DR. KAUSHIK DAS SHARMA
SMIEEE (USA), MIEEE-CSS (USA), MISCA (India)

Professor,
Systems Engineering Laboratory,
Electrical Engineering Section,
Department of Applied Physics,
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Weblink:https://www.caluniv.ac.in/academic/department/Aphy/faculty/KDS.pdf
Google Scholar Link: https://scholar.google.co.in/citations?user=AhqBqncAAAAJ&hl=en
(Citations: 595, h-index: 12 till October 08, 2020)

Date of Birth: 28 November, 1976

QUALIFICATIONS

- Invited at the **University of Paris-Est Creteil, France** as **Visiting Teacher-Researcher Fellow** in 2019.

- **PhD (Engg.),** Thesis Title: "**Hybrid Methodologies for Stable Adaptive Fuzzy Control**", from **Jadavpur University** in 2012.

- **Master of Technology** (Electrical Engg.) from Department of Applied physics, **University of Calcutta** in 2004 and stood **First Class First** and obtain **University Gold Medal**.

  M.Tech Thesis: 8051 Microcontroller Based Embedded System Design for Three Phase Induction Motor Protection.

- **Bachelor of Technology** (Electrical Engg.) from Department of Applied physics, **University of Calcutta** in 2001 and stood **First Class Third**.

  B.Tech Project: PC Based Development of Circle Diagram and Real Time Monitoring of Different Parameters of Induction Motor.

- **B.Sc (Hons.) in Physics** from **University of Calcutta** in 1998.

AWARD AND SCHOLARSHIPS

- **National Scholarship** for B.Sc (Hons.) in Physics from Govt. of India in 1998.

- **Kanodia Research Scholarship** for M.Tech in Electrical Engineering study from University of Calcutta in 2002.

- **University Gold Medal** for securing **First Class First position in M. Tech** in 2004 from University of Calcutta.

- **Chattagram Parisad** award for securing **First Class First position in M. Tech** in 2004.

- **Best Paper Award** in **Springer CICBA 2018** held at Kalyani, India in Aug. 2018.

- **Best Paper Award** in **First Michael Faraday IET India Summit 2012** held at Kolkata in Nov. 2012.

- **Best Paper Award** in 1st International Conference on Computational Intelligence: Modelling, Techniques and Applications (CIMTA- 2013) held at Kalyani in 2013.

ON GOING RESEARCH ACTIVITIES

- Adaptive Fuzzy Control.
- Stochastic Algorithms and its applications.
- Vision Based Mobile Robot Navigation.
- Visual Cryptography.
- Nano-Bio Sensor Design.
- Computational Biology.

PUBLICATIONS

Research Publications:

(A) Books / Book Chapter:

1. **K. Das Sharma**, A. Chatterjee and A. Rakshit *Intelligent Control: A Stochastic Optimization Based Adaptive Fuzzy Approach*, Springer Singapore, 2018.

2. Invited Book Chapter: **K. Das Sharma,** "A Comparison among Multi-agent Stochastic Optimization Algorithms for State Feedback Regulator Design of a Twin Rotor MIMO System", in the Book "Handbook of Research on Natural Computing for Optimization Problems" (2 Volumes), Ed.- J. K. Mandal, Pub.- IGI Global, 2016.

(B) Journals & Conferences

2020

K. Das Sharma, A. Chatterjee, P. Siarry and A. Rakshit "A Novel Disturbance Rejection Factor Based Stable Direct Adaptive Fuzzy Control Strategy for a Class of Nonlinear Systems," Expert Systems, Wiley, Early access, 2020.

P. Chatterjee, **K. Das Sharma** and A. Chakrabarti, "A Stochastic Approach for Automated Brain MRI Segmentation," IET Image Processing, Early access, 2020.

R. Maiti, **K. Das Sharma**, G. Sarkar and S. Chandra, "Modelling and Control of Delayed, Nonlinear, Uncertain, Disturbed Air Heater Employing Fuzzy PDC-L1 Adaptive Scheme," IEEE Transactions on Industrial Electronics, Early access, 2020.

M. Sinha Roy, B. Roy, R. Gupta and **K. Das Sharma**, "On-Device Reliability Assessment and Prediction of Missing Photoplethysmographic Data Using Deep Neural Networks," IEEE Transactions on Biomedical Circuits and Systems, Early access, 2020.

