

# Saravanakumar Gurusamy, PhD

## Curriculum Vitae

65, Gounder Street, Seithur, Rajapalayam Taluk,  
Virudhunagar District, Tamil Nadu, INDIA

PIN Code - 626121

+91 9994700450 (India)

✉ gurusaravana@ieee.org

in gurusaravana

<http://orcid.org/0000-0002-7721-2613>



**Objective:** Inspiring and motivating young technical minds.  
Research for the betterment and advancement of humanity.

### Academics

- 2011–2017 **Doctor of Philosophy (Ph.D)**, Instrumentation and Control Engineering, Kalasalingam Academy of Research and Education (Deemed to be University)  
"Metaheuristic Algorithms for the Identification of Nonlinear systems and Multivariable PID Controller Tuning"
- 2007–2009 **Master of Technology (M.Tech)**, Control and Instrumentation Engineering, Thiagarajar College of Engineering, Anna University, Tirunelveli, India  
First Class with Distinction
- 2000–2004 **Bachelor of Engineering (B.E)**, Electronics and Instrumentation Engineering, National Engineering College, Manonmaniam Sundaranar University, Tirunelveli, India  
First Class

### Experience (15+ Years includes 7.8 years in Ethiopia)

- 2019 - Present **Associate Professor**, Department of Electrical and Electronics Technology, FDRE TVT Institute, (Formerly -Ethiopian Technical University (ETU)), Addis Ababa, Ethiopia  
(3.8 Years +)
- 2014 - 2018 **Lecturer**, Department of Electrical and Computer Engineering, Institute of Technology, University of Gondar (UoG), Gondar, Ethiopia  
(4 Years)
- 2009 - 2014 **Assistant Professor**, Department of Instrumentation and Control Engineering, Kalasalingam Academy of Research and Education (Deemed to be University), Srivilliputhur, India  
(5 Years)
- 2004 - 2007 **Lecturer**, Department of Electronics and Communication Engineering, Lakshmi Ammal Polytechnic College, Kovilpatti, India  
(3 Years)

### Awards and Honors

- Fellowship Young Scientist Fellowship (2011) - Tamil Nadu State Council for Science and Technology (TNSCST)
- Best Paper Award 1 International Conference on Soft Computing Systems (ICSCS-2016)
- Best Paper Award 2 International Conference on Smart Grids, Structures and Materials ICSGSM-2021 (Virtual Mode)
- 2023-2025 IEEE Ethiopia Sub Section - Secretary

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## International competition - Mentorship

Second Prize [AfRoboCup-2018]- An International Competition on RoboSoccer; Mentored the team from University of Gondar(UoG) to secure Second Prize held at Addis Ababa, Ethiopia among Universities from Kenya, Nigeria and Ethiopia.

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## Publication in International Journals

