



FACULTY PROFILE ON WEBSITE

Faculty Name	Dr. Saranya S. N.	
Academic Designation	Associate Professor	
Educational Qualification	B.E., M.Tech., Ph.D., Postdoctoral Fellow, MIE	
Experience in Teaching & Industry	Teaching: 9 years Research: 2 years 6 months	
Date of Joining	27/09/2023	
Official Email ID	saranya-csicb@dsatm.edu.in	
Employee ID	180737	

Educational Details

- Postdoctoral Fellow (Pursuing), Lincoln University College, Malaysia, 2025–Present
- Ph.D. (Faculty of Technology), Anna University, Chennai, India, 2023 — CGPA: 8.4.
- M.Tech. in Process Dynamics and Control, Coimbatore Institute of Technology (Autonomous; affiliated to Anna University), 2016 — CGPA: 8.30.
- B.E. in Electronics and Instrumentation Engineering, New Prince Shri Bhavani College of Engineering and Technology (affiliated to Anna University), 2014 — CGPA: 7.51.
- HSC, Sri Sankara Vidhyalaya Matriculation Higher Secondary School, Chennai, 2010 — 77%.
- SSLC, Sri Sankara Vidhyalaya Matriculation Higher Secondary School, Chennai, 2008 — 85%.

Professional Experience

- Associate Professor (Regular), Dayananda Sagar Academy of Technology & Management, Bengaluru — Present.
- Assistant Professor (Regular), Dayananda Sagar Academy of Technology & Management, Bengaluru.
- Assistant Professor, Kumaran Institute of Technology, Chennai.
- Researcher-cum-Teaching Assistant, Coimbatore Institute of Technology, Anna University — funded by AICTE under TEQIP.
- Research Entrepreneur, Bumblebee Dynamics and Protronics.
- Embedded Engineer Consultant (Part-Time), Dynamech Design Solutions, Chennai.

Publications

PATENTS

- Radial axis active magnetorheological tool damper for boring operations — Application No. 202141022882; granted (2024).
- Landslide detection-based wireless sensor networks — Application No. 346446-001; granted.
- Magnetorheological concrete strength measuring disc — Application No. 346447-001; granted.
- Neoprene auxetic pads for drone landing suspension — Application No. 364062-001; granted.
- Mini Core Programmer for ATMEL microcontrollers — Application No. 379584-001; granted.
- Human-Centered Cognitive Device for Cobot in Industry — UK Registered Design No. 6341239; granted.
- Auxetic Rotary Active Suspension System for enhanced maneuverability and stability in space rovers — Indian Application No. 202441059470A; published and progressing toward grant.

- Radio-controlled flow and pressure valve for a pasteurization process operated through a deep-reinforcement-learning-based model predictive controller — Application No. 202441083635A; published; FER replied.
- Distributed autonomous system and method for environment-adaptive oxygen enrichment, air purification and real-time environmental intelligence using Agentic Artificial Intelligence — Application No. 20266410000594; published.

