

Journal Publications

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2025

1. K Anjana, Shantanu Saha and **N. Selvaganesan**, "Simulation and Analysis of an Integrated Cardiopulmonary Gas Exchange Model Under Different Pathological Conditions", IEEE Access, Vol.13, 2025.

2024

1. Sourav Bhowmick and **N. Selvaganesan**, "Social Network-Based Epidemic Spread With Opinion-Dependent Vaccination", IEEE Control Systems Letters, Vol. 8, PP 1829 - 1834, 2024.
2. RS Mohankumar, **N. Selvaganesan**, M Jayakumar, P Sathishkumar, "Heuristic algorithms based optimal tuning of FOLQI controller for quadruple tank process under disturbance conditions", Measurement and Control, Vol.57 (2), PP. 164-186, 2024.
3. Resmi V. L and **N. Selvaganesan**, "Fractional order model for cardiovascular system using heuristic optimization approach", Journal of Mechanics in Medicine and Biology, Vol. 24, No. 04, 2350081, 2024.
4. Asha P. Nair, **N. Selvaganesan** and Lalithambika V.R, "Robust Adaptive Control Laws for a Winged Re-entry Vehicle", IETE Journal of Research, Taylor & Francis Publications, Vol. 69 (11), PP. 8205-8217, 2024.

2023

1. V. L Resmi and **N. Selvaganesan**, "Study on Fractional Order Arterial Windkessel Model using Optimization Method", IETE Journal of Education, Taylor & Francis Publications, Vol.64 (2), PP. 103-111, 2023.
2. R.S.Mohankumar, **N. Selvaganesan**, M.Jayakumar and P.Sathishkumarar, "Centralised fractional order LQI controller design for quadruple tank process — An optimisation approach", Results in Control and Optimization, Elsevier Publications, Volume 10, 2023, 100202.
3. Resmi V. L, R. G. Sriya and **N. Selvaganesan**, "Baroreflex control model for cardiovascular system subjected to postural changes under normal and orthostatic

conditions", Computer Methods in Biomechanics and Biomedical Engineering, Taylor & Francis Publications, 26 (9), 1034-1043, 2023.

4. Asha P. Nair, **N.Selvaganesan** and Lalithambika V.R, "Projection and Barrier Lyapunov based Controller Update Laws in MRAC Structure for Flexible Satellite Launch Vehicles", IETE Technical Review, Taylor & Francis Publications, Vol. 40, 710-724 2023.

2022

1. M.Rohith Bala, P.Sathishkumar, **N.Selvaganesan**, "Unified complex coefficient PID controller tuning for complex coefficient system", IETE Journal of Education, Taylor & Francis Publications, Vol. 63 (1), PP 25-37, 2022.

2021

1. K. Vanchinathan and **N.Selvaganesan**, "Adaptive fractional order PID controller tuning for brushless DC motor using Artificial Bee Colony algorithm", Results in Control and Optimization, Elsevier Publications, Vol. 4, PP 1-18, 2021.
2. P.Sathishkumar, **N.Selvaganesan**, "Tuning of Complex Coefficient PI/PD/PID Controllers for a Universal Plant Structure", International Journal of Control, Taylor & Francis Publications, Vol.94, Issue 11, PP.3190-3212, 2021.

2020

1. Debajyoti Chakrabarti and **N.Selvaganesan**, "PD and PD^{β} Based Sliding Mode Control Algorithms with Modified Reaching Law for Satellite Attitude Maneuver", Advances in Space Research, Elsevier Publications, Vol. 65, Issue 4, PP 1279-1295, 2020.

2019

1. P.Sathishkumar, **N.Selvaganesan**, "Input Dependent Nyquist Plot for Limit Cycle Prediction and its Suppression Using Fractional Order Controllers", Transactions of the Institute of Measurement and Control, Sage Publications, Vol. 41, Issue 13, PP3847-3860, 2019.
2. Ameya Anil Kesarkar, **N.Selvaganesan**, "Asymptotic Magnitude Bode Plots of Fractional-Order Transfer Functions", IEEE/CAA Journal of Automatica Sinica, Vol.6, No.4, PP 1019-1026, 2019.