- 2023 [1] Sudipto Bhattacharyya, Senthil Athithan, Souvik Pal, Bikramjit Sarkar, D. Akila, Subrata Chowdhury, Karthik Chandran and **Saravanakumar Gurusamy**, "An IoT-Enabled Intelligent and Secure Manufacturing Model Using Blockchain in Hybrid Cloud Communication System," *Security and Communication Networks*, vol. 2023, pp. 1–12, 2023. **(Q2, Scopus -Indexed)**[\[link\]](#)
- 2023 [2] S. K. Thangarasu, T. Mohanraj, K. Devendran, M. Rajalakshmi, S. Chowdhury, and **S. Gurusamy**, "Prediction of Flank Wear during Turning of EN8 Steel with Cutting Force Signals Using a Deep Learning Approach", *Math. Probl. Eng.*, vol. 2023, pp. 1–12, 2023. **(Q2, Scopus -Indexed)**[\[link\]](#)
- 2023 [3] Theu, Luong Thi, Quang-Huy, Tran Duc-Tan, Tran Sharma, Bhisham Chowdhury, Subrata Chandran, Karthik and **Gurusamy, Saravanakumar**, "Tikhonov Regularization and Perturbation-Level Tuning for the CNM in Pharmacokinetics", *IEEE Access*, vol. 11, pp. 30057–30068, 2023. **(Q1, SCIE -Indexed)**[\[link\]](#)
- 2022 [4] K. M. A. Kadhar, N. Natarajan, M. Vasudevan, and **S. Gurusamy**, "Parameter evaluation of a nonlinear Muskingum model using a constrained self-adaptive differential evolution algorithm", *Water Pract. Technol.*, vol. 17, no. 11, pp. 2396–2407, 2022. **(Q3, Scopus -Indexed)**[\[link\]](#)
- 2022 [5] Sivakumar, S, Neeraja, B, Jamuna Rani, M, Anandaram, Harishchander, Ramya, S, Padhan, Girish, **Gurusamy, Saravanakumar** "Machine Learning Approach on Time Series for PV-Solar Energy", *Adv. Mater. Sci. Eng.*, vol. p1-7, 2022. **(Q3, Scopus -Indexed)**[\[link\]](#)
- 2021 [6] Subudhi, P. S., Thilagaraj, M., Ganesh, S., Diwakaran, S., Naveen, P., **Gurusamy, S.**, Pallikonda Rajasekaran, M. (2021). "Current-Fed Bidirectional DC-DC Converter Topology for Wireless Charging System Electrical Vehicle Applications", *Wireless Communications and Mobile Computing*, 2021. **(SCI -Indexed)** [\[link\]](#)
- 2021 [7] Thilagaraj, M., Dwarakanath, B., Ramkumar, S., Karthikeyan, K., Prabhu, A., **Saravanakumar, G.**, Rajasekaran, M. P., Arunkumar, N., "Eye movement signal classification for developing human-computer interface using electrooculogram," *Journal of Healthcare Engineering*, 2021. **(Scopus -Indexed)** [\[link\]](#)
- 2021 [8] Nahiduzzaman, Goni M, Anower M S, Islam M R, Ahsan M, Haider J, **Gurusamy S**, Hassan R, Islam M R, "A Novel Method for Multivariant Pneumonia Classification Based on Hybrid CNN-PCA Based Feature Extraction Using Extreme Learning Machine With CXR Images," *IEEE Access* vol. 10, no. 1, pp. 227–235, 2021. **(Q1, SCI -Indexed)** [\[link\]](#)
- 2021 [9] S. Ramalakshmi Palani, D. Durairaj, K. Balasubramaniyan, and **S. Gurusamy**, "Estimating the survival of aqua fauna by image analysis techniques from the video sequences of pond aquaculture," *AgroLife Sci. J.*, vol. 10, no. 1, pp. 227–235, 2021. **(ESCI -Indexed)** [\[link\]](#)
- 2021 [10] Sakib, Nazmus, Rodina Binti Ahmad, Mominul Ahsan, Md Abdul Based, Khalid Haruna, Julfikar Haider, and **Saravanakumar Gurusamy**. "A Hybrid Personalized Scientific Paper Recommendation Approach Integrating Public Contextual Metadata." *IEEE Access*, (2021). **(Q1, SCI - Indexed)** [\[link\]](#)