S. Chakraborty, S. Das, C. Das, S. Chandra, **K. Das Sharma**, A. Karmakar and S. Chattopadhyay, "On-chip Estimation of Hematocrit Level for Diagnosing Anemic Conditions by Impedimetric Techniques," Biomedical Microdevices, Springer, Early access, 2020.

N. Murmu and **K. Das Sharma**, "Trajectory Tracking Control for a Nano Quadcopter Employing Stochastically Optimal PID Control", in Proc. of Michael Faraday IET International Summit (MFIIS-2020), September 2020, Kolkata, India.

2019

R. Maiti, **K. Das Sharma**, and G. Sarkar, "Linear consequence based fuzzy parallel distributed compensation type L1 adaptive controller for two link robot manipulator," IEEE Transactions on Circuits and Systems I, Early access, 2019.

R. Maiti, **K. Das Sharma**, G. Sarkar, "lBest-HS algorithm based concurrent L1 adaptive control for nonlinear systems," ISA Transactions® (Elsevier), Early access, 2019.

S. S. Das, **K. Das Sharma**, J. N. Bera and J. K. Chandra, "Secure Image Transmission Based on VCS and ANN-PSO Guided Adaptive VQ", Journal of Electronic Imaging, SPIE, Accepted for publication, 2019.

S. Kar, K. **Das Sharma**, and M. Maitra, "Adaptive Weighted Aggregation in Group Improvised Harmony Search for Lung Nodule Classification", Journal of Experimental & Theoretical Artificial Intelligence, Taylor & Francis Pub., Accepted for publication, 2019.

S. Kar, **K. Das Sharma**, and M. Maitra, "Optimized feature selection for identification of carcinogenic leukocytes using weighted aggregation based transposition PSO", IETE Journal of Research, Taylor & Francis Pub., Accepted for publication 2019.

R. Maiti, **K. Das Sharma**, and G. Sarkar, "Adaptive Fuzzy Low-pass Filter Based L1 Adaptive Controller Design for Twin Rotor MIMO System," in Proc. of IEEE Region 10 Symposium (TENSYMP 2019), June 2019, Kolkata, India.

D. Biswas, **K. Das Sharma**, and G. Sarkar, "Output Feedback based Adaptive Control for Fractional Order Inverted Pendulum on Cart in NSOF Domain," in Proc. of IEEE Region 10 Symposium (TENSYMP 2019), June 2019, Kolkata, India.

B. P. Das, **K. Das Sharma** and J. N. Bera, "Environment dependent neural network model for occupancy detection," in Proc. of IEEE Region 10 Symposium (TENSYMP 2019), June 2019, Kolkata, India.

A. Dey, **K. Das Sharma**, T. Saniyal, P. Bhattacharjee (Jr.), and P. Bhattacharjee, "Population based study on arsenic induced blood samples employing hybrid metaheuristic optimization based ML approach," in Proc. of IEEE Region 10 Symposium (TENSYMP 2019), June 2019, Kolkata, India.

2018

M. Singha Roy, R. Gupta, J. K. Chandra, **K. Das Sharma**, and A. Talukdar, "Improving Photoplethysmographic Measurements under Motion Artifacts using Artificial Neural Network for Personal Healthcare," IEEE Transactions on Instrumentation & Measurement, 2018 (Early Access).

D. Kar Ray, S. Chattopadhyay, **K. Das Sharma**, and S. Sengupta, "Inter-Turn Short Circuit Assessment of DC Motor used in Railway Locomotive" IET Electric Power Applications, Accepted for Publication.

D. Biswas, **K. Das Sharma**, and G. Sarkar, "Stable Adaptive NSOF Domain FOPID Controller for a Class of Non-Linear Systems," IET Control Theory & Applications, vol. 12, no. 10, pp. 1402-1413, 2018.

R. Maiti, **K. Das Sharma**, and G. Sarkar, "PSO Based Parameter Estimation and PID Controller Tuning For 2-DOF Non-linear Twin Rotor MIMO System," Inderscience International Journal of Automation and Control, 2018 (Early access).

S. S. Das, **K. Das Sharma,** J. K. Chandra and J. N. Bera, "A Hierarchical Image Cryptosystem Based on Visual Cryptography and Vector Quantization", 1st International Conference on Contemporary Advances in Innovative & Applicable Information Technology (ICCAIAIT), Kolkata, India, 2018.

