



UNIVERSITY OF CALCUTTA

FACULTY ACADEMIC PROFILE

- **Full name of the faculty member:** Dr. Chanchal Dey
- **Designation:** Associate Prof.
- **Specialization:** Instrumentation & Control Engineering



- **Contact information:**

Instrumentation Engineering
Department of Applied Physics
92, APC Road, Kolkata-700009, West Bengal, India
E-mail: cdaphy@caluniv.ac.in, chanchaldey@yahoo.co.in

- **Academic qualifications:**

College/ University	Abbreviation of the degree
West Bengal Board of Secondary Education	Secondary Examination, 107 th Rank
West Bengal Board of Higher-Secondary Education	Higher Secondary Examination, 62 nd Rank
Jadavpur University	B. Sc. (Physics Hons.)
Jadavpur University	B. Tech. (Instrumentation & Electronics Engineering)
University of Calcutta	M. Tech. (Instrumentation & Control Engineering), Gold Medalist
Jadavpur University	Ph. D. (Engineering)

■ **Positions held:**

- Section-in-charge, Instrumentation Engineering, Dept. of Applied Physics, 2017-2020
- Associate Professor, Instrumentation Engineering, Dept. of Applied Physics, 2015-
- Assistant Professor, Instrumentation Engineering, Dept. of Applied Physics, 2003-2015
- Guest Lecturer, Instrumentation and Electronics Eng., Jadavpur University, 1999-2003
- Lecturer, Dept. of Technical Education and Training, Govt. of West Bengal, 1997-2003
- Engineer, Gas Authority of India Limited (GAIL), Govt. of India Enterprise, 1996-1997

■ **Research interests:**

- Intelligent process control using conventional, fuzzy, and neuro-fuzzy techniques
- Knowledge based controller designing

■ **Research guidance:**

- Number of researchers submitted Ph.D. Thesis: 6

Name	Affiliation
Dharmana Simhachalam	HOD, Electronics and Instrumentation Engineering, SGPR Government Polytechnic, Kurnool, Andhra Pradesh
Ujjwal Manikya Nath	Asst. Prof., Jorhat Engineering College, Jorhat, Assam
Ritu Rani De (Maity)	Asst. Prof., B. C. Roy College of Engineering, Durgapur, West Bengal
Pubali Mitra (Paul)	Asst. Prof., Brainware University, Barrackpur, West Bengal
Pranati Dutta (Ghosal)	Asst. Prof., Techno India Sallake, Kolkata, West Bengal
Abhinava Dutta	Asst. Prof., Academy of Technology, Hooghly, West Bengal

- Number of researchers pursuing Ph.D.: 4

Name	Affiliation
Parikshit Kumar Paul	Asst. Prof., Calcutta Institute of Engineering & Management, West Bengal
Somak Karan	Asst. Prof., Halida Engineering College, Haldia, West Bengal
Sayani Sengupta	Asst. Prof., Techno International Newtown, Kolkata, West Bengal
Satyaki Sen	Lecturer, Nazrul Centenary Polytechnic, West Bengal

- Number of M. Tech. Thesis submitted: 47

■ **Projects completed:**

Project Title	Funding Agency
Technical Education Quality Improvement Program (TEQIP-Phase I)	World Bank, Govt. of India, and State Govt. Seventy lakhs (approx)
Technical Education Quality Improvement Program (TEQIP-Phase II)	World Bank, Govt. of India, and State Govt. Fifty lakhs (approx)
Technical Education Quality Improvement Program (TEQIP-Phase III)	World Bank, Govt. of India, and State Govt. Five lakhs (approx)
Earlier detection of cardiac irregularity based on human blood pressure model	National Project Implementation Unit Rupees sixteen lakhs fifty one thousand only (approx)