2018

1. P.Sathishkumar, **N.Selvaganesan**, "Fractional Controller Tuning Expressions for a Universal Plant Structure", IEEE Control Systems Letters, Vol.2, Issue 3, PP 345-350, 2018.
2. M Vanidevi, **N.Selvaganesan**, "Fast Iterative WSVT Algorithm in WNN Minimization Problem for Multi-user Massive MIMO Channel Estimation" International Journal of Communication Systems, Wiley Publications, Vol. 31, Issue.1, 2018.

2017

1. M Vanidevi, **N.Selvaganesan**, "Channel Estimation for Finite Scatterers Massive Multi-User MIMO System" Circuits, Systems, and Signal Processing, Springer Publications, Vol.36, Issue 9, PP 3761–3777, 2017.

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1. Sajitha G, **N.Selvaganesan**, Thomas Kurian, "A novel method to eliminate the limit cycle oscillation for digitally controlled DC-DC converter using Reduced state Kalman filter", IET Power Electronics, Vol. 9, Iss. 12, pp. 2445–2452, 2016.
2. Asha P. Nair, **N.Selvaganesan**, V. R. Lalithambika, "Lyapunov based PD/PID in Model Reference Adaptive Control for Satellite Launch Vehicle Systems", Aerospace Science and Technology, Elsevier Publications, Vol.51, PP 70-77, 2016.

2015

1. Ameya Anil Kesarkar, **N Selvaganesan**, H Priyadarshan, "Novel Controller Design for Plants with Relay Nonlinearity to Reduce Amplitude of Sustained Oscillations: Illustration with a Fractional Controller", ISA Transactions, Elsevier Publications, Vol. 57, PP 295-300, 2015.
2. Ameya Anil Kesarkar, **N Selvaganesan**, "Novel Tuning Expressions for Fractional Order ($[PD]^{\beta}$ and $[PI]^{\alpha}$) Controllers Using a Generalized Plant Structure", Journal of Control Engineering and Applied Informatics, Vol. 17, No. 1, PP 70-80, 2015.
3. Ameya Anil Kesarkar, **N. Selvaganesan**, "Tuning of Optimal Fractional-Order PID Controller using Artificial Bee Colony (ABC) Algorithm", Systems Science & Control Engineering, Taylor & Francis Publications, Vol.3, Issue. 1, pp 99-105 2015.

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1. Ameya Anil Kesarkar, **N Selvaganesan**, H Priyadarshan, "A novel framework to design and compare limit cycle minimizing controllers: demonstration with integer and

fractional-order controllers”, Nonlinear Dynamics, Springer Publications, Vol.78, Issue 4, pp 2871-2882, 2014.

2. Ameya Anil Kesarkar, **N. Selvaganesan**, “Investigation on Superior Performance by Fractional Controller for Cart-Servo Laboratory Set-Up”, Advances in Electrical and Electronics Engineering, Vol. 12, No. 3, pp. 201-209, 2014.

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1. Ameya Anil Kesarkar, **N. Selvaganesan**, “Superiority of fractional order controllers in limit cycle suppression”, Int. J. of Automation and Control, Vol.7, No.3, pp.166 – 182, 2013.

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1. **N.Selvaganesan** and R.Saraswathy Ramya, “Fuzzy Fault Detection for Permanent Magnet Synchronous Generator”, ICTACT-Journal of Soft Computing, Vol.2, No.1, pp224-232, 2011.

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1. S.Srinivasan, P.Kanagasabapathy, and **N.Selvaganesan**, “Fault Identification and Analysis Using AI Techniques for Three-Tank System”, Int. J. of Automation and Control, Vol. 4, No.1, pp. 84-101, 2010.