A. K. Roy and **K. Das Sharma**, "Parametric Uncertainty Modeling and Estimation for Electrical Actuators", in Proc. of Computational Intelligence, Communications and Business Analytics (CICBA-2018), Kalyani, India, 2018, 27-28 July.

A. Paul and **K. Das Sharma**, "Adaptation Switching Technique Based Hybrid Fuzzy Controller for a Class of Nonlinear System", in Proc. of 1st IEEE Conf. on Applied Signal Processing (ASPCON), Kolkata, India, 7-9 Dec. 2018.

2017

D. Kar Ray, S. Chattopadhyay, **K. Das Sharma**, S. Sengupta, "Harmonic Power angle Monitoring for Unsymmetrical Fault Diagnosis in Distribution Network", Sensors & Transducers, IFSA Publishing, vol. 209, issue 2, pp. 45-49, February 2017.

R. Maiti, **K. Das Sharma**, and G. Sarkar, "Modelling of parameter uncertainties and disturbance rejection of a real-life system employing L1 adaptive control scheme", AMSE Journal Series: Lectures on Modelling and Simulation; A selection from AMSE # 2017-No. 2; pp 98-108, 2017.

R. Maiti, **K. Das Sharma**, and G. Sarkar, "On-line adaptation of parameter uncertainties of a practical plant employing L1 adaptive controller", in Int. Conf. on Modelling and Simulation (MS-17), Kolkata, India, 2017, 4-5 Nov.

R. Maiti, **K. Das Sharma** and G. Sarkar, "Fuzzy predictor based L1 adaptive controller for nonlinear systems with disturbances," in 2017 IEEE Calcutta Conference (CALCON-17), Kolkata, India, 2017, pp. 253-257.

2016

D. Kar Ray, S. Chattopadhyay, **K. Das Sharma**, S. Sengupta, "Harmonic Voltage Angle and operating point tracking in P-delta plane for diagnosis of Line to Ground Fault in Multi-Bus Power System", Protection and Control of Modern Power System, Springer, 2016 (Accepted for publication).

K. Das Sharma, A. Chatterjee, Patrick Siarry and A. Rakshit "CMA – H∞ Hybrid Design of Robust Stable Adaptive Fuzzy Controllers for Non-Linear Systems," in Proc. of 1 st International Conference on Frontiers in Optimization: Theory and Applications (FOTA-2016), November 2016, Kolkata, India.

S. Kar, **K. Das Sharma** and M. Maitra, "A Particle Swarm Optimization Based Gene Identification Technique for Classification of Cancer Subgroups", in Proc. of 2016 2nd International Conference on Control, Instrumentation, Energy and Communication (CIEC16), January 2016, Kolkata, India.

D. Kar Ray, S. Chattopadhyay, **K. Das Sharma**, S. Sengupta, "Line to Line Fault Detection in a Multi-Bus Power System by Harmonic Analysis", in Proc. ACCET, CRC Press, Taylor & Francis, pp. 89-92, 2016.

D. Kar Ray, S. Chattopadhyay, **K. Das Sharma**, S. Sengupta, "Identification of Faulty Load Bus in a Multi-Bus Power System", in Proc. of 2016 2nd International Conference on Control, Instrumentation, Energy and Communication (CIEC16), January 2016, Kolkata, India, pp. 289-293.

R. Maiti, **K. Das Sharma**, and G. Sarkar, "Optimal state feedback controller and observer design for twin rotor MIMO system," in Proc. 2016 2nd International Conference on Control, Instrumentation, Energy and Communication (CIEC16), January 2016, Kolkata, India, 2016, pp. 30-34.

2015

S. S. Das, **K. Das Sharma,** J. N. Bera and J. K. Chandra, "Quantum signal processing-based visual cryptography with unexpanded shares", Journal of Electronic Imaging, SPIE, vol. 24(5), pp-053026-1-053026-18, Sept/Oct 2015.

S. Kar, **K. Das Sharma**, and M. Maitra, "Gene Selection from Microarray Gene Expression Data for Classification of Cancer Subgroups Employing PSO and Adaptive K-Nearest Neighborhood Technique" Expert Systems With Applications, Elsevier Publisher, vol-42, pp-612-627, January 2015.

A. Roy and **K. Das Sharma** "GA and Lyapunov Theory Based Hybrid Adaptive Fuzzy Controller for Nonlinear Systems," International Journal of Electronics (Taylor & Francis Pub.), vol. 120(2), pp-312-325, 2015.

