Nitish Katal

207/16 Salain Talab • Udhampur, J&K • 182101 • **CELL** 9419270686- • **E-MAIL** nitishkatal@gmail.com

EDUCATION

PhD [Control Systems] - CGPA: 8.67
Punjab Engineering College, Chandigarh
(A Deemed to be University)
January 2014 onwards

Master of Technology [ECE] - CGPA: 8.51
Amity University, Rajasthan
2011-2013

Bachelor of Technology [ECE] - Percentage: 74.36%
Malout Institute of Management & Information Technology, Malout, Pb
2007-2011

Higher Secondary [12th] - Percentage: 77.8%
Happy Model Hr. Sec. School, Udh., J&K
2007

Secondary [10th] - Percentage: 87.4%
Happy Model Hr. Sec. School, Udh., J&K
2005

INTERNSHIPS

Raja Ramanna Centre for Advanced Technology, Indore, M.P.
6 Months M.Tech Thesis Project Based. [March - September, 2013]
Thesis Title: Development of SCADA for PLC based Indus-2 Frontend Control System

Laser Science & Technology Centre, DRDO, New Delhi.
6 Months B.Tech Major Project Based. [January - June, 2011]
Project Title: Feasibility study of Under-Water LASER based Communication System.

Cybernetics R&D Pvt. Ltd.
2 Months B.Tech Summer Project Based. [2010]
Project Title: Modeling and Simulation of an Autonomous Quadrotor using Matlab & Simulink

CMC Pvt. Ltd.
2 Months B.Tech Summer Project Based. [2009]
Domain: Embedded Systems

AREAS OF INTEREST

Robust Control, Optimization using Soft Computing, Supervisory Control, Intelligent Control, Metaheuristic Algorithms, Mechatronics.

SKILLS

MATLAB & Simulink, WinCC 7.0 SCADA, WinCC Flexible, TIA Portal v11, PLC's (S7-1200, S7-300), OPC, C, Proteus, NI-Labview, NI-Multisim.

ACHIEVEMENTS

- Among the 50 Final Innovators at ***Next50 Next Global Innovation Awards*** by ***IIT-Kanpur*** 2010
- Finalist at ***Indian Innovation Initiative (I-3)*** conducted by ***IIT-Delhi*** *and* ***CII*** 2009
- *Students partner for* ***"Cognizance '10***" annual techfest of IIT-Roorkee 2010
- Core Organizer & Event organizer of National Level Tech-fiesta Eklego-09 held by ISTE Student Chapter in MIMIT MALOUT 2009
- Zonal Finalist for startup competition ***"Srijan'10"*** at ***IWSB, Noida*** 2009
- Participated in various Robotic events in tech fests: ***ARANYA'08*** at ***Thapar University.*** 2008
- Participated in various Robotic events in tech fests: ***Cognizance'07*** at ***IIT-Roorkee***. 2008
- Member of ***College Web Development Team*** at ***MIMIT Malout*** May. 2009-Dec. 2010

Reviewer Duties

- **Soft Computing**, Springer
- **ETRI Journal**, Wiley
- **Engineering Science and Technology, an International Journa**l. Elsevier.
- I**nternational Journal of Applied Metaheuristic Computing (IJAMC).** (ISSN: 1947-8283) IGI Global (U.S.).
- **Swarm Intelligence Research** (ISSN: 1947-9263). IGI Global (U.S.).
- **WSEAS Transactions on Systems.** (ISSN: 2224-2678).
- **Artificial Intelligence & Applications.** (ISSN-2374-4987). Scientific Publishing (U.S.).
- **Journal of Automation & Control Engineering.** (ISSN: 2301-3702). JOACE (CA, U.S.)
- **8th International Conference on Circuits, Systems and Signals (CSS '16)**, Dubrovnik, Croatia

Editorial Board Membership

- **International Journal of Soft Computing.** (ISSN: 2229-6739).

List of Papers.