■ **List of International Journal Publications:**

Title with Page No.	Journal	ISSN
▪ An improved auto-tuning scheme for PI controllers, pp. 45-52.	ISA Transactions, Vol. 47, No. 1 2008	0019-0578
▪ An improved auto-tuning scheme for PID controllers, pp. 396-409	ISA Transactions, Vol. 48, No. 3, 2009	0019-0578
▪ Dynamic set point weighted PID controller, pp. 212-219	Journal of Control and Intelligent Systems, Vol. 37, No. 4, 2009	1925-5810
▪ Performance improvement of PI controllers through dynamic set-point weighting, pp. 220-230	ISA Transactions, Vol. 50, No. 2, 2011	0019-0578
▪ An auto-tuning PID controller for integrating plus dead-time processes, pp. 4934-4943	Journal of Advanced Materials Research, Vols. 403-408, 2012	1022-6680
▪ Rule extraction through self-organizing map for a self-tuning fuzzy logic controller, pp. 4957-4964	Journal of Advanced Materials Research, Vols. 403-408, 2012	1022-6680
▪ Model based PID controller for integrating process with its real time implementation, pp. 139-144	International Journal of Advancements in Electronics and Electrical Engineering, Vol. 1, No. 2, 2012	2319 - 7498
▪ A simple nonlinear PD controller for integrating processes, pp.162-172	ISA Transactions, Vol. 53, No. 1, 2014	0019-0578

- Centralized auto-tuned IMC-PI controllers for a real time coupled tank process, pp. 1094-1102

International Journal of Science Technology and Management
Vol. 4, No. 1, 2015

2394-1537
- Model identification and experimental verification of MRAC on 1 DOF TRMS process, pp. 251-264

International Journal of Advance Research in Science and Engineering
Vol. 5, No. 4, 2016

2319-8354
- Performance evaluation of model reference adaptive control (MRAC) on Twin Rotor MIMO system, pp. 265-273

International Journal of Advance Research in Science and Engineering
Vol. 5, No. 4, 2016

2319-8354
- Dynamic set point weighting for fuzzy PID controller”, Control and Intelligent Systems, pp. 142-153

Journal of Control and Intelligent Systems,
Vol. 45, No. 3, 2017

1925-5810
- Relay feedback-based improved critical point estimation for FOPTD process with real-time verification

Journal of Control and Intelligent Systems,
Vol. 46, No. 3, 2018

1925-5810
- Enhanced critical point assessment with relay feedback

Mechatronic Systems and Control
Vol. 46, No. 4, 2018

2561-178X
- Fuzzy tuned model based control for level and temperature processes

Microsystem Technologies
Vol. 25, 2019

0946-7076

<https://doi.org/10.1007/s00542-019-04300-x>
- Improved disturbance rejection with modified Smith predictor for integrating FOPTD processes

SN Applied Sciences
Vol. 1, No. 10, 2019

2523-3971
- A switching IMC-PID controller design for lag dominating processes with real-time validation

Mechatronic Systems and Control
Vol. 48, No. 3, 2020

2561-178X
- Fuzzy rule-based auto-tuned internal model controller for real-time experimentation on temperature and level processes

International Journal of Automation and Control
Vol. 14, No. 2, 2020

1740-7516
- Simple tuning of modified Smith predictor for unstable FOPTD processes

International Journal of Nanoparticles
Vol. 12, No. 1-2, 2020

1753-2507
- Designing of dynamic Kalman filter for prediction of mean arterial blood pressure

Procedia Computer Science
Vol. 167, 2020

1877-0509

<https://doi.org/10.1016/j.procs.2020.03.347>
- Designing of fuzzy rule based switching mechanism for IMC controller for temperature controlling process

Procedia Computer Science
Vol. 167, 2020

1877-0509

<https://doi.org/10.1016/j.procs.2020.03.347>
- Nature Inspired Algorithm Based Optimal Type-2 Fuzzy Controller