S. Kar, **K. Das Sharma** and M. Maitra, "A Comparative Study On Gene Ranking And Classification Methods Using Microarray Gene Expression Profiles", in Proc. of Michael Faraday IET International Summit (MFIIS-2015), September 2015, Kolkata, India.

D. K. Ray, S. Chattopadhyay, **K. Das Sharma**, S. Sengupta, "Assessment of Harmonic Voltage angles in a multi-bus power system during symmetrical fault at certain bus", in Proc. of Michel Faraday IET International Summit (MFIIS-2015), pp.243-248, September 2015, Kolkata, India.

D. K. Ray, S. Chattopadhyay, **K. Das Sharma**, S. Sengupta, "Steady State Harmonic Stability analysis in IEEE 14 bus system for fault at generator bus", in Proc. of Michel Faraday IET International Summit (MFIIS-2015), pp.261-266, September 2015, Kolkata, India.

2014

K. Das Sharma, A. Chatterjee and A. Rakshit, "Harmony search algorithm and Lyapunov theory based hybrid adaptive fuzzy controller for temperature control of air heater system with transport-delay", Applied Soft Computing, Elsevier Publisher, vol-25, pp-40-50, December 2014.

T. Chakroborti, **K. Das Sharma**, and A. Chatterjee "A novel local extrema based gravitational search algorithm and its application in face recognition using one training image per class," Engineering Applications of Artificial Intelligence, Elsevier Publisher, vol-34, pp-13-22, September, 2014.

K. Das Sharma, A. Chatterjee and A. Rakshit "Harmony search-based hybrid stable adaptive fuzzy tracking controllers for vision-based mobile robot navigation," Machine Vision and Applications, Springer Publisher, voi-25, issue-2, pp.405-419, February 2014.

S. Kar, **K. Das Sharma** and M. Maitra, "Diagnostic Prediction of Multi-class Cancer using SVM and Nearest Neighbor Classifier", in Proc. of International Conference on Control, Instrumentation, Energy and Communication (CIEC14), pp.711-715, January 2014, Kolkata, India.

S. S. Das, **K. Das Sharma** and J. N. Bera, "A Simple Visual Secret Sharing Scheme Employing Particle Swarm Optimization", in Proc. of International Conference on Control, Instrumentation, Energy and Communication (CIEC14), pp.721-724, January 2014, Kolkata, India.

P. Biswas, R. Maiti, A. Kolay, **K. Das Sharma**, and G. Sarkar, "PSO Based PID Controller Design for Twin Rotor MIMO System", in Proc. of International Conference on Control, Instrumentation, Energy and Communication (CIEC14), pp.106-110, January 2014, Kolkata, India.

T. Banerjee, S. Choudhuri and **K. Das Sharma**, "Speed Tracking Scheme for FOC based Induction Motor by Fuzzy Controller", in Proc. of International Conference on Control, Instrumentation, Energy and Communication (CIEC14), pp.121-125, January 2014, Kolkata, India.

2013

K. Das Sharma "Stable Fuzzy Controller Design Employing Group Improvisation Based Harmony Search Algorithm," International Journal of Control, Automation and Systems, Springer Publisher, vol. 11, no. 5, pp.1046-1052, 2013.

K. Das Sharma "Group Improvisation Based HS Algorithm for Designing T-S Type Fuzzy Controllers for a Class of Non-Linear Systems," International Journal of Electrical, Electronics and Computer Engineering, (Special Edition for Best Papers of Michael Faraday IET India Summit-2012, MFIIS-12), vol. 1, no. 2, pp.7-12, 2013.

K. Das Sharma, Patrick Siarry, A. Chatterjee and A. Rakshit "Nonlinear Parameter Variation of HS Algorithm for Designing Stable Adaptive Fuzzy Controllers," in Proc. of The 11th Biennial International Conference on Artificial Evolution (*EA-2013*), pp.148-160, October 2013, Bordeaux, France.

A. Roy and **K. Das Sharma** "Gravitational Search Algorithm and Lyapunov Theory based Stable Adaptive Fuzzy Logic Controller," Proc. of 1st International Conference on Computational Intelligence: Modelling, Techniques and Applications (CIMTA- 2013), vol.10, pp.581 –586, Procedia Technology, 2013.

P. Biswas, R. Maiti, A. Koley and **K. Das Sharma** "A Novel Path Planning Algorithm for Single Camera Based Mobile Robot Navigation" in Proc. of Second Michel Faraday IET India Summit 2013, November, Kolkata, pp. 4.40-4.43.