- 2021 [11] Jahan, N., Rahman, M.M., Ahsan, M., Based, M.A., Rana, M.M., **Gurusamy, S.**, Haider, J.: Photonic Crystal Fiber Based Biosensor for Pseudomonas Bacteria Detection: A Simulation Study. *IEEE Access*. 9, 42206–42215 (2021). **(Q1, SCI - Indexed)** [\[link\]](#)
- 2020[12] Chandran, K., Murugesan, R., **Gurusamy, S.**, Asan Mohideen, K., Pandiyan, S., Nayyar, A., Abouhawwash, M., Nam, Y., Mohideen, K.A., Pandiyan, S., Nayyar, A., Abouhawwash, M., Nam, Y.: Modified Cascade Controller Design for Unstable Processes With Large Dead Time. *IEEE Access*. 8, 157022–157036 (2020). <https://doi.org/10.1109/ACCESS.2020.3019027>. **(Q1, SCI - Indexed)** [\[link\]](#)
- 2019 [13] **Saravanakumar, G.**, Baalachandar, C. V, Mohaideen Abdul Kadhar, K.: Environmental Condition Monitoring System of Textile Industry for Sustainable Development Goal. *Int. J. Innov. Technol. Explor. Eng.* ISSN 2278-3075. 9, 986–991 (2019). **(Scopus - Indexed)** [\[link\]](#)
- 2018 [14] Subathra, B., **Saravanakumar, G.**, Ramkumar, K., Srinivasan, S., Muthukumar, N.: Path-planning in autonomous electric vehicle using nonlinear state estimation and behaviour-based controllers. *Int. J. Veh. Syst. Model. Test.* 12, 304 (2018). <https://doi.org/10.1504/ijvsmt.2017.10011058>. **(Q2, SCI - Indexed)** [\[link\]](#)
- 2018 [15] S Srinivasan, **G Saravanakumar**, B Subathra, N Sundarajan, Ü Kotta, S Ramasamy, and V E Balas. Adaptive controller for networked control systems subjected to random communication delays. *Advances in Intelligent Systems and Computing*, 633:78–94, 2018. Springer Book Series. **(Q3, Scopus - Indexed)** [\[link\]](#)
- 2017 [16] N. Muthukumar **G Saravanakumar** Seshadhri Srinivasan B Subathra K Ramkumar. Path-Planning in Autonomous Electric Vehicle Using Nonlinear State Estimation and Behavior Based Controllers. *International Journal of Vehicle Systems Modelling and Testing*, Vol. 12, No. 3/4, 2017. **(Q2, Scopus - Indexed)** [\[link\]](#)
- 2016 [17] D Ganesha Perumal, Seshadhri Srinivasan, B Subathra, **G Saravanakumar**, and Ramakalyan Ayyagari. MILP based autonomous vehicle path-planning controller for unknown environments with dynamic obstacles. *International Journal of Heavy Vehicle Systems*, 23(4):350–369, 2016. **(Q2, SCI - Indexed)** [\[link\]](#)
- [18] Seshadhri Srinivasan **G Saravanakumar**, Valarmathi K, Willjuice Iruthayarajan M. Lagrangian based State Transition Algorithm for tuning multivariable decentralized controller. *International Journal of Advanced Intelligence Paradigms*, in Press, 2016. **(Q3, Scopus - Indexed)** [\[link\]](#)
- 2015 [19] **G Saravanakumar**, K Valarmathi, M Pallikonda Rajasekaran, Seshadhri Srinivasan, M Willjuice Iruthayarajan, and Valentina E Balas. Tuning Multivariable Decentralized PID Controller Using State Transition Algorithm. *Studies in Informatics and control*, 24(4):367–378, 2015. **(Q2, SCI - Indexed)** [\[link\]](#)
- [20] Satheesh Kumar, **Saravanakumar Gurusamy**, B Subathra, Seshadhri Srinivasan, . An Approach for Short-Term Load Forecasting Using RBFNN in the Smart Grid. *International Journal of Control Theory and Applications*, 8(5):2169–2177, 2015. **(Q4, Scopus - Indexed)** [\[link\]](#)
- 2013 [21] Asan Mohideen, **G Saravanakumar**, K Valarmathi, D Devaraj, and T K Radhakrishnan. Real-coded Genetic Algorithm for system identification and tuning of a modified Model Reference Adaptive Controller for a hybrid tank system. *Applied Mathematical Modelling*, 37(6):3829–3847, 2013. **(Q1, SCI - Indexed)** [\[link\]](#)

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## Publication in International Conferences