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1. **N. Selvaganesan** and R. Saraswathy Ramya, ” A Simple Fuzzy Modeling of Permanent Magnet Synchronous Generator”, Journal of Electrical – ELEKTRIKA, Vol. 11, No.1, pp. 38-43, 2009.

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1. **N.Selvaganesan**, R.Sundaramurthy, G.Divya Charline, S.Paramasivam, “Design and Implementation of Fuzzy Logic Controller for High Performance Coupled Inductor DC-DC Converter”, International Journal of Power Electronics, Vol.1, No.1, pp 87-100, 2008.

2007

1. **N.Selvaganesan**, D.Raja, and S.Srinivasan, “Fuzzy Based Fault Detection and Control for 6/4 Switched Reluctance Motor”, Iranian Journal of Fuzzy Systems, Vol. 4, No.1, pp. 37-51, 2007.

2. S.Srinivasan, P.Kanagasabapathy, and **N.Selvaganesan**, "Fault Diagnosis in Deaerator using Neural Networks", Iranian Journal for Electrical and Computer Engineering, Vol. 6, No. 1, pp. 62-67, 2007.
3. **N.Selvaganesan**, "Mixed Method of Model Reduction for Uncertain Systems", Serbian Journal of Electrical Engineering, Vol. 4, No. 1, pp 1-12, 2007.
4. S.Srinivasan, P.Kanagasabapathy, and **N.Selvaganesan**, "Fault Diagnosis in Deaerator using Fuzzy Logic", Advances in Electrical and Electronics Engineering, Vol. 6, No. 1, pp. 19-25, 2007.
5. **N.Selvaganesan** and S.Renganathan, "Adaptive Identification and Control Algorithm for a Servo Motor – Driven Robot Arm – An Output Feedback Approach", Journal of Electrical – ELEKTRIKA, Vol. 9, No. 2, pp 8-13, 2007.
6. V.Natarajan, P.Kanagasabapathy, **N.Selvaganesan** and C.V.Pugazhselvi, "Robust Neural Observer Design for Cryptography Based On 4D Hyperchaotic Oscillator", Journal of AMSE, Series C, Automatic control (Theory and Application). Vol. 62 No. 2, pp 18-30, 2007.
7. R.Prabhu Jude, **N.Selvaganesan** and S.Renganathan, "PC based Position-Control of Multiple Robot Arms", Journal of Education, IETE, Vol. 48, No. 1, pp 3-8, 2007.

2006

1. **N.Selvaganesan** and S.Renganathan, "Identification And Dahlin's Control for Nonlinear Discrete Time Output Feedback Systems", Journal of Electrical Engineering, Vol. 57, No 6, pp. 329-337, 2006.
2. V.Natarajan, P.Kanagasabapathy, **N.Selvaganesan** and C.V.Pugazhselvi, "Neural Observer Design for Cryptography Based On 4D Hyper Chaotic Oscillator", International journal of Engineering Simulation, Vol. 7, No 2, pp. 11-17, 2006.
3. S.Srinivasan, P.Kanagasabapathy, K.Chitra, R.Pugazhendi and **N.Selvaganesan**, "Fault Simulation and Fuzzy Controller for High Pressure Heater in Thermal Power Plant", Journal of Electrical – ELEKTRIKA, Vol. 8, No.2, pp. 5-12, 2006.
4. V.Natarajan, P.Kanagasabapathy, **N.Selvaganesan** and R.Natarajan, "Fuzzy Observer Design with n-Shift Multiple Key for Cryptography Based On 3D Hyperchaotic Oscillator", Iranian Journal of Fuzzy Systems, Vol. 3, No.2, pp. 21-32, 2006.

5. **N.Selvaganesan** and S.Renganathan, "New Results on Active Identification and Control for Non-linear Discrete Time Output Feedback Systems", Journal of AMSE, Series C, Automatic control (Theory and Application), Vol. 61 no. 4, pp 19-30, 2006.
6. S.Srinivasan, P.Kanagasabapathy and **N.Selvaganesan**, "Identification and Fault Simulation in Deaerator", Journal of AMSE, Series C, Automatic control (Theory and Application), Vol. 61 no. 3, pp 47-58, 2006.