K. Das Sharma "Swarm-Based Intelligent Forecasting Method for Estimation of Shoot Length at Maturity of Mustard Plant," in Proc. of National Conf. on Instrumentation & Control, Kolkata, India, pp-83-86, February, 2013.

2012

K. Das Sharma, A. Chatterjee and A. Rakshit "A Random Spatial *lbest* PSO Based Hybrid Strategy for Designing Adaptive Fuzzy Controllers for a Class of Nonlinear Systems" IEEE Transactions on Instrumentation & Measurement, vol-61, no.-6, pp-1605-1612, June, 2012.

K. Das Sharma, A. Chatterjee and A. Rakshit "A PSO-Lyapunov Hybrid Stable Adaptive Fuzzy Tracking Control Approach for Vision Based Robot Navigation" IEEE Transactions on Instrumentation & Measurement, vol-61, no.-7, pp-1908-1914, July, 2012.

K. Das Sharma "A Systematic Design Methodology of PD Fuzzy Logic Controller Using Cellular Fuzzy Logic Concept", International Journal of Automation and Control, Inderscience Publisher, vol. 6, no. 3/4, pp.231-245, 2012.

K. Das Sharma "Group Improvisation Based HS Algorithm for Designing Adaptive Fuzzy Controllers for a Class of Non-Linear Systems", in Proc. of First Michel Faraday IET India Summit 2012, November, Kolkata, pp. 63-67.

2011

I. Bhattacharya, **K. Das Sharma** and U. K. Roy "Tracking and Monitoring of Tagged Objects Employing Particle Swarm Optimization Algorithm in a Departmental Store," IIUM Engineering Journal, Malaysia, vol. 12, no. 1, 2011.

K. Das Sharma, A. Chatterjee and A. Rakshit "Adaptive Fuzzy Controller Design Employing Harmony Search Algorithm for a Class of Non-Linear System," in Proc. of National Conf. on Instrumentation & Control, Kolkata, India, pp-42-45, January, 2011.

2010

K. Das Sharma, A. Chatterjee and A. Rakshit "Design of a Hybrid Stable Adaptive Fuzzy Controller Employing Lyapunov Theory and Harmony Search Algorithm," IEEE Transactions on Control System Technology, vol-18, no.-6, pp-1440-1447, November, 2010.

S. Kar and **K. Das Sharma** "System Identification of a DC Motor Using Different Variants of Particle Swarm Optimization Techniques," Proc. of Int. Conf. on Modeling, Optimization and Computing, Durgapur, India, pp-, October, 2010 (Published in American Journal of Physics).

D. Chakroborty and **K. Das Sharma** "A study on the design methodologies of fuzzy logic controller," in Proc. of 17th State Science & Technology Congress, WBUAFS, March, 2010, Kolkata, India, pp. 69.

2009

K. Das Sharma, A. Chatterjee and A. Rakshit "A Hybrid Approach for Design of Stable Adaptive Fuzzy Controllers Employing Lyapunov Theory and Particle Swarm Optimization" IEEE Transactions on Fuzzy Systems, vol-17, no.-2, pp-329-342, April, 2009.

K. Das Sharma, A. Chatterjee and A. Rakshit "System Identification Using Particle Swarm Optimization Algorithm," Proc. of National Conf. on Modern Trends in Electrical Engineering, Hooghly, India, pp-CS-9-11, July, 2009.

2008

K. Das Sharma, A. Chatterjee and F. Matsuno "A Lyapunov theory and stochastic optimization based stable adaptive fuzzy control methodology," Proc. of SICE International Conf. on Instrumentation, Control & Information Technology 2008, Japan, pp-1839-1844, August 20-22, 2008.

K. Das Sharma and S. Mukhopadhyay "State Space Simulation of a Double Cage Induction Motor" Proc. of National Conf. on NCRAET-2008, Govt. Engg College, Ajmer, 2008.

2006

K. Das Sharma, J. K. Chandra and A. Ghosh "Fuzzy Input Space Design using Cellular Fuzzy Logic Approach," Proc. of National Conf. on Recent Trends in Mechatronics, Nanotechnology & Robotics, Rourkela, India, pp-1-8, April, 2006.