International Journal of Electrical Engineering
2249-3085

With Real-Time Validation on Servo System	& Technology Vol. 11, No. 2, 2020	
▪ Stabilized IMC-PI controller designing for IPDT processes based on gain and phase margin criteria	IFAC-Papers Online Vol. 53, No. 1, 2020	2405-8963
▪ Comparative Performance Study of Optimal Interval Type-2 Fuzzy PID Controllers with Practical System	International Journal of Computer Sciences and Engineering Vol. 8, No. 3, 2020	2347-2693
▪ Modified Smith predictor-based all-proportional-derivative control for second-order delay-dominated integrating processes	Asia-Pacific Journal of Chemical Engineering Vol. 16, No. 2, 2020	1932-2135
▪ An auto-tuning modified Smith predictor for delay dominated integrating processes	Turkish Journal of Computer and Mathematics Education Vol. 11, No. 1, 2020	1309-4653
▪ A 4 bit highly energy and area efficient SC SAR ADC based on a combinational technique with reduced reset energy	Microsystem Technologies https://doi.org/10.1007/s00542-019-04672-0 , 2020	0946-7076
▪ Nature-inspired and hybrid optimization algorithms on interval Type-2 fuzzy controller for servo processes: a comparative performance study	SN Applied Sciences https://doi.org/10.1007/s42452-020-3024-5 , 2020	2523-3971
▪ Designing of IMC-PID controller for higher-order process based on model reduction method and fractional coefficient filter with real-time verification	Chemical Product and Process Modeling Vol. 15, No. 3, 2020	1934-2659
▪ Desired Characteristic Equation Based PID Controller Tuning for Lag-Dominating Processes With Real-Time Realization on Level Control System	IEEE Control Systems Letters Vol. 5, No. 4, 2021	2475-1456
▪ Lyapunov approach based design of a gain adaptive interval type-2 fuzzy controller for servo systems	Journal of Intelligent & Fuzzy Systems Vol. 40, No. 3, 2021	1064-1246
▪ Study of a Noncontact Flow Transducer Using Semi-cylindrical Capacitive Sensor	IEEE Transactions on Instrumentation and Measurement Vol. 70, doi: 10.1109/TIM.2020.3024027, 2021	1557-9662
▪ Review on IMC-based PID Controller Design Approach with	IETE Journal of Research	0377-2063

Experimental Validations	https://doi.org/10.1080/03772063.2021.1874839	
	2021	
▪ Fuzzy rule-based set point weighting for fuzzy PID controller	S N Applied Science https://doi.org/10.1007/s42452-021-04626-0 , 2021	2523-3971
▪ Simplified tuning of IMC based modified smith predictor for UFOPDT processes	Chemical Product and Process Modeling Vol. 16, No. 1 2021	1934-2659
▪ Realization of an ultra low power and area efficient SC SAR ADC architecture using single and two step reset methods	Microsystem Technologies Vol. 27, No. 9, 2021	1432-185
▪ Modified Smith predictor-based P-PD control for pure integrating delay dominated processes	The Canadian Journal of Chemical Engineering https://doi.org/10.1002/cjce.24305 , 2021	1939-019x
▪ IMC based anti-windup controller for real-time hot air flow and level control loop	International Journal of Automation and Control Vol. 16, No. 2, 2022	1740-7516
▪ Realization of a variable resolution modified semiflash ADC based on bit segmentation scheme	Facta universitatis-series: Electronics and Energetics Vol. 35, No. 1, 2022	2217-5997
▪ Stable optimal self-tuning interval type-2 fuzzy controller for servo position control system	International Journal of Automation and Control Vol. 16, No. 5, 2022	1740-7516
▪ Simple internal model control based modified Smith predictor for integrating time delayed processes with real-time verification	ISA Transactions Vol. 121, 2022	0019-0578
▪ Mathematical modelling and fuzzy knowledge-based decoupled control scheme for real-time interacting level control- MIMO system	International Journal of Modelling and Simulation https://doi.org/10.1080/02286203.2022.2051992 2022	0228-6203
▪ Modified Smith predictor-based P-PD control for pure integrating delay dominated processes	The Canadian Journal of Chemical Engineering Vol. 100, No. 10, 2022 https://doi.org/10.1002/cjce.24305	1939-019X
▪ MSP designing with optimal fractional PI-PD controller for IPTD processes	Chemical Product and Process Modeling https://doi.org/10.1515/cppm-2022-0041	1934-2659

