of Technology Jaipur, pp.51-56.
2. V. L. Krishnan, **P. M. Pathak**, S. C. Jain, Force Control in Monopod Hopping Robot while Landing, *Intelligent Control and Automation*, 2010, pp. 96-104.

3. Haresh Patolia, **P. M. Pathak**, S. C. Jain, Trajectory Control of a Dual Arm Space Robot with Small Attitude Disturbance, SIMULATION, Transactions of The Society for Modeling and Simulation International, 2010, pp. 188-204.
4. Jatin B. Maniya; **Pushparaj Mani Pathak**; B. K. Mishra, Design and Development of Virtual Objects to be Used with Haptic Device for Motor Rehabilitation, *J. Software Engineering & Applications*, pp.990-997, 2010
5. Haresh Patolia, **P. M. Pathak**, S. C. Jain, Trajectory Control of a Three DOF Dual Arm Space Robot With Small Attitude Disturbance, The 4th International Conference on Integrated Modeling and Analysis in Applied Control and Automation (IMAACA 2010), Fes, Morocco, pp 1-9, 2010.
6. V. L. Krishnan, **P. M. Pathak**, Lokesh Sardana, S. C. Jain, Simulation And Experimental Studies On Walking Robot With Flexible Legs, The 4th International Conference On Integrated Modeling And Analysis In Applied Control And Automation (Imaaca 2010), Fes, Morocco, (Best paper award), pp.11-19.
7. Rahul Maheshwari; Rahul Gupta; Rachit Jaiwant; Haresh Patolia; **P. M. Pathak**; S. C. Jain, Mechatronic Design and control of a Planar Cooperative Robot, International Journal of Advanced Mechatronic Systems, Vol. 2, No. 4, 2010, pp. 271-280.
8. Haresh Patolia, **P. M. Pathak**, S. C. Jain, Force Control in Single DOF Dual Arm Cooperative Space Robot, 9th International conference on Bond Graph Modelling and Simulation, Orlando, Florida, ISBN:1-56555-342-X, April 2010, pp. 87-94.
9. V. L. Krishnan, **P. M. Pathak**, S. C. Jain, A. K. Samantaray, Reconfiguration of Four Legged Walking Robot For Actuator Faults, 9th International conference on Bond Graph Modelling and Simulation, Orlando, Florida, ISBN:1-56555-342-X, April 2010, pp. 134-141.

2009

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Visits Abroad

- Catholic university and Keimyung university Daegu, South Korea, June 17-25, 2012.
- MATHMOD 2012 - 7th Vienna International Conference on Mathematical Modelling, Vienna University of Technology, February 15 - 17, 2012, Austria.
- École Polytechnique Universitaire de Lille (Polytech'Lille), France, May-July 2011.
- The 4th International Conference On Integrated Modeling And Analysis In Applied Control And Automation (IMAACA 2010), Fes, Morocco, 2010.
- École Polytechnique Universitaire de Lille (Polytech'Lille), France, May-July 2009.
- École Polytechnique Universitaire de Lille (Polytech'Lille), France, May-July 2008.
- International Association of Science and Technology for Development (IASTED) fifteenths International Conference on Modelling and Simulation at Marina Del Rey, California, U.S.A., 2004

International Coopérations :

Visiting researcher at École Polytechnique Universitaire de Lille (Polytech'Lille), France

- May-July 2011
- May-July 2009
- May-July 2008

Joint India Korea project

- June 17-25, 2012.