Professional Activities

- **Review Assignments (Journals only):**
    - IEEE Transactions on Fuzzy Systems
    - IEEE Transactions on Industrial Electronics
    - IEEE Transactions on System, Man and Cybernetics, Part-B
    - IEEE Transactions On Instrumentation and Measurement
    - IEEE Transactions on Vehicular Technology
    - IEEE Sensor Journal
    - ELSEVIER Applied Soft Computing
    - ELSEVIER Expert Systems with Applications
    - ELSEVIER Measurement
    - ELSEVIER International Journal of Electrical Power and Energy Systems

- o   Springer International Journal of Control, Automation and Systems
- o   Wiley Asian Journal of Control
- Secretary of IEEE CSS-IMS Joint Chapter, Kolkata Section, India, R10 Region. (2018-2019)
- Executive Committee Member of IEEE Kolkata Section, India, R10 Region. (2016-2019)
- Executive Committee Member of IET (UK) Kolkata LN, India. (2013-2019)
- Member, Young Researchers Committee of "World Federation of Soft Computing".
- Acting as **Technical Program Chair** in 2021 2nd International Conference on Control, Measurement & Instrumentation, CMI21, will be organized by IEEE CSS-IMS Joint Chapter, Kolkata Section, Kolkata, India during January, 2021.
- Acted as Organizing Committee Member in 2016 2nd IEEE International Conference on Control, Instrumentation, Energy & Communication, CIEC16, held at University of Calcutta, Kolkata, India during January 28 – 30, 2016.
- Acted as **Technical Program Chair** in 2016 1st International Conference on Control, Measurement & Instrumentation, CMI16, organized by IEEE CSS-IMS Joint Chapter, Kolkata Section, Kolkata, India during January 8-10, 2016.
- Acted as **Organizing Secretary** in IEEE International Conference on Control, Instrumentation, Energy & Communication, CIEC14, to be held at University of Calcutta, Kolkata, India during January 31 – February 2, 2014.
- Acted as International Program Committee Member in IEEE/SICE International Symposium on "System Integration", SII2013, held at Kobe International Conference Center, Kobe, Japan during December 15 – 17, 2013.
- Acted as International Program Committee Member in IEEE/SICE International Symposium on "System Integration", SII2012, held at Kyushu University, Fukuoka, Japan during December 16 – 18, 2012.
- Acted as International Program Committee Member in IEEE/SICE International Symposium on "System Integration", SII2011, held at Kyoto University, Kyoto, Japan during December 20 – 22, 2011.

SPONSORED OR CONSULTANCY PROJECTS

Sr No.	Title of Project/Consultancy	PI/Co-PI	Amount in Rs.	Funding Agency	Period	Remarks (Completed/ Ongoing)
1.	Development of energy efficient intelligent building architecture based on user activity.	PI	9.84 Lakh	DHESTBT, WB	2018-2021	Ongoing
2.	Technology-aware modelling and implementation of single, two and multi qubit quantum operations for Quantum nanostructures including Quantum Dots (QDs) and Nanowires (NWs)	Co-PI	192 Lakh	DST, GoI	2018-2021	Ongoing
3.	**CU Project Theme:** Development and Fabrication of advanced materials, devices, circuits and systems for automated and fast sensing biological agents in healthcare,	PI	Total Fund : 16 Crore Our Cluster Research Fund : 62 Lakh	UGC UPE-II CU	2016-2019	Completed (My part : **Medical Data Analysis**)

	environment and food quality monitoring **My Project Cluster:** Image and Imaging					
4.	**Project:** Vision Based Navigation of a Mobile Robot using Fuzzy Tracking Controller	PI	1 Lakh	TEQIP-II, UCT-CU	2014-2015	Completed
5.	**Consultancy:** Induction Motor Control System with Protective Measures	PI	1 Lakh	BIEE BEE Traders & Manufacturers	2015-2016	Completed

TECHNOLOGY TRANSFER

"Thyristor based Embedded Starter and Fault Diagnostic System for 3-phase Induction Motor"; Provider – Dr. Kaushik Das Sharma
Recipient –BEE BEE Traders & Manufacturers, Kolkata.

PHD GUIDANCE

(i) Completed
1. Smt Debopoma Kar Ray, Assistant Professor, Electrical Engineering, MCKV Institute of Technology, Hawrah, West Bengal.
   Title of research: "Harmonic Power Flow Analysis and its Applications in Electrical Systems".
   Joint Guidance with Prof. Samarjit Sengupta, Professor (Retd.), University of Calcutta.

