Resume of Dr.Sudarshan Patilkulkarni

(Senior Member IEEE)

Seeking position Professor

1. Date of Birth **:** 21st June 1974

2. Designation **:** Professor (Since Oct 2014)
Department of Electronics & Communication,
JSS Science and Technology University, Mysuru

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Dr. Sudarshan Patilkulkarni
Professor
Department of Electronics & Communication
Sri Jayachamarajendra College of Engineering,
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Mysuru – 570 006.
KARNATAKA STATE, INDIA.

(Residence)
#1025, 13A Cross,
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Mysuru-570026

3. Education:

Ph.D. (Electrical Engineering) 01/2001 ~ 08/2004 Old Dominion University, Virginia, USA

M.E. (Electrical Engineering) 09/1998 ~ 12/2000 Old Dominion University, Virginia, USA

B.E. (Electronics & Communication) 09/1992 ~ 07/1996 Karnataka University, INDIA

4. Academic Experience: Professor (Oct 2014 – till date) – JSS Science and Technology University
Associate Professor (2007-2014) – Sri Jayachamarajendra College of Engineering
Post Doc Fellow (2005-2007) – Indian Institute of Technology Bombay
Graduate Research Assistant – 2000-2004

5. Tools Expertise : MATLAB/SIMULINK, OCTAVE, C++, dSpace Control Desk

6. Academic Awards:

2000, Old Dominion University Fellowship from College of Engineering.

7. Research Areas of Interest:

Theory domains: Linear Nonlinear Systems, Signal / Image Processing, Wavelets, Hybrid Control systems

Application domains: Automotive, Robotics, Space, Power systems

Title of Ph D Thesis: Stability of Jump Linear Systems Driven by Finite State Machines with Markovian Inputs, Old Dominion University, Virginia, USA, 2004

Number of Ph. D. awarded under Guide-ship: 6 candidates (University Of Mysore 5, Visvesvaraya Technology University 1)

Journal Publications: SCOPUS indexed: 19, Conference Publications: 35

Google Scholar Citations: 300+, h-index 10
(https://scholar.google.co.in/citations?user=RhnnvwEAAAAJ&hl=en**)**

Projects using MATLAB/SIMULINK/dSPACE tools:

1. Observer Based Maglev Control
2. ADAS Headlamp Beam control
3. Wiper Motor Control using Rain sensor
4. controller for BOSCH Oxygen 4.2 Sensor

Laboratories Established:

1. SJCE Robotics Lab (With Support from TEQIP, eYantra IITB)
2. Automotive & Control (PG and Research Lab)

Courses Taught:

1. Control Systems (UG, 12 years experience)
2. Digital Control Systems (PG, 12 years experience)
3. Wavelet Transforms (UG Elective offered for 3 years)
4. Image Processing (UG Elective offered for 2 years)
5. Robotics and Computer Vision (UG Elective Offered for 1 year)

Faculty Development Programs

Sl.NO.	**Title of course**	**Duration**	**Date**	**Place**	**Conducted /Attended**
1	Advance Topics in Control Systems	2 day	April 2016	SJCE, Mysuru	**Conducted**
2	Introduction to Robotics	2 day	12^{th} 13^{th}	VVCE, Mysuru	Attended

			Feb 2016		
3	Pedagogy of Instructional Design and Delivery System	6 day	7th – 12th June 2016	SJCE, Mysuru	Attended
4	Nonlinear Control System Design	5 day	20th- 24th June 2016	IIST, Trivandrum	Attended
5	Model based control techniques using dSpace tools	1 day	11th June 2018	SJCE Mysuru	**Conducted**
6	Advances in Satellite Communication and Networking	5 day	29 Aug to 02 Sept 2018	JNNCE, Shivamogga	Attended
7	**Workshop on Nanosatellite Technology**	5 day	16th Sept 20th Sept 2019	SJCE, Mysuru	**Conducted**
8	**Workshop on Robotics and Automation**	Two week	2nd to 14th March 2020	IIT Delhi	Attended
9	**Faculty Training Program (Administration and Management)**	3 Days	26th to 28th Oct, 2020	IIM Thirchy	Attended(Online)

Academic Roles/Activities: Member Board of Studies, Member Board of Examination, Member Doctoral Committee, IEEE Student Branch Counsellor, Coordinator e-Yantra(IITB), Invited speaker at several institutions on topics like Mathematical modelling, Wavelets, MATLAB, LATEX, Control Systems

Special Achievement: Invited speaker CISCON, Manipal University, Sept 2020

Recently organized a workshop on Nanosatellite Technology where I invited 15 eminent scientists/engineers from ISRO and space industries to deliver talks on various aspects of nanosatellites and ISROs Chandrayaan mission. It was attended by around 100 students and 20 faculty members.