- 2022 [1] **Gurusamy, S.**, Mengistie, M., Kangi, A. S., Mohideen, K. A., Perumal, D. G, "Embedded Remote Condition Monitoring System for Industrial Machinery:, In Recent Advances in Materials and Modern Manufacturing (pp. 577–589). Springer, Singapore.
- 2019 [2] Jency, C., **Gurusamy, S.**, others: Life-Time Maximization of Wireless Sensor Network Using Jaya Algorithm. In: *2019 IEEE International Conference on Clean Energy and Energy Efficient Electronics Circuit for Sustainable Development (INCCES)*. pp. 1–6 (2019).
- 2016 [3] D Ganesha Perumal, B Subathra, **G Saravanakumar**, and Seshadhri Srinivasan. Extended Kalman Filter Based Path-Planning Algorithm for Autonomous Vehicles with I2V Communication. *IFAC-PapersOnLine*, 49(1):652–657, 2016. **(Scopus - Indexed)** [\[link\]](#)
- [4] **G Saravanakumar**, K Valarmathi, M Pallikonda Rajasekaran, Seshadhri Srinivasan, M Willjuice Iruthayarajan, and Valentina E Balas. Dynamic State Transition Algorithm (DSTA) based tuning of centralized PID controller for the distillation column. *Springer International Conference on Soft Computing Systems (ICSCS 2016)*, Feb 19-20, 2016.
- 2015 [5] Seshadhri Srinivasan, Furio Buonopane, **G Saravanakumar**, B Subathra, and Srini Ramaswamy. Modelling time-varying delays in networked automation systems with heterogeneous networks using machine learning techniques. In *Automation Science and Engineering (CASE), 2015 IEEE International Conference on*, pages 362–368. IEEE, 2015. **(Scopus - Indexed)** [\[link\]](#)
- [6] Sreram Balasubramaniyan, B Subathra, R C Hemesh, **Saravanakumar Gurusamy**, and Seshadhri Srinivasan. On simulating processor schedules and network protocols within CPS using TrueTime. In *Computational Intelligence and Computing Research (ICCIC), 2015 IEEE International Conference on*, pages 1–6. IEEE, 2015. **(Scopus - Indexed)** [\[link\]](#)
- [7] **G Saravanakumar**, K Valarmathi, M Pallikonda Rajasekaran, Seshadhri Srinivasan, and K Mohaideen Abdul Kadhar. State Transition Algorithm (STA) based tuning of integer and fractional-order PID controller for benchmark system. In *Computational Intelligence and Computing Research (ICCIC), 2015 IEEE International Conference on*, pages 1–5. IEEE, 2015. **(Scopus - Indexed)** [\[link\]](#)
- 2014 [8] D Ganesh Perumal, **G Saravanakumar**, B Subathra, Seshadhri Srinivasan, and Srini Ramaswamy. Nonlinear State Estimation Based Predictive Path Planning Algorithm Using Infrastructure-to-Vehicle (I2V) Communication for Intelligent Vehicle. *Proceedings of the Second International Conference on Emerging Research in Computing, Information, Communication and Applications (ERCICA 2014)*, (August), 2014. **(Scopus - Indexed)** [\[link\]](#)
- 2013 [9] R Umashankari, K Valarmathi, and **G Saravanakumar**. Temperature control of green house system using evolutionary computation. In *International Conference on Energy Efficient Technologies for Sustainability (ICEETS), 2013*, pages 814–820, 2013. **(Scopus - Indexed)** [\[link\]](#)
- 2012 [10] M Rajalakshmi, **G Saravanakumar**, and C Karthik. Nonlinear identification of pH processes by using NNARX model. In *Proceedings of the International Conference on Computing and Control Engineering (ICCCE 12)*, 2012.
- [11] S Meenakshi and **G Saravanakumar**. Subspace identification and Controller design for Distillation Column. In *International Conference on Computing and Control Engineering (ICCCE 2012), 12 & 13 April, 2012*, 2012.
- 2010 [12] Mohaideen abdul kadhar.K, M Saravanan, **Saravanakumar G** Speed control of 3- $\phi$  Induction motor using Digital Signal Processor (TMS320F2407). In *International Conference on Recent Advancements in. Electrical Sciences (ICRAES'10)*, 08 January, 2012. [\[link\]](#)

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## Professional Society memberships

Institute of Electrical and Electronics Engineers (IEEE) - Senior Member.

IEEE :: Control system society - Member.

Automatic Control and Dynamic Optimization Society (ACDOS) :: IFAC NMO for India - Member.

Indian Society for Technical Education (ISTE) - Life Member.

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## Guest Lectures delivered

December 2012 "Digital Image processing using LabVIEW", 3 December, 2012, Sethu Institute of Technology, Madurai

January 2013 "Virtual Instrumentation using LabVIEW", 1 January, 2013, M.Kumarasamy college of Engineering, Karur

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## Technical Skills

Packages LabVIEW, MATLAB, NI Multisim, SciLab, Python

Hardwares NI Hardware, Arduino, Raspberry Pi, Advantech ADAM Modules, Teensy

Robotics Robotics Operating System (ROS2) - Gazebo

Industrial Automation PLC: AB-SLC 500 with RSLogix, ABB-AC500 with CoDeSys 2.3, OpenPLC Editor v1.3, Siemens-Step 7 V5.5 and TIA Portal; DCS : ABB AC 800F with Control Builder

Didactic Process Control Heat Exchanger, pH Process, Delorenzo (DL2314), Two tank System (Vi Micro) and four tank system (Feedback)

Platform Windows 10; Ubuntu 16.04

Documentation MS Office; Libre Office;  $\text{\LaTeX}$ ; Beamer

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## Responsibilities

UoG, Ethiopia Lab Erection Measurement and Instrumentation Laboratory, Process Control Laboratory, Industrial Automation Laboratory