2005

1. **N.Selvaganesan** and S.Renganathan, "Application of Adaptive Identification and Control Algorithm for Discrete Time Nonlinear Output Feedback System", Journal of AMSE, Series C, Automatic control (Theory and Application), Vol. 60, No 2, pp. 49-62, 2005.

Conference Publications

2024

1. Anjana K and **N. Selvaganesan**, "Analysis of Various Airway Geometry on the Pulmonary Gas Exchange Model Under Hypoxia and Hemorrhage Conditions", IEEE 21st India Council International Conference (INDICON) during December 19-21, 2025.
2. Abhijith P R, Chris Prema S and **N. Selvaganesan**, "Digital Fractional Order Differentiator for PPG Signal Analysis", IEEE 21st India Council International Conference (INDICON) during December 19-21, 2025.
3. Sourav Bhowmick and **N. Selvaganesan**, "Social Network-Based Epidemic Spread WithOpinion-Dependent Vaccination", IEEE Control Systems Letters (L-CSS) paper presented at the IEEE Conference on Decision and Control (CDC), MiCo, Milano, Italy during December 16-19, 2024.

2023

1. K. Meera and **N. Selvaganesan**, "Study on Various Encryption/Decryption Algorithms for Secure Communication using Chaotic based Hashed Key", IEEE Indian Control Conference (ICC), PP. 79-84, 2023.

2021

1. Irene Grace Karot Polson, R.S. MohanKumar and **N.Selvaganesan**, 'Control System Design for MIMO System using Bond graph Representation - Quadcopter as a Case Study', IEEE-ICC, PP 39-44, 2021.

2020

1. Kishore Gulivindala, **N.Selvaganesan**, 'Optimal Controller Tuning to Suppress Limit Cycle using Higher Order Harmonics:Signal Processing Approach', NCMDAO-2020, VSSC, Trivandrum (23-25 Oct 2020).
2. Resmi V L, **N.Selvaganesan**, Rajesh Ravi, Raji George, Sundaravadivelu G, 'Modelling and controller design for micro actuators', NCMDAO-2020, VSSC, Trivandrum (23-25 Oct 2020).

2019

1. Deepa Pai S, P Sathishkumar and **N Selvaganesan**, " Novel adaptive control scheme for plant with separable nonlinearity", IEEE- Fifth Indian Control Conference (ICC), PP 307-311, 2019.

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1. P.Sathishkumar, **N.Selvaganesan**, "Fractional Controller Tuning Expressions for a Universal Plant Structure", IEEE Control Systems Letters (L-CSS) paper presented at the 2018 IEEE Conference on Decision and Control (CDC), Miami Beach, FL, USA, Dec. 17-19, 2018.
2. Fasil Mohamed and **N. Selvaganesan**, "Interval Lyapunov Function for Uncertain Plant using Model Reference Adaptive Control", National System Conference (NSC-2018), India, Dec. 27-29, 2018.
3. N. Ramdeep, P. Sathishkumar and **N. Selvaganesan**, "Limit Cycle Prediction Using Higher Order Harmonics: Signal Processing Approach", National System Conference (NSC-2018), India, Dec. 27-29, 2018.

2017

1. S.Ganesh, Sarath Sankar.S and **N.Selvaganesan**, "Design and Analysis of BLDC Motor for Aerospace Application using FEM", IEEE- Int. Conf. on Intelligent Computing, Instrumentation and Control Technologies (ICICT), PP 1137-1142, 2017.

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1. Geethu Maria, **N.Selvaganesan**, B.Ajith Kumar and Shikha Kapoor, "Dynamic Analysis and Sliding Mode Vibration Control for a Two Storeyed Flexible Building Structure", IEEE- Int. Conf. on Control, Communication & Computing (ICCC), 2015, pp 24-29.