Publications

Published e-Book in Kannada language on Signals, Systems and Control Sept 2020 https://play.google.com/store/books/details?id=wBf-DwAAQBAJ&rdid=book-wBf-DwAAQBAJ&rdot=1&source=gbs_vpt_read&pcampaignid=books_booksearch_viewport

Ph D Thesis: Stability Analysis of Jump Linear Systems Driven By Finite State Machine with Markovian Inputs (2004).

International Journals

Aug 2019 - Present:

[1] **S. S. Divakara, S Patilkulkarni, CP Raj, "**Novel DWT/IDWT Architecture for 3D with Nine Stage 2D Parallel Processing using Split Distributed Arithmetic**",** International Journal of Image and Graphics, Vol 20 (3), July, 2020, page 2050017

Aug 2018-July 2019:

[2] S. S. Gokhale, Yathisha L.,S. Patilkulkarni,``LQR Based Optimal Control Techniques As Applied to Air Path of Diesel Engines", International Journal of Recent Technology and Engineering, Vol 8 (1C), May 2019, pp149-157 (Indexed in SCOPUS)

International Journals Aug 2017-July 2018:

[3] L. Yathisha, S. Patilkulkarni, "LQR and LQG Based Optimal Switching Techniques for PSS & UPFC in Power Systems", International Journal of Control Theory & Technology, Springer, Vol , 16(1), 2018. (IF 0.957, H-index 14) (Indexed in SCOPUS)

[4] S. Divakara, S. Patilkulkarni, C. Prasanna Raj, *"High Speed Area Optimized Hybrid DA Architecture for 2D-DTCWT".*, International Journal of Image & Graphics, World Scientific, Vol 18 (1), 2018, pp 1850041-185000421 (IF 0.16) (Indexed in SCOPUS)

[5] S. Divakara, S PatilKulkarni, C Prasanna Raj,"Highspeed modular systolic array based DTCWT with parallel processing architecture for 2d image transformation on FPGA" ,International Journal of Wavelets Multiresolution and Image Processing, World Scientific, Vol 15(5), September, 2017. http://www.worldscientific.com/doi/abs/10.1142/S0219691317500473 (Indexed in SCOPUS)

International Journals Aug 2016-July 2017:

[6] L. Yathisha, S. Patilkulkarni, "Optimal Switched Feedback Controller Design for the Simultaneous Coordinated Design of UPFC and PSS in Power System", Journal of Electrical Engineering, POLITEHNICA, RO, Vol 16, Issue 4, 2016. (Indexed in SCOPUS)

Conference Publications

International Conference August 2018-July 2019

[1] Arshad Javed, Varun G P, S. Patilkulkarni, “Autonomous Service Robot”, International Conference on Advances in Robotics (AIR 2019), IIT Madras, Chennai, INDIA

[2] Shashidhar S Gokhale, Sudashan S Patil Kulkarni and Yathisha L, \Performance Improvement of Air Path Dynamics In Diesel Engines Using LQR/LQG Optimal and Switching Control Techniques", Second International Conference on Emerging trends in Engineering, Technology and Management (ICETETM-2019)

[3] Shashidhar S Gokhale, Yathisha L and Sudashan S Patil Kulkarni, \LQR Based Optimal Control Techniques As Applied To Air Path of Diesel Engines", Second International Conference on Emerging Trends In Science and Technologies For Engineering Systems (ICETSE-2019)

International Conference August 2016- January 2017

[4] Yathisha L, Khourosh Davoodi, S. Patilkulkarni, *"Optimal switching control strategy for UPFC for wide range of operating conditions in power system*", Indian Control Conference (IEEE CSS), IIT Gowhati, Jan 2017, INDIA

[5] Rishira A., Abhishek J., S. Patilkulkarni, Veeramanju K. T.,`` Design and development of controller for bosch 4.2oxygen sensor using dSPACE tools, 2017 International Conference on Electrical, Electronics, Communication, Computer, and Optimization Techniques (ICEECCOT), Mysore, INDIA

[6] Sabeel Irshad, S. Patilkulkarni, *"Observer Based Speed Control of BLDC Motors without Position Sensors"*, International Conference on Current Research and Applications in Electrical Science", ICCRAES, PDACEK, Karnataka, October 2016.

Previous Publications (before August 2016)

[7] Khourosh D and S Patil Kulkarni, ``*Hybrid Modeling and Control of Power Systems with PSS Operating over Wide Range of Operating Conditions"*, IEEE International Conference on Power Systems (ICPS), March 2016, DOI: 978-1-5090-0128.

[8] L. Yathisha, S. Patilkulkarni, *"Application and Control of Switching Algorithms for Power System Stabilizer"*, International Conference on Instrumentation and Control, (COEP, IEEE), Pune, 2015.

[9] Aniruddha Yajurvedi, S. Patilkulkarn*i, "An Adaptive Image Steganography Algorithm Using Successive Pixel Difference Embedding and Integer Wavelet Transform"*, Proceedings of the Fourth International Conference on Signal and Image Processing 2012 (ICSIP 2012), Springer Lecture Notes in Electrical Engineering Volume 221, 2013, pp 203-212.