■ **List of International Conference Publications:**

Title with Page No.	Details of Conference Publication	ISSN/ ISBN
<ul style="list-style-type: none"> ▪ An Improved Fuzzy PI Controller Through Real-time Modification of the Output Scaling Factor, pp. 115-120 	Proc. 5 th Int. Conf. On Advances in Pattern Recognition - ICAPR 2003	ISBN: 8177645323-9788177645323
<ul style="list-style-type: none"> ▪ An Augmented Ziegler-Nichols Tuned PI Controller, (in CD) 	Proc. Int. Conf. on Computers and Devices for Communication - CODEC 2004	ISBN: 978-1-4673-2620-9
<ul style="list-style-type: none"> ▪ An Improved Fuzzy PI Controller, pp. 115-119 	Proc. Int. Conf. on Communication, Devices and Intelligent Systems - CODIS 2004	ISBN: 978-1-4673-4699-3
<ul style="list-style-type: none"> ▪ A Conventional PD Controller with Self-tuning Feature, pp. 219-233 	Proc. IEE Int. Conf. on Energy, Information Technology and Power Sector - PETSICON 2005	ISBN: 81-88429-79-1
<ul style="list-style-type: none"> ▪ Design of a PI-type Fuzzy Controller with online Membership Function Tuning, pp. 112-117 	Proc. 12 th Int. Conf. on Neural Information Processing - ICONIP 2005	ISBN: 1-3658-3615-7
<ul style="list-style-type: none"> ▪ A dynamic set point weighting based Ziegler-Nichols tuned PI controller, pp. 6-10 	Proc. Asian Conference on Intelligent Systems & Networks - AISN 2006	ISBN: 988-1-2673-4799-1
<ul style="list-style-type: none"> ▪ Neuro-Fuzzy Implementation of a Self-tuning Fuzzy Controller, pp. 5065-5070 	Proc. IEEE Int. Conf. on System, Man, Cybernetics - SMC 2006	ISBN: 1-4244-0099-6
<ul style="list-style-type: none"> ▪ A PID Controller with Dynamic Set Point Weighting, in CD 	Proc. IEEE Int. Conf. on Industrial Technology - ICIT 2006	ISBN: 1-4244-726-5
<ul style="list-style-type: none"> ▪ A Ziegler-Nichols Tuned PID Controller with Auto-tuning Feature, pp. 321-325 	Proc. Int. Conference on Modeling and Simulation - MS 2007	Published by Calcutta University Press
<ul style="list-style-type: none"> ▪ Experimental Verification of an Auto-tuning PD Controller on Position Control Application for a DC Servo Motor, pp. 694-699 	Proc. IEEE Int. Conf. on System Dynamics and Control - ICSDC 2010	ISBN: 1-5143-787-5

- An Auto-tuning PID Controller for Integrating Plus Dead-time Process, pp. 131-135

Proc. Int. Conf. on Control, Robotics and Cybernetics - ICCRC 2011

ISBN: 978-1-4244-9711-9
- Rule Extraction through Self-organizing Map for a Self-tuning Fuzzy Logic Controller, pp. 156-160

Proc. Int. Conf. on Control, Robotics and Cybernetics - ICCRC 2011

ISBN: 978-1-4244-9711-9
- Model Based PID Controller with its Real-time Implementation, pp. 62-66

Proc. Int. Conf. on Advances in Computing, Control and Communication - CCN 2012

ISBN: 978-981-07-2579-2
- A Self-tuning Fuzzy PID Controller with Real-time Implementation on a Position Control System, pp. 32-35

Proc. IEEE Int. Conf. on Emerging Applications of Information Technology - EAIT 2012

ISBN: 978-1-4673-1825-9
- An Auto-tuning PD Controller for DC Servo Position Control Application, pp. 1-6

Proc. IEEE Int. Conf. on Power, Control and Embedded Systems - ICPCES 2012

ISBN: 978-1-4673-1049-9
- Fuzzy PI Controller with Dynamic Set-point Weighting, pp. 51-58

Proc. Springer Int. Conf. on Frontiers of Intelligent Computing: Theory and Applications - FICTA 2012

ISBN 978-3-642-35313-0
- A Nonlinear PD Controller for Pure Integrating Process with Delay, pp. 783-786

Proc. IEEE Int. Conference on Electrical and Computer Engineering - ICECE 2012

ISBN: 978-1-4673-1434-3
- Design of Model Based PI Controller for Integrating Process, pp. 102-114

Proc. Elsevier Int. Conf. on Electrical, Electronics and Communication Technologies - ICECIT 2012

ISBN: 978-9-3510-7050-4
- An Adaptive PD Type FLC with Its Real-Time Implementation on a Servo Position Control System, pp. 1-7