INTERNATIONAL JOURNALS / BOOK CHAPTERS

1. Saranya, S. N., & Karras, D. A. (2026). Digital twin-based deep reinforcement learning framework for real-time chatter suppression and energy optimization in micro-turning toward Industry 5.0. *Sustainable Global Societies Initiative*, 1(2).
2. Saranya, S. N., Medha, A. M., Jawahar, R. R., Rampur, A., & Vikiyath, J. (2026). Online condition monitoring system in friction stir welding. In *Advances in Additive Manufacturing Technologies* (pp. 682–689).
3. Saranya, S. N., Shukla, S., Jayabalakrishnan, D., Manish, R., & Chaithanya, R. (2026). Optimizing humanoid robot performance with field-oriented harmonic actuator control. In *Advances in Additive Manufacturing Technologies* (pp. 668–673).
4. Saranya, S. N., & Karras, D. A. (2025). Digital twin framework for real-time tool wear estimation and adaptive optimization in micro-turning for Industry 5.0. *SGS – Engineering & Sciences*, 1(5).
5. Rashmi, S., Shahapure, N. H., Madhumala, R. B., & Saranya, S. N. (2025). Hybrid wireless sensor network packet transmission framework. *International Journal of Information Technology*.
6. Saranya, S. N., Karras, D. A., & Aishwarya, M. (2025). LSTM-based real-time tool wear prediction in micro-turning using sensor fusion. *SGS – Engineering & Sciences*, 1(2).
7. Saranya, S. N., Midhunchakkaravarthy, J., & Karras, D. A. (2025). Review of online condition monitoring techniques for micromachining defects. *SGS – Engineering & Sciences*, 1(1).
8. Saravanan, K., Jaya Balakrishnan, D., Raj Jawahar, R., & Saranya, S. N. (2025). Microstructural analysis of an AZ31 alloy plate processed with ECAP and electro-pulsing treatment. *Surface Review and Letters*, 2550051. <https://doi.org/10.1142/S0218625X25500519>
9. Loganathan, P., Murugan, P. A., Selvamani, N. K., Rengarajan, K. K., Jayaseelan, G. A. C., & Saranya, S. N. (2025). Optimization of electrochemical machining process parameters using artificial neural network. *AIP Conference Proceedings*, 3306(1), 050012. <https://doi.org/10.1063/5.0275777>
10. Magesh, M., Jawahar, P. K., Saranya, S. N., & Raj Jawahar, R. (2024). Spider monkey metaheuristic tuning of model predictive control with perched landing stabilities for a novel auxetic landing foot in drones. *Elektronika ir Elektrotechnika*, 30(1).
11. Magesh, M., Jawahar, P. K., & Saranya, S. N. (2023). Perching dynamics of landing gears in drones over asymmetrical surfaces using deep reinforcement learning. *Journal of Propulsion Technology*, 44(4), 7825–7832.
12. Yin, P., Prabhu, L., & Saranya, S. N. (2023). Effects of *Scenedesmus dimorphus*, *Spirulina* biodiesel and hydrogen nanoparticle fuel blends on emission, noise and vibration characteristics. *Fuel*, 352, 129010.
13. Radjarejesri, S., Lakshmana Kumar, S., & Saranya, S. N. (2022). Performance study on electrochemical machining with fuzzy optimization. *Periodico di Mineralogia*, 91(4), 557–564.