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1. M Vani Devi, K. Gowthami, **N Selvaganesan**, "Tracking of MIMO channel in the presence of unknown interference", IEEE-Indicon, 2014.
2. M Vani Devi, D Keerthi Priya, M Haindavi, **N Selvaganesan**, "Impact of spatial correlation and channel estimation error on Precoded MIMO systems", IEEE-Signal Propagation and Computer Technology (ICSPCT), 2014, pp 300-303.

2013

1. Ameya Anil Kesarkar and **N.Selvaganesan**, "Fractional Control of Precision Modular Servo Setup for Better Limit Cycle Suppression", IEEE-Multi-Conference on Systems and Control (MSC 2013), pp 467-471.

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1. Harshit Gole, Pratik Barve, Ameya Anil Kesarkar and **N.Selvaganesan**, "Investigation of Fractional Control Performance for Magnetic Levitation Experimental Set-up", IEEE-Int. Conf on Emerging Trends in Science Engineering and Technology, 2012, PP 500-504.
2. Gopikrishnan S. , Ameya Anil Kesarkar and **N. Selvaganesan**, "Design of Fractional Controller for Cart-Pendulum SIMO System", IEEE-Int. conf. on Advanced Communication Control and Computing Technologies, 2012, PP 170-174.

2011

1. Ameya Anil Kesarkar and **N.Selvaganesan**, "Tuning of Robust PI^α/PD^β Controller for Generalized Plant Structure" IEEE- Int. Conf. on Recent Advancements in Electrical, Electronics and Control Engineering 2011, PP 104-108.
2. Ameya Anil Kesarkar and **N.Selvaganesan**, "Design of Fractional Order Robust Controller for Universal Plant Structure", IEEE- Int. Conf. on Current Trends in Technology, 'NUICONE – 2011, PP 1-4.

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1. **N.Selvaganesan**, Rajeev Ranjan, Gaurav Bholotia and Sunil Kumar, "Realtime T-S Fuzzy Identification for Twin Rotor MIMO System", Int. Conf. on SYMOPA 2010, PP 5-10.

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1. T. Vinopraba, N.Sivakumaran, **N.Selvaganesan** and S.Narayanan, "Stabilization Using Fractional-Order PID α Controllers for First Order Time Delay System", IEEE-ACT2009, pp 725-728.
2. S.Narayanan, N.Sivakumaran, T.Vinopraba and **N.Selvaganesan**, "IMC based PID controller design for gas turbine plant", Int. conf. on MS '09 pp 386-390.
3. D. Raja, N. Muraly, V. Vijayavelan and **N. Selvaganesan** "A 24-Pulse AC-DC Converter for Improving Power Quality using Fork Connected Transformer", IEEE – Int. Conf. on Control, Automation, Communication and Energy Conservation – 2009, pp 753-761.

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1. **N.Selvaganesan** S.Renganathan, N.Arunkumar and Dennis Thomas, "Model Reduction for Interval Systems", TIMA 2007, NIT, Trichy, pp 237-240.
2. **N.Selvaganesan** and S.Sandosh Kumar, "Dahlin's Control of PWM Inverter for Series Active Power Filter" Int. conf. on RACE 2007, pp 469-474.
3. S.Srinivasan, P.Kanagasabapathy, and **N.Selvaganesan**, "Neural Network based Parameter Identification and Fault Diagnosis for a Deaerator", Int. Conf. on Control, Instrumentation and Mechatronics Engineering – 2007, Malaysia, pp. 812-819.
4. S.Srinivasan, P.Kanagasabapathy, **N.Selvaganesan**, "Neural Based Parameter Identification and Fault Diagnosis in a Three-Tank System", IEEE- ICCIMA '07, pp 169-173.
5. **N.Selvaganesan** and R.Saraswathy Ramya "Fuzzy Modeling of Permanent Magnet Synchronous Generator", ESCT 2007, NIT, Calicut, pp 178-183.
6. **N.Selvaganesan** and G.Divya Charline "Fuzzy logic Controller for High Performance Coupled-Inductor DC-DC Converter", ESCT 2007, NIT, Calicut, 253-257.