Proc. IEEE Int. Conf. on Fuzzy Systems - FUZZ-IEEE 2013

ISBN: 978-1-4799-0020-6
- Dynamic Set-point Weighted Fuzzy PID Controller, pp. 107-110

Proc. IEEE Int. Conf. on Computational and Business Intelligence - ISCBI 2013

ISBN: 978-0-7695-5066
- Design of Fuzzy Based IMC-PID Controller for IPD Process, pp. 111-114

Proc. IEEE Int. Conf. on Computational and Business Intelligence - ISCBI 2013

ISBN: 978-0-7695-5066

- IMC-PID controller for pure integrating process with large dead time, pp. 76-80

Proc IEEE Int. Conf. on Control, Instrumentation, Energy and Communication - CIEC 2014

INSPEC Acc. No.:14771693
DOI:10.1109/CIEC.2014.6959042
- An Online Dynamic Set-point weighting Scheme for PID Controller, pp. 188-192

Proc IEEE Student's Technology Symposium - Tech Sym 2014

ISBN: 978-1-4799-2607-7
- Design of Fuzzy-IMC PID Controller for TITO Process with Time Delay, pp. 70-74

Proc IEEE Int. Conf. on Emerging Applications of Information Technology - EAIT 2014

INSPEC Acc. No.: 14950052
DOI: 10.1109/EAIT.2014.55
- Neuro-Fuzzy design of a Fuzzy PI Controller with Real-Time Implementation on a Speed Control System, pp. 645-650

Proc. IEEE Int. Conf. on Contemporary Computing and Informatics - IC3I 2014

INSPEC Acc. No.: 14871825
DOI: 10.1109/IC3I.2014.7019575
- Design and implementation of a Fuzzy PI Controller on a servo speed control application, pp. 384-387

Proc. IEEE Int. Conference on Signal Processing and Integrated Networks - SPIN 2015

ISBN: 978-1-4799-5991-4
- Design of IMC Controller for TITO Process with dynamic close-loop time constant, pp. 191-200

Proc. Springer Second Int. Conf. on Second International Conference on Computer and Communication Technologies, IC3T 2015

ISBN: 978-81-322-2525-6, DOI: 10.1007/978-81-322-2526-3_21
- Rule reduction of neuro-fuzzy PI controller with real-time implementation on a speed control process, pp. 445-458

Proc. Springer Second Int. Conf. on Second International Conference on Computer and Communication Technologies, IC3T 2015

ISBN: 978-81-322-2525-6, DOI: 10.1007/978-81-322-2526-3_46
- Centralized auto-tuned IMC-PI controllers for a real time coupled tank process, pp. 5527-5535

Proc. Int. Conf. on Recent Trends in Engineering Science and Management, ICRTESM 2015

ISBN: 978-81-931039-2-0
- Centralized auto-tuned IMC-PI controllers for industrial coupled tank process with stability analysis, pp. 296-301

Proc. IEEE Int. Conference on Recent Trends in Information Systems, ReTIS 2015

ISBN: 978-1-4799-8349-0/15
- Design and Implementation of De-centralized IMC-PI controllers for real time coupled tank process, pp. 93-98

Proc. Michael Faraday IET International Summit, MFIS 2015

ISBN: 978-1-5108-1714-2

- An improved dynamic set point weighted PI controller for servo position control application, pp. 110-118

Proc. IEEE International Conference on Computational Intelligence and Network, CINE 2016

ISSN: 2375-5822
- An improved fuzzy PID controller with fuzzy rule based set-point weighting technique, pp. 40-44

Proc. IEEE International Conference on Control, Instrumentation, Energy and communication, CIEC 2016

ISBN: 978-1-5090-0035-7
- Design of multi-loop IMC-PID controller for TITO process with dead time, pp. 45-49

Proc. IEEE International Conference on Control, Instrumentation, Energy and communication, CIEC 2016

ISBN: 978-1-5090-0035-7
- Model identification and experimental verification of MRAC on I DOF TRMS process pp. 1011-1024

Proc. International Conference on Recent Trends in Engineering Science and Management ICRTESM 2016

ISSN: 2319-8354
- Performance evaluation of Model Reference Adaptive Controller (MRAC) on Twin Rotor MIMO System pp. 1025-1033

Proc. International Conference on Recent Trends in Engineering Science and Management ICRTESM 2016