14. Saranya, S. N., & Thirumarimurugan, M. (2021). Supervised tuning of chiller with cold phase change material using RSM Smith predictor. *Materials and Technology*, 55(6), 763–771.
15. Kuppusamy, S., Lakshmanan Kumar, S., & Saranya, S. N. (2020). Effect of process parameters of (Cr3C2 + alumina) thermal spray coating on tribological control factors. *Materials Today: Proceedings*.
16. Lakshmanan Kumar, S., Saranya, S. N., & Raj Jawahar, R. (2020). Wavelets application in prediction of tunnel defects in friction stir welding of alloy joints from a vibroacoustic ANN-based model. *International Journal of Innovative Technology and Exploring Engineering*, 9(1), 462–468.
17. Aravindh Balaji, S., Lakshmanan Kumar, S., & Saranya, S. N. (2020). Study of combustion characteristics on a single-cylinder direct-injection diesel engine with plasma- and HVOF-coated ceramic powders on the piston crown. *Materials Today: Proceedings*.
18. Saranya, S. N., Lakshmana Kumar, S., & Raj Jawahar, R. (2020). Prediction of paper mill wastewater treatment process parameters in a sequencing batch reactor using fuzzy logic technique. *International Journal of Recent Technology and Engineering*, 8(5), 1929–1937.
19. Saranya, S. N., Thirumarimurugan, M., Sivakumar, V. M., & Sowparnika, G. C. (2018). An optimal control evaluation on revamping the performance of heat exchangers with process uncertainties using modified cascade control by an amalgamated approach. *TAGA Journal of Graphic Technology*, 3003–3012.
20. Sowparnika, G. C., Thirumarimurugan, M., Sivakumar, V. M., Saranya, S. N., & Vinoth, N. (2017). Investigation on regulation of critical hemodynamic variables by correlative optimal control studies for a pharmacokinetic–pharmacodynamic model. *Latin American Journal of Pharmacy*, 1892–1900.
21. Sowparnika, G. C., Thirumarimurugan, M., Sivakumar, V. M., & Saranya, S. N. (2017). Evaluation of control schemes for blood pressure regulation. *World Applied Sciences Journal*, 557–562.
22. Sowparnika, G. C., Thirumarimurugan, M., Sivakumar, V. M., & Saranya, S. N. (2017). Model-based approach on the effect of isoflurane and control of critical hemodynamic variables. *International Research Journal of Pharmacy*, 130–137.
23. Saranya, S. N., Thirumarimurugan, M., Sivakumar, V. M., & Sowparnika, G. C. (2017). An optimal analysis of controller strategies for different heat exchangers: A review. *Middle East Journal of Scientific Research*, 25(4), 761–775.
24. Saranya, S. N. (2016). Analysis of advanced controllers for temperature control in a heat exchanger. *International Journal of Innovative Research in Science, Engineering and Technology*, 5(2), 1880–1887.
25. Saranya, S. N. (2016). Moral dilemma—An impact on moral autonomy. *International Journal of Research in Social Sciences*, 6(1), 123–134.
26. Saranya, S. N. (2015). A comparative study on IMC and PID controller in a heat exchanger. *Australian Journal of Basic and Applied Sciences*, 9(33), 64–67.