(ii) Submitted:
2. Sri Subhajit Kar, Assistant Professor, Electrical Engineering, Future Institute of Engineering & Management, Kolkata, West Bengal.
   Title of research: "On some aspects of intelligent human disease detection and classification techniques from gene level and cell level data sets".
   Joint Guidance with Prof. Madhubanti Maitra Professor, Jadavpur University.

3. Sri Surya Sarathi Das, Assistant Professor, Computer Application, Kalyani Govt. Engineering College, Kalyani, West Bengal.
   Title of research: "Cyber Resilient Image Transmission Technique Employing Improved Visual Secret Sharing Schemes".
   Joint Guidance with Prof. J. N. Bera, Professor, Applied Physics, University of Calcutta.

4. Smt Roshni Maity, University Research Fellow, Applied Physics, University of Calcutta.
   Title of research: "L1 Adaptive Controller Design for Non-Linear Systems".
   Joint Guidance with Prof. Gautan Sarkar, Professor, Applied Physics, University of Calcutta.

(iii) Registered:
5. Sri Debashish Biswas, Assistant Professor, Electrical Engineering, Techno India College of Engineering, Kolkata, West Bengal.
   Title of research: "Orthogonal Function Based Controller Design and Real-time Implementation".
   Joint Guidance with Prof. Gautan Sarkar, Professor, Applied Physics, University of Calcutta.

6. Ms Pubali Chatterjee, CSIR Fellow, University of Calcutta
   Title of research: "Advancements of Brain Image Analysis in Machine Learning Framework".
   Joint Guidance with Prof. Amlan Chakroborty, Professor, AKCSIT, University of Calcutta.

7. Sri Samiul Alam, Assistant Professor, Applied Electronics & Instrumentation Engg., Heritage Institute of Technology, Kolkata.
   Title of research: "Photoplethysmogram Instrumentation and Data Archiving for Personal Healthcare".
   Joint Guidance with Prof. Rajarshi Gupta, Professor, Applied Physics, University of Calcutta.

8. Ms Monalisa Sinha Roy, DST Women Scientist, University of Calcutta
   Title of research: "Non-invasive Assessment of Cardiovascular Functions utilizing Machine Learning Techniques".
   Joint Guidance with Prof. Rajarshi Gupta, Professor, Applied Physics, University of Calcutta.

(iii) Enrolled

9. Sri Nirmal Murmu, Assistant Professor, Applied Physics, University of Calcutta.
   Title of research: "Applications of Mobile Robots".
   Joint Guidance with Prof. Gautan Sarkar, Professor, Applied Physics, University of Calcutta.
10. Sri Bed Prakash Das, WBDST-SRF, Applied Physics, University of Calcutta.
    Title of research: "Smart Home Architecture Design".
    Joint Guidance with Prof. Jitentranath Bera, Professor, Applied Physics, University of Calcutta.

11. Sri Anirban Dey, CoE Research Scholar, Centre of Excellence on System Biology, University of Calcutta.
    Title of research: "Multi-modal Medical Data Integration".
    Joint Guidance with Prof. Jitentranath Bera, Professor, Applied Physics, University of Calcutta.

SUPERVISION OF MASTER'S THESES/DISSERTATION IN THE DEPARTMENT

1. Stochastic Optimization based PID Controller Design for TRMS: 2014
2. PSO based System Identification and PID Controller Design for DC Motor: 2015
3. Linear State Feedback Control for TRMS: 2015
4. Image Transmission via Wireless Channel using Raspberry pi: 2016
5. Design Issues of Repetitive Controller for Steady State Error Correction: 2017
6. Selective Adaptation Based Fuzzy Controller Design: 2018
7. Uncertainty Modeling using Stochastic Optimization Method: 2018
8. Soft Sensor Based ECG Prediction employing PPG Signal: 2019
9. Fuzzy Controller Design for Delayed Thermal System: 2019
10. Kalman Filter Based Temperature estimation in a Smart Home Environment: 2020
11. Machine Learning Based Human Gesture and Emotion Identification Technique: 2020
12. Cyber Security Analysis of Electrical Power Line: 2020

COLLABORATIVE WORK OUTSIDE THE UNIVERSITY

Area of work: Stochastic Optimization, Theoretical Issues
Collaborator: Prof. Patrick Siarry, University of Paris, Est-Creteil, France and Prof. Amitava Chatterjee, Jadavpur University, India.