ISSN: 2319-8354
- Fuzzy based adaptive IMC-PI controller for real time application on a level control loop, pp. 387-396

Proc. Springer International Conference on Frontiers of Intelligent Computing: Theory and Applications, FICTA 2016

• ISBN: 978-981-10-3153-3
- Real-time performance evaluation of a self-tuning fuzzy PID controller on an inverted pendulum in crane mode operation, pp. 22-26

Proc. IEEE International Conference on Intelligent Control Power and Instrumentation - ICICPI 2016

• ISBN: 978-1-5090-2638-8
- Model identification of coupled-tank system-MIMO process, pp. 1-6

Proc. IEEE International Conference on Electrical Computer and Communication Technologies - ICECCT 2017

• ISBN: 978-1-5090-3239-6
- Design and Performance Analysis of a Modified MRAC for Second-order Processes, pp. 1-5

IEEE International Conference on Power Control and Embedded systems - ICPCES 2017

• ISBN: 978-1-5090-4426-9
- Design of Modified Model-based Adaptive Control System for FOPDT Process pp. 1-5

IEEE International Conference on Power Control and Embedded systems - ICPCES 2017

• ISBN: 978-1-5090-4426-9
- Fuzzy-based Auto-tuned

Springer International

• ISBN: 978-981-10-3152-6

IMC-PID Controller for Real-time Level Control Process, pp. 372-381	Conference on Computational Intelligence, Communications, and Business Analytics - CICBA 2017	
▪ Fuzzy rule based set-point weighting for PID controller pp.841-846	Springer International Conference on Communication Devices and Networking - ICCDN 2017	ISBN: 978-981-10-7901-6
▪ Designing Of An Improved MRAC With Fuzzy-PD Feedback For Marginally Stable Processes	IEEE International Conference on Emerging Applications of Information Technology EAIT 2018	10.1109/EAIT.2018.8470448
▪ Real-time evaluation of an interval type-2 fuzzy PID controller on servo position control system	IEEE International Conference on Emerging Applications of Information Technology EAIT 2018	10.1109/EAIT.2018.8470448
▪ Enhanced Modified Smith Predictor for Delay Dominated Unstable Processes	IEEE Electron Devices Kolkata Conference EDKCON 2018	10.1109/EDKCON.2018.8770465
▪ Real-time performance evaluation of a fuzzy rule based set point weighted PID controller	IEEE Applied Signal Processing Conference ASPCON 2018	10.1109/ASPCON.2018.8748295
▪ A 4 bit combinational hybrid-junction splitting technique for realization of an energy efficient SC SAR ADC	IEEE International Conference on Opto-Electronics and Applied Optics Optronix 2019	10.1109/OPTRONIX.2019.8862341
▪ IMC based fractional-order controller for a level process	IEEE International Conference on Opto-Electronics and Applied Optics Optronix 2019	10.1109/OPTRONIX.2019.8862341
▪ Set point weighted modified Smith predictor for delay dominated integrating processes	IEEE International Conference on Devices for Integrated Circuit DevIC 2019	10.1109/DEVIC.2019.8783297
▪ Designing of anti-windup feature for internal model controller with real-time performance evaluation on temperature control loop	IEEE International Conference on Intelligent Computing, Instrumentation and Control Technologies ICICICT 2019	10.1109/ICICICT46008.2019.8993175
▪ Enhanced half rule based model reduction scheme for	IEEE International Conference on Intelligent Computing,	10.1109/ICICICT46008.2019.8993175

- higher-order processes Instrumentation and Control Technologies
ICICICT 2019
- Fuzzy Supervisory Expert Tuner for PID Controller Springer International Conference on Microelectronics, Computing and Communication Systems
MCCS 2019 ISBN: 978-981-15-5546-6
 - Fuzzy Rule-Based Supervisory PID Auto-Tuner for TRMS Process Springer International Conference on Microelectronics, Computing and Communication Systems
MCCS 2019 ISBN: 978-981-15-5546-6
 - Design of a Modified 8-bit Semiflash Analog to Digital Converter IEEE Conference on Devices for Integrated Circuit
DevIC 2021 10.1109/DevIC50843.2021.9455820
 - Auto-tuned Optimal PI Controllers for MIMO Processes IEEE 4th International Conference on Computing, Power and Communication Technologies
GUCON 2021 10.1109/GUCON50781.2021.9574003
 - Optimal Biquadratic Approximation of the Fractional-Order Laplacian Operator Yielding Improved Constant-Phase Behavior IEEE Conference
CALCON 2022