Robotics Center Advisory member for Robotic center of RoboSoccer Team - iCog Makers Initiative with iCog Labs, Ethiopia

Curriculum Design MSc in Instrumentation and Control Engineering

FDRE TVTI PG coordinator for MSc Automation and Control Technology Stream.  
- Member of Center for Automation, Robotics and AI (LUBAN Workshop)

India, 2005-07 Co-ordinator-Junior Chamber wing

2011-14 NSS Programme Officer, Red Ribbon Club (RRC) - InCharge

2009-14 Project Co-ordinator (UG and PG)

2011-14 Placement Co-ordinator

2010-14 NI-LabVIEW Academy Co-ordinator

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## Workshop/FDP/Advanced Courses Organized



Coordinator, Expert	16 Week - Advanced Diploma in "Industrial Automation and Internet of Things" in connection with National Institute of Electronics and Information Technology, Calicut.
Coordinator, Expert	Faculty Development Program on "Computational Intelligent Techniques", During Nov 19-23,2018
Coordinator	ROBOFEST-2013 Preliminary workshop on Mobile Robotics, February 27-28, 2014, Revert Technologies and Ifest-IIT Roorkee.
Coordinator, Expert	Workshop on Matlab and LabVIEW from February 22 to March 19, 2010 by ISOI students' chapter, Kalasalingam University.

## Workshop Participation (Selected)

Nov,10-11, 2011	"Fascinating and Challenging Applications of Estimation" @ NIT, Trichy
Dec,16-17, 2011	"PID controller design and advanced process control" @ Karpagam College of Engineering, Coimbatore
Nov 2, 2012	"Industry Academia interaction in control and Automation: A critical look and path forward" @ IISc, Bengaluru
Nov 3, 2012	"Cyber-physical system: state of art and future challenges" @ IISc, Bengaluru
Dec 4-8, 2012	"Short term course: Control system design " @ IIST, Trivandrum
Oct 28-29, 2013	"Control and Optimization in Energy systems" @ IIT, Madras
Dec 26-27, 2013	"Model Predictive control" @ IIT, Madras
Dec 31, 2013	"Data Based analysis and synthesis of linear system" @ NIT, Trichy
Jan 11, 2014	"Information Enabled Adaptive and Optimal Control: Robust Decision Making under Uncertainty" @ IISc, Bengaluru
Jul 18-23, 2016	"Nonlinear, Adaptive, Optimal and Embedded Control" @ IISc, Bengaluru
Sep 8-9, 2017	"Advances and Success Stories of Robust and Adaptive Control" @ IISc, Bengaluru

## Other Activities

- NSS camp organized - Pudukottai village of Virudhunagar district, December 22, 2009 to January 1, 2010
- Attended - NSS Programme officer's orientation training program, Empanelled training Institution, Coimbatore, November 28 – December 3, 2011.
- Organized Blood donation camps with Rajaji Government Hospital, Meenakshi Mission Hospital and PACR blood bank, Rajapalayam.
- Organized Eye check-up camp with Meenakshi Mission Hospital at sundarapandiyam village on February 5, 2013.

## Personal Details

Address	65, Goundar street, Seithur -626121, Rajapalayam taluk, Virudhunagar district, Tamil-nadu, India.
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Passport No: L4125920; Date of Expiry: 05/08/2023; Date of Issue: 06/08/2013 ; Place: Madurai  
Date of Birth February 11, 1983  
Marital Status Married, Blessed with two Girl Child  
Relocation Status Ready to relocate with 3 moths notice

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## References

**Dr. Marimuthu Gajendran**, *Assistant Manager - Design and Development*, Syrma SGS Technology Limited, India, marimuthu.eie@gmail.com

**Dr. Willjuice Iruthayarajan**, *Professor & Head*, National Engineering College, Kovilpatti, India, m.willjuice@gmail.com

**Dr. Valarmathi K**, *Professor & Head*, PSR Engineering College, Sivakasi, Tamil Nadu, India, krvalarmathi@yahoo.co.in

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## Declaration

I hereby declare that all above-mentioned information is in accordance with fact or truth up to my knowledge and I bear the responsibilities for the correctness of the above mentioned particulars

Yours Sincerely,



Dr. Saravanakumar Gurusamy