International Conferences:

1. Charan Teja, K. B., Krishna Kartheek, T., Dhatri, V., Raghavan, V. N., Saranya, S. N., & Madhumala, R. B. (2026). A hierarchical sensing IoT framework for fire detection integrating low-power sensors with on-demand AI-driven visual verification. *ICAECT 2026*. <https://doi.org/10.1109/ICAECT68478.2026.11425916>
2. Saranya, S. N., Madhumala, R. B., Samuel, S. D., Yaplar, S. G., V., S., & Paul, V. S. (2026). AgriBot: An LLM-guided IoT system for real-time soil monitoring and irrigation advice. *ICAECT 2026*. <https://doi.org/10.1109/ICAECT68478.2026.11426073>

3. Saranya, S. N. (2025). LSTM-based real-time tool wear prediction in micro-turning using low-cost sensor fusion. 2nd LGPR Conference, Lincoln University College, Malaysia, 26–27 April 2025.
4. Saranya, S. N. (2025). Review of online condition monitoring techniques for micromachining defects using multi-component signal separation and deep reinforcement learning in Industry 4.0. 1st LGPR Conference, Lincoln University College, Malaysia, 1–2 February 2025.
5. Saranya, S. N. (2024). Probe-based sensor tool force sensor for vertical milling application. 6th International Conference on Advances in Additive Manufacturing Technologies (ICAAMT 2024), Coimbatore Institute of Technology, 19–20 December 2024.
6. Saranya, S. N. (2024). Online condition monitoring system in friction stir welding. ICAAMT 2024, Coimbatore Institute of Technology, 19–20 December 2024.
7. Saranya, S. N., Krishnan, A., S., K., B., N. N., & Dhanush Kumar, P. (2024). Development of an advanced VANET architecture for efficient path planning in curved, hilly terrains. 4th ICPCSN, Salem, pp. 610–616. <https://doi.org/10.1109/ICPCSN62568.2024.00102>
8. Saranya, S. N. (2024). Spider-monkey-based metaheuristic tuning of PID controllers for stability landing of UAVs with SMP-auxetic landing gears. 4th ICPCSN 2024.
9. Anitha, R., Siranthini, B., Saranya, S. N., Magesh, M., & Karthikeyan, S. (2023). Machine-vision-based tool location and wear monitoring in turning operation: Optical setup and image-processing approaches. ICRAMM 2023.
10. Siranthini, B., Anitha, R., Saranya, S. N., Magesh, M., & Karthikeyan, S. (2023). Non-destructive detection of material defects in Monel alloy using force and acoustic-emission measurements during turning operation. ICRAMM 2023.
11. Saranya, S. N. (2023). IoT framework for vibroacoustic hole measurement in EDM operation within the context of Industry 4.0. ICAAMT 2023.
12. Lakshman Kumar, S., Raj Jawahar, R., Saranya, S. N., & Ramkumar Jaganathan. (2023). Acoustical characterization of natural-fibre-reinforced PEEK composites. 4th ICIRMST 2023.
13. Magesh, M., Jawahar, P. K., & Saranya, S. N. (2022). Spider-monkey-based metaheuristic tuning of PID controllers for stability landing of UAVs with SMP-auxetic landing gears. ICEEICT 2022.
14. Lakshmana Kumar, S., Thenmozhi, M., Magesh, M., & Saranya, S. N. (2022). Optimization of distillation parameters for a glass solar still for different energy-storage materials using artificial neural network. ICEARS 2022.
15. Lakshmana Kumar, S., Thenmozhi, M., & Saranya, S. N. (2022). An evaluation on optimal control of shell-and-tube heat exchanger for various time delay and disturbance. ICOEI 2022.
16. Martin Charles, M., Lakshmanan Kumar, S., Magesh, M., et al., including Saranya, S. N. (2021). Performance analysis of glass solar still for different energy-storage materials using ANN. NTADES 2021.
17. Dheebiha, K., Yamuna, K., Ashwini, M. C., Saranya, S. N., & Thirumarimurugan, M. (2017). Improving the performance of a plate-type heat exchanger using advanced controllers for various working fluids. International Conference on Science, Management and Engineering, pp. 115–120.
18. Yamuna, K., Ashwini, M. C., Dheebiha, K., Saranya, S. N., & Thirumarimurugan, M. (2017). Evaluation of controllers on the behaviour of a shell-and-tube heat exchanger for different fluids. International Conference on Science, Management and Engineering, pp. 121–126.
19. Ashwini, M. C., Dheebiha, K., Yamuna, K., Saranya, S. N., & Thirumarimurugan, M. (2017). Interpretation of control strategies for a spiral heat exchanger using Newtonian and non-Newtonian fluids. International Conference on Science, Management and Engineering, pp. 109–114.
20. Saranya, S. N., Thirumarimurugan, M., Sivakumar, V. M., & Sowparnika, G. C. (2017). An analysis on modeling and optimal control of heat exchangers using PI and PID controllers. ICACCS 2017.
21. Sowparnika, G. C., Sivakumar, V. M., Thirumarimurugan, M., & Saranya, S. N. (2017). Metaphorical analysis of tuning rules for PI and PID controllers in modeling an automatic drug-delivery system to control mean arterial blood pressure. ICACCS 2017.
22. Saranya, S. N., Thirumarimurugan, M., Sivakumar, V. M., & Sowparnika, G. C. (2017). Modeling and control of plate-type heat exchangers using PI and PID controllers. 11th International Conference on Intelligent Systems and Control, pp. 439–443.
23. Saranya, S. N., Thirumarimurugan, M., Sivakumar, V. M., & Sowparnika, G. C. (2016). An analysis on optimal control of shell-and-tube heat exchanger using various controllers for varying time delay and disturbance. International Conference on Engineering and Technology, 3, 245–249.
24. Saranya, S. N. (2015). A comparative study on IMC and PID controller in a heat exchanger. International Conference on Advances in Science, Engineering and Management.

National Conferences:

- Vehicle Theft Alert Control using GSM — presented at Advances in Control and Computing of Analog and Digital System (ACCADS 2014).