International Journals

1. **Nitish Katal** and Shiv Narayan, "Design of Optimal QFT Controller and Pre-filter for Buck Converter using Meta-Heuristic Algorithms," *Modelling and Simulation in Engineering*, In Press. (ESCI, Web of Science, Scopus)
2. **Nitish Katal** and Shiv Narayan, " Design of robust fractional order PID controllers for coupled tank systems using multi-objective particle swarm optimization." International Journal of Systems, Control and Communications. 2017 Vol. 8 No. page 250-267.
3. **Nitish Katal** and Shiv Narayan, "Optimal Design of QFT Controller for Pneumatic Servo Actuator System using Multi-objective Genetic Algorithm." International Journal of Advanced Intelligence Paradigms. (In Press). (Scopus).
4. **Nitish Katal** and Shiv Narayan, " Optimal QFT Controller and Pre-Filter for Buck Converter using Multi-objective Genetic Algorithm." International Journal of Swarm Intelligence. 2017 Vol.3, No.2/3 page. 192-214.
5. **Nitish Katal** and Shiv Narayan, "QFT Based Robust Positioning Control of the PMSM Using Automatic Loop Shaping with Teaching Learning Optimization," *Modelling and Simulation in Engineering*, vol. 2016, Article ID 9837058, 18 pages, 2016. (ESCI, Web of Science, Scopus)
6. **Nitish Katal** and Shiv Narayan, "Automatic Synthesis of Optimal Fixed Structure QFT Controller for Pneumatic Servo Actuator System using Multi-objective Particle Swarm Optimization." Journal of Engineering Science and Technology Review. 2016 Vol.9, No. 6, page 1-11
7. **Nitish Katal,** Dr. Shiv Narayan. "Automatic Loop Shaping of Robust QFT controller for Permanent Magnet Stepper Motor using Flower Pollination Algorithm." International Journal of Control Theory and Applications (Scopus)
8. **Nitish Katal**, Sanjay Kr. Singh. *"Multi-objective Optimisation of PID Controller for DC Servo Motor using Genetic Algorithm"*. Engineering Intelligent Systems. ISSN: 1472-8915. Vol 23. No. 1. March 2015. (Scopus)
9. Sanjay Kr. Singh, **Nitish Katal**, S. G. Modani. "*Optimization of PID Controller for Brushless DC Motor by using Bio-Inspired Algorithms*." Research Journal of Applied Sciences, Engineering and Technology. 7(7).1302-1308, February 2014. (Scopus)
10. Sanjay Kr. Singh, D. Boolchandani, S. G. Modani, **Nitish Katal**. *"Multi-objective PID Optimization for Speed Control of an Isolated Steam Turbine using Genetic Algorithm."* Research Journal of Applied Sciences, Engineering and Technology. 7(17). 3441-3445 . 2014 (Scopus)
11. Sanjay Kr. Singh, D. Boolchandani, S. G. Modani, **Nitish Katal**. *"Multi-objective optimization of PID controller for temperature control in centrifugal machines using genetic algorithm."* Research Journal of Applied Sciences, Engineering and Technology. 7(9): 1794-1802. March 2014. (Scopus)
12. **Nitish Katal,** Sanjay Kr. Singh. *"Optimal Tuning of PID Controller for DC Motor using Bio-Inspired Algorithms." International Journal of Computer Applications* 56(2):1-5, October 2012. Published by Foundation of Computer Science, New York, USA. DOI: 10.5120/8860-2822

13. **Nitish Katal,** Sanjay Kr. Singh, Manmohan Agarwal. *"Optimizing Response of PID Controller for Servo DC Motor by Genetic Algorithm." International Journal of Applied Engineering Research* 7.11: 2012. (Scopus)
14. **Nitish Katal,** Sanjay Kr. Singh. *"Optimal Tuning of PID Controller using Bio-Inspired Algorithms."* in "International Journal of Advanced Computing", Volume 35, Spl. Issue 2, ISSN – 2044-2433.
15. **Nitish Katal,** Sanjay Kr. Singh. "Optimization of PID Controller for Quarter-Car Suspension System using Genetic Algorithm" in International Journal of Advanced Research in Computer Engineering and Technology. Vol. 1, Issue 7, Page 30-32. ISSN-2278-1323
16. **Nitish Katal,** Sanjay Kr. Singh. "Optimization of PID Controller for Quarter-Car Suspension System using Simulated Annealing" in "*International Journal of Electronic and Electrical Engineering*", Vol.5 No.3. P-239-242. ISSN- 0974-2174