Area of work: Disturbance Rejection Controller for Exoskeleton Robots
Collaborator: Prof. Yacine Amirat & Dr. Samer Mahamed, University of Paris, Est-Creteil, France.

ACADEMIC ASSIGNMENTS OUTSIDE THE UNIVERSITY

PhD Committee member:
 1. Dept. of Electrical Engineering, Indian Institute of Engineering Science & Technology, India.
 2. Department of Electrical Engineering, Jadavpur University, Kolkata.

INVITED LECTURES DELIVERED

Sl. No.	Title of Lecture/Academic Session	Title of Conference/ Seminar/Workshop / Symposium	Organized by and date
1.	Visual Cryptography	*IET Special Lecture Webinar*	28th septembre, 2020, Online Lecture
2.	Visual Cryptography: An Introduction	*One Week FDP*	Haldia Institute of Technology, August 12, 2020, Online Lecture
3.	Computational Intelligence Guided Bio Sensors for Cancer Sub-Group Detection	*Plenary Lecture at ISDA 2019 Conference*	ISDA 2019 Conference, 3rd December 2019, Online Lecture
4.	*A Journey from Classical to Intelligent Control Approaches*	*ISCTA-2019*	NIT Durgapur, 15th October 2019
5.	*Vision Based Navigation of Mobile Robots An Adaptive Fuzzy Tracking Control Based Approach*	*Special Invited Lecture*	University of Paris-Est Creteil, Senart Campus, 12th July 2019
6.	Cyber Resilient Image Transmission Technique - *An Overview*	Two day Seminar on *CISPC-2019*	Future Institute of Engineering & Management, Kolkata 29th March 2019
7.	*A Journey from Classical to Intelligent Control Approaches*	FDP	Institute of Engineering & Management, Kolkata, 8th August 2018
8.	*Harmony Search Algorithm & its Application in Parameter Estimation*	IET Special Lecture	IET Special Lecture, Department of Applied Physics, CU, 21st May, 2018
9.	Control Systems and Its Application *A Journey from Classical to Intelligent Control Approaches*	Two day Seminar on *CISPC-2018*	Future Institute of Engineering & Management, Kolkata 23rd March 2018
10.	Way to Intelligent Control Theory	FDP organized by Department of Radio Physics & Electronics, University of Calcutta	University of Calcutta, India, 13th March, 2018
11.	CT Image Based Cancer Detection *A Computational Intelligence Based Approach*	Invited Lecture	North Eastern Hill University, Shilong, Meghalaya 9th October, 2017
12.	Robotics and its Applications *-the state of the art*	One Day Seminar on "Recent Trends in Science and Technology"	Purulia Govt. Engineering College 29th March 2017
13.	Optimization Technique in System Identification	Two day Seminar on "Computational Intelligence in Engineering Application"	Future Institute of Engineering & Management, Kolkata 24th March 2017
14.	Evolutionary Optimization Based Controller Design Technologies	Seminar on "Applications of Soft Computational Techniques in Control System Application"	Techno India College of Technology 22nd Dec, 2016
15.	Bio Sensor Design For Cancer Sub-Group Detection From Gene Expression Data	Invited Lecture	National Institute of Technology, Meghalaya, India 29th August, 2016

16.	Evolutionary Optimization Based Image Processing using MATLAB	National Level Workshop on "Evolutionary Optimization Techniques"	Department of Electrical Engineering, Heritage Institute of Technology 7th July, 2016
17.	Nano-Bio Sensors For Cancer Sub-Group Detection From Gene Expression Data	Invited Lecture	Department of Electronics & Computer Science, University of Southampton, UK 11th May, 2016
18.	Classical Control Theory The Inside Story	Invited Lecture	Techno India College of Technology, Rajarhat 6th April, 2016
19.	Mobile Robot navigation: *State of the Art*	Two Days Seminar on "Recent Trends in Electrical Engineering" on 4th & 5th April, 2014 under TEQIP-II	Murshidabad College of Engineering & Technology, Berhampore, West Bengal 4th April, 2014
20.	Mobile Robot navigation: *Tracking Controller Based Approach*	Invited Lecture	Megnad Saha Institute of Technology, Kolkata, West Bengal
21.	Real life Controller Implementation using Microcontroller	Faculty development programme on "Microcontroller Applications in Electrical Power System"	Narula Institute of Technology, Kolkata, West Bengal Dec, 2012

PLACE: Kolkata, India

DATE: 30.12.2020   **KAUSHIK DAS SHARMA**