Conference Attended

- 2nd LGPR Conference, Lincoln University College, Malaysia, 26–27 April 2025 — paper presentation on LSTM-based real-time tool-wear prediction.
- 1st LGPR Conference, Lincoln University College, Malaysia, 1–2 February 2025 — review presentation on micromachining condition monitoring.
- 6th International Conference on Advances in Additive Manufacturing Technologies (ICAAMT 2024), Coimbatore Institute of Technology, 19–20 December 2024.
- 4th International Conference on Pervasive Computing and Social Networking (ICPCSN 2024), Salem.
- International Conference on Advances in Additive Manufacturing Technologies (ICAAMT 2023).
- International Conference on Recent Advances in Materials and Manufacturing (ICRAMM 2023).

Awards

- AICTE TEQIP grant support for two years (2016–2018).
- Pride of India Award 2022 — “Most Promising Research Scholar.”
- Gurukul RACE India Award 2019 — “Young Researcher.”
- Indo-Asian Award 2019 — “Young Scientist.”
- RULA International Awards 2018 — “Distinguished Researcher in Process Control Technologies.”
- First Prize in academic proficiency, 2010–2011.
- Second Prize in mini-project competition, 2013.

Academic Activity

PROFESSIONAL MEMBERSHIP

- Member, The Institution of Engineers (India), Membership No. 250101023030 (from 30 January 2025).
- Professional Member, IEEE, Membership No. 99853569 (membership period: 12 February 2025 to 31 December 2025).

RESEARCH, CONSULTANCY AND PROJECT MENTORING

- Principal Investigator for a VGST 2024 proposal on blockchain-based vehicular ad hoc networks.
- Team Mentor, ISRO Rover Challenge 2024 (Team ID 10752); selected in the preliminary round.
- Mentored the autonomous rover team for the Australian Rover Challenge 2025; the team was listed among the top 20 globally.
- Institute–industry collaboration on zeolite-based oxygen enrichment and IIoT-enabled air purification.
- Research on memristor-based conductive hydrogel for advanced sensing and neuromorphic applications.
- Real-time milk-pasteurization control using IMC-Smith, MPC and deep reinforcement learning.
- Auxetic landing gear and deep-reinforcement-learning-based control for stable UAV perching.
- Consultancy project completed for Dynamech Design Solutions — project value: ₹1.5 lakh.

ACADEMIC LEADERSHIP

- Industrial Visit Coordinator, Process Dynamics and Control, Coimbatore Institute of Technology (2015–2016).
- Placement Coordinator, Process Dynamics and Control, Coimbatore Institute of Technology (2015–2016).
- Vice President, Department of Electronics and Instrumentation Engineering, New Prince Shri Bhavani College of Engineering and Technology (2013–2014).
- Secretary, Department of Electronics and Instrumentation Engineering, New Prince Shri Bhavani College of Engineering and Technology (2012–2013).

AREAS OF EXPERTISE

- Robotics, Internet of Things, process control and automation.
- Python, MATLAB/Simulink, TensorFlow, OpenCV, ROS 2, Raspberry Pi, Arduino and Jetson platforms.
- Deep reinforcement learning, digital twins, machine vision, sensor fusion, wavelets and online condition monitoring.
- PID, MPC and IMC control; PLC, SCADA and DCS; CAD/CAE and rapid prototyping.

Faculty Development Activity/Workshops

- Certificate course on Programmable Logic Controllers, SCADA and Automation Control.
- FDP/Workshop: Emerging Avenues in Advanced Control, ACDOS Society, NIT Tiruchirappalli, 2015.
- FDP: Biomaterials and Their Applications, Department of Chemical Engineering, Coimbatore Institute of Technology, 2015.
- Workshop on Programmable Logic Controllers and Distributed Control Systems, 2014.
- Workshop on Robotics, 2012.
- In-plant training, Electronics Department, Airports Authority of India, Chennai, 2012.
- Training in aircraft-instrument overhauling and bench-check procedures, INSTRULAB, Chennai, 2011.
- Industrial exposure: MRPL, Mangalore (2015); Instrumentation Limited, Palakkad (2015); North Chennai Thermal Power Station (2013); BMW (2013).

Contact Details

- Associate Professor, Department of CSE–IoT, Cyber Security including Blockchain Engineering, Dayananda Sagar Academy of Technology & Management.
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