International Conferences

17. Sanjay Kr. Singh, **Nitish Katal** "Optimal Tuning of PID Controller for Coupled Tank Liquid Level Control System using Particle Swarm Optimization." 6th International Conference on Soft Computing for Problem Solving (SOCPROS-16). 23-24 December, 2016. (Scopus)
18. Sanjay Kr. Singh, **Nitish Katal**. "Soft Computing Based Optimized Brix Controller For Rodi-Melter Machines In Sugar Industry." The 24th International Conference on Finite or Infinite Dimensional Complex Analysis and Applications (24th ICFIDCAA-2016). August 22-26, 2016. AICE, Jaipur, India.
19. **Nitish Katal,** Dr. Shiv Narayan. "Optimal QFT Controller and Pre-Filter for Buck Convertor using Flower Pollination Algorithm." IEEE International Conference on Power Electronics, Intelligent Control and Energy Systems (ICPEICES) from July 04 – 06, 2016 at Delhi Technological University, Delhi, India. (Scopus)
20. Parvesh Kumar, **Nitish Katal,** Dr. Shiv Narayan. "Multi-objective Flower Pollination Algorithm for Optimal Design of Fractional Order Controller for Robust Isolated Steam Turbine." IEEE International Conference on Power Electronics, Intelligent Control and Energy Systems (ICPEICES) from July 04 – 06, 2016 at Delhi Technological University, Delhi, India. (Scopus)
21. **Nitish Katal,** Parvesh Kumar, Shiv Narayan, "*Design of $PI^{\lambda}D^{\mu}$ Controller for Robust Flight Control of an UAV using Multi-objective Bat Algorithm.*" 2nd IEEE International Conference on Recent Advances in Engineering and Computational Sciences (RAECS-15). UIET, PU,Chandigarh. (Scopus)
22. **Nitish Katal,** Dr. Shiv Narayan. *"Multi-Objective Optimization based Design of Robust Fractional Order PID Controller for Coupled Tank Systems."* 5th International Conference on Soft Computing for Problem Solving (SOCPROS-15). IIT Roorkee. 978-981-10-0447-6. (Scopus)
23. Sanjay Kr. Singh, D. Boolchandani, S. G. Modani, **Nitish Katal**. "*Optimal Tuning of PID Controller for Centrifugal Temperature Control System in Sugar Industry using Genetic Algorithm.*" 5th International Conference on Soft Computing for Problem Solving (SOCPROS-15). IIT Roorkee. 978-981-10-0447-6. (Scopus)

24. **Nitish Katal,** Parvesh Kumar, Dr. Shiv Narayan. *"Optimal PID Controller for Coupled-Tank Liquid-Level Control System using Bat Algorithm"*. 3rd IEEE International Conference on Power, Control and Embedded Systems, MNNIT Allahabad. ISBN:978-1-4799-5912-9/14. December 26-28, 2014. (Scopus).
25. Sanjay Kr. Singh, **Nitish Katal,** S. G. Modani. "*Multi-objective Optimization of PID Controller for Coupled Tank Liquid Level Control System using Genetic Algorithm"*, in International Conference on Soft Computing for Problem Solving (SocProS-12), 28-30 December 2012, AISC, Springer. (Scopus)
26. **Nitish Katal**, Sanjay Kr. Singh, S. G. Modani, Ashutosh Tripathi. *"Optimizing the Response of a PID Controller for Three Tank Liquid Level System using Multi objective Genetic Algorithm"*, in Proceedings of "International Conference on Advances in Electronics, Electrical and Computer Science Engineering – EEC-12" Dehradun, ISBN No. 978-981-07-2950-9, DOI: 10.3850/978-981-07-2950-9 335.
27. **Nitish Katal**, Sanjay Kr. Singh, S. G. Modani. *"Tuning the Parameters of PID Controller for DC Motor using Genetic Algorithms"* at "International Conference on Computational Electronics & Nanotechnology – 2012 (ICOCENT-2012)" in March 1-2, 2012, at Amity University, Rajasthan. ISBN: 978-93-81348-65-9

National Conferences

28. **Nitish Katal**, Sanjay Kr. Singh. "Optimal Tuning of PID Controllers for Three Tank Water Level Control System using Genetic Algorithm", at "National Conference on Power Electronics & Intelligent Control-12", MNIT, Jaipur. November 1-2,2012.
29. **Nitish Katal**, Sanjay Kr. Singh. "*A Performance Comparison of Tuning Methods of PID Controller based on Fuzzy Logic and Genetic Algorithms for DC Motor*" at National Conference on Role of Electronics & Instrumentation Engineering for Rural Development (NCREIE-12) in February 27,28 2012
30. "Energy Generation through *Piezoelectric Crystals"* at RACTEE -2010 National Conference held at *SLIET Longowal* in March 19-20, 2010.

REFERENCES

Dr. Shiv Narayan

Professor, Electrical Engineering, PEC University of Technology, Chandigarh
shivnarayan@pec.ac.in

Mr. Sanjeev R. Kane

Scientific Officer 'G', Indus Synchrotron Utilisation Division, RRCAT, Indore
rksanjiv@rrcat.gov.in

Mr. Chander Kant Garg

Scientific Officer 'E', Indus Synchrotron Utilisation Division, RRCAT, Indore
ckgarg@rrcat.gov.in

Dr. Devinder P. Ghai

Scientist 'G', Head,Adaptive Optics Technology Division,
Laser Science and Technology Centre, Metcalfe House, New Delhi

dpghai@rediffmail.com

Mr. Sanjay Kr. Singh

Dept. of ECE, ASET, Amity University, Rajasthan

sksingh.mnit@gmail.com

Online Presence:

Scopus: https://www.scopus.com/authid/detail.uri?authorId=55697019400
Google Scholar: https://scholar.google.co.in/citations?user=Mm-FgtAAAAAJ&hl=en
LinkedIn: https://www.linkedin.com/in/nitishkatal