■ **List of Published Book Chapters:**

Title with Page No.	Book Title, Editor, and Publisher	ISSN/ ISBN
A Gain Adaptive Fuzzy Logic Controller, pp. 62-68	Lecture Notes in Artificial Intelligence 2275, Springer-Verlag	Book ISBN: 10:3-540-431500
Fuzzy Rule-Based Set Point Weighting for PID Controller Chapter No.: 86	Advances in Communication, Devices and Networking, Springer Nature Singapore Pte Ltd.	Book ISBN: 978-981-10-7900-9
Fuzzy-tuned SIMC controller for level control loop, Vol. 11	Lecture Notes in Networks and Systems Springer Nature Singapore Pte Ltd.	Book ISBN: 978-981-10-3952-2
Design and Performance Analysis of a	Springer Communications in Computer	Book ISBN: 978-981-

Modified MRAC for Second-order Integrating Processes, Vol. 775	and Information Science Springer Nature Singapore Pte Ltd.	10-6427-2
Industrial Automation Technologies 376 pages	CRC Press, London	ISBN: 9780367260422
A Low Energy and Area Efficient Switching Scheme for a Charge Redistribution SAR ADC Architecture	Advances in Smart Communication Technology and Information Processing, Springer Lecture Notes in Networks and Systems Springer Nature Singapore Pte Ltd.	ISBN: 978-981-15-9432-8
Switching Mechanism of Internal Model Control-based PI Controller for Lag Dominating Processes	Nanoelectronics, Circuits and Communication Systems, Springer Lecture Notes in Electrical Engineering book series (LNEE, volume 692) Springer Nature Singapore Pte Ltd.	ISBN: 978-981-15-7485-6
Controlling of Twin Rotor MIMO System (TRMS) based on Multivariable Model Predictive Control	Nanoelectronics, Circuits and Communication Systems, Springer Lecture Notes in Electrical Engineering book series (LNEE, volume 692) Springer Nature Singapore Pte Ltd.	ISBN: 978-981-15-7485-6
Fuzzy Rule-Based Set Point Weighting for PID Controller	Lecture Notes in Electrical Engineering book series Springer LNEE, volume 462	ISBN: 978-981-10-7900-9

■ **Invited Lectures:**

Title of the Lecture	Title of Conference/Symposia	Organized by
▪ Role of Control System in Electrical Engineering	Seminar on ‘Recent Trends in Electrical Engineering’ in 2012	St. Thomas College of Engineering and technology, West Bengal
▪ Intelligent Process Control	Seminar on ‘Instrumentation-The Future’ in 2012	Siliguri Institute of Technology, West Bengal
▪ Advanced Control Techniques	Workshop on ‘Advanced Control Systems’ 2012	Techno India College of Technology, West Bengal
▪ Industrial Control Techniques	Seminar on ‘Industrial Process Control’ in 2013	JIS College of Engineering, West Bengal

▪ Design of Neuro-fuzzy Controller and its Applications	Seminar on ‘Application of Soft Computing in Electrical Engineering’ in 2013	Asansol Engineering College, West Bengal
▪ Fuzzy Logic Based Intelligent Process Control	Symposium on ‘Soft Computing Techniques in Engineering Applications’ in 2013	KIIT University, Bhubaneswar, Odisha
▪ Artificial Neural Network and its Applications	Symposium on ‘Advancement in Instrumentation Engineering and Development in Process Automation’ in 2014	RCC Institute of Information Technology, West Bengal
▪ PID control and its enhancements	Workshop on ‘Domain knowledge development’ in 2016	Techno India College of Technology, West Bengal
▪ Role of soft-computing in controller designing	Seminar on ‘Application of Soft Computing Techniques in Control System Applications’ in 2016	Techno India College of Technology, West Bengal
▪ Neural network and its applications	Invited talk for Ph. D. course work 2016	Department of Radio Physics and Electronics, University of Calcutta
▪ Smart sensing and intelligent systems	Invited talk for Short-term course 2016	Department of Electrical Engineering, NIT Durgapur
▪ PID based process automation techniques	Seminar on ‘Industrial Automation and Control’ in 2017	Department of Applied Electronics and Instrumentation Engineering, Techno International, New Town
▪ Publishing quality research paper	Faculty development programme 2017	Haldia Institute of Technology, Haldia
▪ HIL simulation	Invited talk on Research Methodology 2018	College of engineering, Pune
▪ Electronic measuring instruments applications	Invited talk 2019	Pailan Technical Campus, Joka
▪ Soft computing and its engineering applications	Invited talk in the webinar 2020	Adamas University, Barasat
▪ Fuzzy techniques in intelligent appliances	Invited talk in the webinar 2021	Adamas University, Barasat