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2. **N.Selvaganesan** S.Renganathan, N.Arunkumar and Dennis Thomas, "Mixed Method for Reduction of MIMO Interval Systems", NCPICD 2005, MIT Campus, Anna University, Chennai, pp 88-95.
3. V.Vijayan, S.Srinivasan and **N.Selvaganesan**, "Multivariable Controller Design for a Three Tank System", NCPICD 2005, MIT Campus, Anna University, Chennai, pp 211-216.

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1. **N.Selvaganesan**, R.Prabhu Jude, S.Renganathan, "On line Tuning of PID Controller for Time Variant System using Genetic algorithm", ICAIET 2004, Malaysia, pp 74-77.
2. **N.Selvaganesan**, R.Prabhu Jude, S.Renganathan, "Fuzzy based Robust Controller Design for Robotic Two Link Manipulator", ICAIET 2004, Malaysia, pp 102-107.
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5. S.Srinivasan, P.Kanagasabapathy, **N.Selvaganesan**, "Fault Detection Using Supervised Learning Architecture Neural Networks for the Deaerator", INCON 2004, Pune, India.
6. **N.Selvaganesan**, S.Srinivasan, K.Balaji and G.L.Narayanan, 'PC based Temperature Compensation for Reference Electrode in pH measurement', INCON 2004, Pune, India.
7. **N.Selvaganesan** and S.Renganathan. "Adaptive Identification of Multivariable Discrete Time Nonlinear Strict – Feedback System", NCMVC'2004, Chennai, pp 199-206.
8. **N.Selvaganesan**, S.Renganathan, K.Chandra Priya and R.Divyaa, "Direct Truncation of Routh Table based Model Reduction for Uncertain Systems", NCMVC'2004, Chennai, pp 1-6.
9. **N.Selvaganesan** and S.Renganathan "Identification and Control of Discrete Time Nonlinear Strict – Feedback System", NSC 2004, VIT, Vellore, pp 85-88.

2003

1. S.Renganathan, **N.Selvaganesan**, and B.Rajagopal Reddy, "Adaptive Identification for Discrete Time Non-Linear Control – Output Feedback Systems", ISPSEC 2003, pp-316-321, IIT Bombay, India.
2. S.Renganathan, and **N.Selvaganesan** "Adaptive Identification and Control for a Discrete Time Non-Linear Strict Feedback System", INCARF 2003, IIT Delhi, India.

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Book/Book Chapter

Book (Edited)

1. S. Prabha, P. Karthikeyan, K. Kamalanand and **N. Selvaganesan**, Computational Modelling and Imaging for SARS-CoV-2 and COVID-19, CRC Press, 2021.

Book Chapter

1. P.Sathiskumar and **N.Selvaganesan**," Tuning of Complex Coefficient Fractional Complex Order Controllers for a Generalized System Structure - An Optimisation Approach", 'Optimization Methods for Product and System Design, Springer, PP 53-70, 2023.
2. K.Vanchinathan and **N.Selvaganesan**," A Review on Intelligent Optimization Techniques based Fault Detection and Diagnosis in Power System Applications", 'Optimization Methods for Product and System Design, Springer, PP 71-88, 2023.
3. K.Vanchinathan, P.Sathiskumar and **N.Selvaganesan**,"A Metaheuristic Optimization Algorithm-Based Speed Controller for Brushless DC Motor: Industrial Case Study", Metaheuristic Algorithms in Industry 4.0, CRC Press, 2021.
4. **N.Selvaganesan**, 'Fuzzy Based Modeling, Control and Fault Diagnosis of Permanent Magnet Synchronous Generator', Handbook of Research on Computational Intelligence for Engineering, Science and Business, IGI Global, USA, Vol.1, pp 487-520, 2013.