Dr. Sudeep Sharma
PhD (IIITDM Jabalpur)
M.Tech. (IIT Roorkee)
B.E. (LNCT Bhopal)

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ACADEMIC QUALIFICATION

Ph.D. in Electronics & Communication Engineering
Under Visvesvaraya PhD Scheme for Electronics & IT, Government of India
Indian Institute of Information Technology Design and Manufacturing, Jabalpur (IIITDMJ)
Thesis Title: Indirect Identification of Industrial Time-delayed Processes

M.Tech. in System Modeling & Control
Indian Institute of Technology Roorkee (IITR), India

B.E. in Electronics and Communication Engineering
Laxmi Narain College of Technology (LNCT), Bhopal

RESEARCH INTREST

- Data-driven System Modeling, Signal Processing for Industrial System Identification and Control, Robotics, Artificial Intelligent and Machine Learning, Reinforcement Learning, Embedded Systems, Internet of Things (IoT), Modeling using Neural Networks, Optimization Techniques, Nature Inspired Algorithms.

EXPERIENCE

1.	Assistant Professor, IIIT Surat	October 2021- Till date
2.	Assistant Professor, MLRIT, Hyderabad	October 2021- October 2022
3.	Teaching Assistantship, IIITDM Jabalpur	August 2016 – July 2021
	System Theory, Control Theory, Signal Processing	
	Design of Experiments, Modern Control Theory,	
	Control Systems Lab	
4.	Assistant Professor, LNCT Bhopal	July 2012 – July 2016
	Signals and Systems, Analog and Digital Electronics,	
	Signal Processing	
5.	Teaching Assistantship, IIT Roorkee	August 2010 - April 2012
	MATLAB/Simulink, Control and Guidance Lab	

HONORS (FELLOWSHIPS, PRIZES)

- Received Visvesvaraya PhD Fellowship from IIITDM Jabalpur between August 2016-July 2021
- Srijan Award for Outstanding work in Teaching during 2014 - 2016

- GATE (ECE) All India Rank – 580 in 2010
- M.Tech. Scholarship- IIT Roorkee during August 2010 - June 2012

PATENTS

1. METHOD AND APPARATUS FOR IDENTIFYING TIME VARYING, TIME-DELAYED-PROCESSES IN REAL TIME. (Application Number 202141059744)
2. METHOD TO IDENTIFY AND CONTROL PROCESSES USING NEURAL NETWORK. (Application Number 202141059747)

PUBLICATIONS

Journal Articles

1. **S. Sharma** and P. K. Padhy, " Closed-loop Identification of Stable and Unstable Processes with Time-delay," *Journal of the Franklin Institute*, vol. 359, no. 7, pp. 3313-3332, 2022, DOI: 10.1016/j.jfranklin.2022.03.006. (**Impact factor: 4.504**)
2. **S. Sharma** and P. K. Padhy, "A Novel Iterative System Identification and Modeling Scheme With Simultaneous Time-Delay and Rational Parameter Estimation," *IEEE Access*, vol. 8, pp. 64918-64931, 2020, DOI: 10.1109/ACCESS.2020.2985132. (**Impact factor: 3.367**)
3. **S. Sharma** and P. K. Padhy, " Extended B-polynomial Neural Network for Time-delayed System Modeling using Sampled Data," *Journal of Intelligent & Fuzzy Systems*, vol. 41, no 2, pp. 3277-3288, 2021, DOI: 10.3233/JIFS-210580. (**Impact factor: 1.737**)
4. **S. Sharma** and P. K. Padhy, " An Indirect Approach for Online Identification of Continuous Time-delay Systems," *International Journal of Numerical Modeling: Electronic Networks, Devices and Fields*, vol. 35, no. 1, 2022, pp. e2947, DOI: 10.1002/jnm.2947. (**Impact factor: 1.296**)
5. **S. Sharma** and P. K. Padhy, " Indirect Output-error Modeling Scheme for Continuous Processes with Unknown Time Delay using Iterative Instrument Variable Approach," *International Journal of Dynamics and Control*, pp. 1-12, 2022, DOI: 10.1007/s40435-021-00896-z. (**Scopus: Q2**)
6. **S. Sharma** V. Kumar and R. Kumar, " Supervised online adaptive control of inverted pendulum system using Adaline artificial neural network with varying system parameters and external disturbance," *International Journal of Intelligent Systems and Applications*, vol. 4, no. 8, pp. 53-61, 2012, DOI: 10.5815/ijisa.2012.08.07. (**Scopus**)
7. R. Kumar, MJ Nigam, **S. Sharma** and P. Bhavsar, " Temporal difference based tuning of fuzzy logic controller through reinforcement learning to control an inverted pendulum," *International Journal of Intelligent Systems and Applications*, vol. 4, no. 9, pp. 15-21, 2012, DOI: 10.5815/ijisa.2012.09.02. (**Scopus**)
8. A. Kumar, **S. Sharma** and R. Mitra, " Design of type-2 fuzzy controller based on LQR mapped fusion function," *International Journal of Intelligent Systems and Applications*, vol. 4, no. 8, pp. 18-29, 2012, DOI: 10.5815/ijisa.2012.08.03. (**Scopus**)
9. Tauseef, Md, **Sudeep Sharma**, and Rita Jain. "A Survey on Leakage Reduction on Logic Gate in Deep Submicron Technology." International Journal of Engineering Trends and Technology, ISSN: 2231-5381. (**Scopus: Q4**)
10. **S. Sharma** and P. K. Padhy, "An Improved, Robust and Fast Identification Approach for Continuous Time Delay Systems." (In preparation)

Conferences:

1. **Sharma S**, Verma B, Trivedi R, Padhy P.K. Identification of Stable FOPDT Process Parameters using Neural Networks. IEEE International Conference on Power Energy, Environment and Intelligent Control (PEEIC), pp. 545-549, 2018, DOI: 10.1109/PEEIC.2018.8665411.