■ **Membership of Learned Societies:**

- Institution of Engineers (IE)
- Institution of Electronics and Telecommunication Engineers (IETE)
- Institute of Electrical and Electronics Engineers (IEEE)
- Forum of Scientist and Engineers (FOSET)
- International Society of Automation (ISA)

■ **Scholarships and Awards:**

- National Scholarship, 1990-93
- Gold Medalist, University of Calcutta, 1999

■ **Other Notable Activities:**

- Preparation of detailed curriculum and question bank for Instrumentation Technology, State Council of technical Education, Govt. of West Bengal in 2003.
- Acted as a Faculty Council Member for Post-Graduate Studies in Engineering and Technology since 2007.
- Prepared complete documentation and presentation of the regular class room teaching materials for all the subjects (related to theoretical and practical) in both the Under Graduate and Post Graduate levels.
- Organized Summer Training Program on 'Distributed Control system' during 06.07.2009 to 31.07.2009.
- Preparation of detailed curriculum and question bank for Instrumentation Technology, State Council of Technical Education, Govt. of West Bengal in 2022.

Reviewer of following Journals:

- Elsevier- ISA Transactions
- Elsevier- Journal of Electrical Power and Energy Systems
- Elsevier- Energy Conversion and Management
- Elsevier- Journal of Manufacturing Process
- Elsevier- Engineering Science and technology, International Journal
- Springer- Int. Journal of Automation and Computing
- IEEE-Transaction on Industrial Electronics, Transaction on Industrial Informatics
- ACTA Press- Control and Intelligent Systems
- ACTA Press- Mechatronic Systems and Control
- Taylor & Francis- Chemical Engineering Communication
- SAGE- Journal of System and Control Engineering

- SAGE- Measurement and Control
- IET- Control Theory and Applications
- Wiley- Asian Journal of Control, Canadian Journal of Chemical Engineering
- De Gruyter- Chemical Product and Process Modeling
- Reviewer of Ph. D. Thesis from Anna University, Tamilnadu.
- Reviewer of Ph. D. Thesis from Jadavpur University, West Bengal
- External Expert of Ph. D. committee, Instrumentation & Electronics Engineering, Jadavpur University
- Paper Setter and Moderator of Jadavpur University.
- Moderator of West Bengal University of Technology.
- Paper Setter and Moderator of JIS University.
- Acted as Organizer of International Conference ‘Modeling and Simulation 2007’ by the Department of Applied Physics, University of Calcutta.
- Acted as Organizer of National seminar on ‘Recent Trends in Power System Communication’ in 2009 by the Department of Applied Physics, University of Calcutta.
- Acted as Organizer of International Conference ‘Control Instrumentation energy and Communication 2014’ by the Department of Applied Physics, University of Calcutta.
- Acted as Organizer of International Conference ‘Control Instrumentation energy and Communication 2016’ by the Department of Applied Physics, University of Calcutta.
- Acted as Member of Technical Program Committee of International Conference ‘Computational Intelligence and Network CINE 2016’ by KIIT University, Bhubaneswar, Odisha.
- Acted as Academic Auditor, Applied Electronics & Instrumentation Engineering, Techno India College of Technology, New Town.
- Member of Technical Program Committee of International Conference ‘Applied Signal Processing ASPCON 2018’ by IEEE Signal Processing Society, Kolkata Section.
- Participated as a technical expert for Door Darshan organized carrier counseling program ‘Ki Hote Chai’ on Instrumentation and Electronics Engineering.