[10] Dr. Sudarshan Patil Kulkarni, Abhijit Damle, A.R. Shodan, Suhas K Kashyap, V. Suhas and N. Vivek, *“Observer Based Controller Model for Maglev Systems Using dSPACE DS1104®”,* Proceedings of IX Control Instrumentation System Conference 2012, Manipal, India, Nov 2012.

[11] C.M.Patil and Sudarshan Patilkulkarni *“ An Approach to Enhance Security Environment Based on SIFT Feature extraction and Matching to Iris Recognition*” in the Proceedings of International conference on Recent Trends in Business Administration and Information Processing BAIP2010, Trivandrum, on 26th & 27th Mar 2010,pp 527-530. BAIP 2010, CCIS 70(Springer), pp. 527–530, 2010.

[12] C.M.Patil and Sudarshan Patilkulkarni *“A Comparative Study of Feature extraction Approaches for an Efficient Iris recognition System”* in the Proceedings of International conference on Recent Trends in

Business Administration and Information Processing BAIP2010, Trivandrum, on 26th & 27th Mar 2010,pp 411-416. BAIP 2010, CCIS 70 (Springer), pp. 411–416, 2010

[13] C.M.Patil and Sudarshan Patilkulkarni *" An Efficient Process of Recognition of Human iris based on Contourlet Transforms"* in the proceedings of International Conference on Exhibition and Biometric Technology ICEBT 2010,(ELSEVIER)Coimbatore on 3rd &4th Sept 2010.,pp121-126, 2010

[14] H. C. Vijaylakshmi, Sudarshan Patilkulkarni , *"Face Detection in Skin-Toned Images Using Edge Detection and Feature Extraction using R and G Channels through Wavelet Approximations",* 3rdInternational Conference on Machine Vision (IACSIT and IEEE) at Hongkong, December 2010

[15] H. C. Vijaylakshmi, Sudarshan Patilkulkarni, *"Face Detection For Skintone Images Using Wavelet and Texture Features"* IEEE-ICACCT-2010, at Panipat, Page Part 370-374.

[16] H C VijayLakshmi, PatilKulakarni S., *"Face Detection and Localization in Skin Toned Color Images Using Wavelet and Edge Detection Techniques",*DOI: 978-0-7695-4201-0/10 $26.00 © 2010 IEEE DOI 10.1109/ARTCom.2010.34 Page 231-234. International Conference on Advances in Recent Technologies in Communication and Computing 2604-7/06

[17] L. Yatisha , S. Patilkulkarni, R. S. Anandamurthy, *"Hybrid Modelling and Switching Algorithms for FACTS Based Controllers",* International Conference on Systems Dynamics and Control, ICSDC August 2010, Manipal, INDIA.

[18] S. Patilkulkarni, H. Herencia-Zapana, W. S. Gray and O. R. González, *"On the Stability of Jump-Linear Systems Driven by Finite-State Machines with Markovian Inputs",* Proc. 2004 American Control Conference, Boston, MA, 2004, Vol 3, pp. 2534-2539

[19] W. S. Gray, S. Patilkulkarni and O. R. González, *"Stochastic Stability of a Recoverable Computer Control System Modeled as a finite-state Machine",* Proc. 2003 American Control Conference, Denver, CO, 2003, pp.2240-2245.

[20] W. S. Gray, S. Patilkulkarni and O. R. González, *"Towards Hybrid Models of Recoverable Computer Control Systems",* Proc. 21stDigital Avionics Systems Conference, Irvine, CA, 2002, pp.13.C.2.1-13.C.2.8.

[21] O. R. González, W. S. Gray, A. Tejada and S. Patilkulkarni, *"Stability Analysis of Electromagnetic Interference Upset Recovery Methods",* Proc. 40thIEEE Conference on Decision and Control, Orlando, FL, 2001, pp. 4134-4139.

[22] O. R. González, W. S. Gray, A. Tejada and S. Patilkulkarni, *"Stability Analysis For Upset Recovery Methods For Electromagnetic Interference"*, Proc. 20thDigital Avionics Systems Conference, 2001, Daytona, FL, pp.1.C.4.1-1.C.4.9.

[23] O. R. González, W. S. Gray and S. Patilkulkarni, *"Analysis of Memory Bit Errors Induced by Electromagnetic Interference in Closed Loop Digital Flight Control Systems",* Proc.19thDigital Avionics Systems Conference, 2000, Philedelphia, PA, pp. 3.C.5.1-3.C.5.9.

[24] W. S. Gray, O. R. González and S. Patilkulkarni, *"Stability of Control Systems Subject to Jump Linear Random Perturbations",* Proc. 39thIEEE Conference on Decision and Control, 2000, Sydney, Australia, pp. 1154-1159.