2. **Sharma S**, Padhy PK. Discrete Transfer Function Modeling of Non-linear Systems using Neural Networks. IEEE International Conference on Image Information Processing (ICIIP), pp. 558-563, 2019, DOI: 10.1109/ICIIP47207.2019.8985827.

3. **Sharma S**, Padhy PK. A Data Driven Approach to Identify Continuous-time Systems with Dead-time using Step Input. IEEE Region 10 Conference (TENCON), pp. 632-636, 2019, DOI: 10.1109/TENCON.2019.8929381.

4. **Sharma S**, Padhy PK. A Two Stage Identification Approach for Processes with Dead-time using Step Input. IEEE International Conference On Control, Automation, Power and Signal Processing CAPS-2021 (submitted).

5. K. S. Kumar, **S. Sharma** and P. K. Padhy, "Voltage regulation of DC-DC Boost converter using Modified IMC controller," 2018 5th International Conference on Signal Processing and Integrated Networks (SPIN), 2018, pp. 836-841, DOI: 10.1109/SPIN.2018.8474150.

6. V. K. Singh, **S. Sharma** and P. K. Padhy, "Controlling of AVR Voltage and Speed of DC Motor using Modified PI-PD Controller," 2018 2nd IEEE International Conference on Power Electronics, Intelligent Control and Energy Systems (ICPEICES), 2018, pp. 858-863, DOI: 10.1109/ICPEICES.2018.8897302.

7. R. Trivedi, B. Verma, **S. Sharma** and P. K. Padhy, "Maximum Sensitivity Based PIλ Controller for FOPDT Processes," 2018 International Conference on Power Energy, Environment and Intelligent Control (PEEIC), 2018, pp. 585-588, DOI: 10.1109/PEEIC.2018.8665544.

8. S. K. Suryavanshi, **S. Sharma** and P. K. Padhy, "Tuning of IMC based PID controller for stable and integrating time delayed processes.," 2019 International Conference on Intelligent Computing and Control Systems (ICCS), 2019, pp. 1224-1228, DOI: 10.1109/ICCS45141.2019.9065384.

9. B. Verma, **S. Sharma**, R. Trivedi and P. K. Padhy, "Controller design for TITO Process using Equivalent Transfer Function with new Relative Derivative Normalized Gain Array," 2018 International Conference on Power Energy, Environment and Intelligent Control (PEEIC), 2018, pp. 452-456, DOI: 10.1109/PEEIC.2018.8665609.

10. S. Sinha, **S. Sharma** and P. K. Padhy, "A Comparative Study on Effective Control of Unstable Dead Time System," 2021 International Conference on Control, Automation, Power and Signal Processing (CAPS), 2021, pp. 1-5, DOI: 10.1109/CAPS52117.2021.9730582.

11. S. K. Lokesh, **S. Sharma** and P. K. Padhy, "Study of Different Decoupling Techniques for TITO Time-delay System," 2021 International Conference on Control, Automation, Power and Signal Processing (CAPS), 2021, pp. 1-6, DOI: 10.1109/CAPS52117.2021.9730644.

12. S. K. Lokesh, **S. Sharma** and P. K. Padhy, "Study of Different Decoupling Techniques for TITO Time-delay System," 2021 International Conference on Control, Automation, Power and Signal Processing (CAPS), 2021, pp. 1-6, DOI: 10.1109/CAPS52117.2021.9730644.

RESEARCH EXPERIENCE

Ph.D. Scholar,
Supervisor: Dr. Prabin Kumar Padhy, IIITDM Jabalpur,
- Proposed the Indirect Method to Identify Unknown Time-delayed Processes.
- Proposed the Recursive Real-time Identification of Time Varying Time-delayed Processes.

- Proposed an Indirect Closed-loop Identification Approach for Time-delayed Processes.
- Proposed the Delayed Artificial Neural Networks for Process Modeling.

Outcome: Six Journals (Five Published and One Under Review) & Four Conferences.
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Adaptive Neural Network Controller for the Inverted Pendulum (M.Tech thesis)
Supervisor: Dr. Vijay Kumar IIT Roorkee,

This project involved modeling the dynamics of the inverted pendulum system. The adaptive artificial neural network controller was designed and its performance was compared with other conventional linear controllers in the presence of disturbances and parameter variations.

SOFTWARE PROGRAMMING & HARDWARE SKILL

MATLAB(Proficient), Arduino(Proficient), Latex(Proficient), AxMath (Proficient), MS-Visio(Proficient), MathType (Proficient), Scilab(Intermediate), C++ (Prior experience), MS-Excel and Word (Intermediate).

EXPERIENCE OF RESPONSIBILITY

- Teaching Assistant on Control Systems, 2016 - 2020.
- Volunteer for an "International Conference " at IITDM Jabalpur, 2018.
- Conducted " Texas Instruments Analog Design Contest " at LNCT Bhopal, 2015.

Links

https://www.researchgate.net/profile/Sudeep-Sharma-4

https://scholar.google.com/citations?hl=en&view_op=list_works&gmla=AJsN-F6ZBuUG-UmFdDDApNEHLWHBPiwpZwXPkGa0ZG306uN7R2xJEIgatLjsrFsxV9TrBMkTHqm4qw8gHRls2SPWpx_oBQWWVQ&user=hGN0fHoAAAAJ

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