Curriculum Vitae

Brief Profile: 1-2 paragraphs (not exceeding 500 words)

Dr. Ramakalyan is currently a professor of Instrumentation & Control Engineering Dept., National Institute of Technology, Tiruchirappalli, India. He obtained PhD from IIT Delhi in the year 2000 where he worked on dynamic non-cooperative games and robust control for a class of nonlinear systems. He is deeply interested in looking into computational problems that arise out of the algebra and graphs in control theory and applications. Of particular interest are the NP-hard problems and the Randomized Algorithms. He has several significant papers in international conferences and journals. He was a visiting associate professor of the Institute of Mathematical Sciences, Chennai during 2001-04. He was a recipient of Government of India's Young Scientist award in 2005 for his funded project "Robust and Efficient Algorithms for Modern Control Systems." In the same year, he has also worked at National Chemical Laboratories at Pune (a constituent of Government of India's Central Scientific and Industrial Research (CSIR)), on "Density Functional Theory and Quantum Control of Systems," under the aegis of Indian Academy of Sciences. He was one among the first UKIERI recipients in 2007 and has successfully completed a collaborative project on unmanned air vehicles (UAVs) together with University of Leicester, UK, IISc Bangalore, IIT Bombay, and NAL Bangalore.

His research and consultancy projects have been a fine balance of theory and practice in the areas of Model Driven Engineering (funded by ABB), Traffic scheduling and decongestion (funded by ITRA, Govt of India), Nonlinear control (funded by Bosch), and Fault-tolerant control (funded by DRDO, Govt of India). He has also developed a course on Circuit Theory under the Pedagogy project at IIT Kharagpur, in addition to his textbook *Linear Circuits: Analysis & Synthesis*, published and sold all over the world by Oxford University Press.

He visited Texas A&M University during summer 2008, University of Leicester during 2008 and again during 2011, and Institut Henri Poincaré, Paris during 2014.

He is a senior member of IEEE and member of SIAM. He was the founding secretary and present Vice-President of Automatic Control and Dynamic Optimization Society (ACDOS), the Indian NMO of the IFAC, through which he passionately contributes to controls education in the country.

National Institute of Technology, Tiruchirappalli:
Performa for CV of Faculty/ Staff Members

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2. Designation: **Professor**
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   National Institute of Technology Tiruchirappalli,
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6. Field(s) of Specialization: **CONTROL THEORY & APPLICATIONS**

7. Employment Profile

Job Title	Employer	From	To
Professor	NIT Tiruchirappalli	12th March 2018	Till date
Associate Professor	NIT Tiruchirappalli	1st July 2009	11th March 2018
Assistant Professor	NIT Tiruchirappalli	1st July 2006	30th June 2009
Senior Lecturer	REC/NIT Tiruchirappalli	21st Dec 2000	30th June 2006
Lecturer	REC Tiruchirappalli	13th May 1996	20th Dec 2000

8. Academic Qualifications (From Highest Degree to High School):

Examination	Board / University	Year	Division/ Grade	Subjects
Ph.D.	IIT Delhi	2000		Control Systems
M.E	Andhra Univ., Visakhapatnam	1993		Control Systems
B. E	Andhra Univ., Visakhapatnam	1990		Electronics & Communications Engg.

9. Academic/Administrative Responsibilities within the University

Position	Faculty/Department/Centre/Institution	From	To
Dean	Academic affairs of the institute	January 2021.	Till date
The Head of Computer Support Group	The IT hub of NIT Trichy	April 2015	June 2020
Head of the Department	ICE	Dec1, 2009	Nov 30, 2012
Associate Dean	R&C	Sept 1, 2008	Nov 30, 2009

10. Academic/Administrative Responsibilities outside the University: **NIL**

Position	Institution	From	To

11. Awards, Associateships etc.

Year of Award	Name of the Award	Awarding Organization
2002	**Young Scientist**	Dept. of Science and Technology (DST) under SERC.

12. Fellowships

Year of Award	Name of the Fellowship	Awarding Organization	From (Month/Year)	To (Month/Year)
2005	Summer Research Fellowship of the Indian Academy of Sciences: "Density Functional Theory and Quantum Control of Systems." Worked at the National Chemical Laboratory (NCL) Pune with Professor BD Kulkarni.	Indian Academy of Sciences	May/2005	July/2005

13. Details of Academic Work – **Details Provided in the next 2 pages.**
    (i) Curriculum Development
    (ii) Courses taught at Postgraduate and Undergraduate levels
    (iii) Projects guided at Postgraduate level
    (iv) Other contribution(s)

Statement on Research and Teaching

My doctoral work at IIT Delhi was in the broad area of Robust Control. After a short stint with simulation studies using Neural Networks and Fuzzy Logic, I preferred to switch over to a more rigorous approach of applying game theory to control problems in nonlinear systems. I succeeded in my attempt to integrate the measures of robustness (the H_∞-norm), and intelligence (the reinforcement learning), in the game theoretic setting. I am proud to say that this work was conceived and conceptualized more than a decade ahead of the current software packages and sundry applications in deep neural networks and reinforcement learning.

Dynamic Programming was an integral part of my thesis and working extensively on this goaded me to look at the "computational" issues. Soon after my thesis, I started looking at the controller design problems from a computational complexity point of view and discovered certain interesting issues; for instance, the pole placement problem (full state feedback control) in linear systems with constraints is *NP hard* (it may take ages to arrive at a satisfactory design), and the complexity of simple and the most popular output feedback control problem is unknown. This problem is still in the list of open problems in Systems & Control. Complexity theory provides a rigorous mathematical framework to study such problems and prompts us to invent computationally tractable algorithms. This line of research is very pragmatic since computation is now regarded as an equal and indispensable partner along with theory and experiment in engineering practice. In the year 2001 I was invited to visit the Institute of Mathematical Sciences Chennai, as an associate professor. This institute has provided facilities for my carrying out this research for three years. Towards late 2002, the Department of Science & Technology (DST, GoI) has approved my proposal for further research in this direction on a larger scale and funded me under its Young Scientists scheme. Since then I have been working towards developing computationally efficient control algorithms. This bringing together control systems and complexity theory of computer science is has been scintillating, and all of my learning and current research has been pivoted on this.

In May 1996 I joined the National Institute of Technology at Tiruchirappalli as a lecturer in the fledgling department of Instrumentation and Control Engineering. Owing to the wider spectrum of courses offered here, I was assigned to devise the "Control Stream" with core courses - MATHEMATICS, NETWORK THEORY, SIGNALS AND SYSTEMS, MICROELECTRONICS, OPERATIONAL AMPLIFIERS, CONTROL SYSTEMS, DATA STRUCTURES AND ALGORITHMS, and MODERN CONTROL THEORY (in that order, semester-wise), and related electives like ROBOTICS, NONLINEAR CONTROL, AUTOMOTIVE CONTROL SYSTEMS, INTELLIGENT CONTROL, COMPUTATIONAL TECHNIQUES IN CONTROL ENGG., PROBABILITY & COMPUTING, and COOPERATIVE CONTROL. Most of these courses are regularly offered by me. I also had an opportunity to be the founder-convener for the department's library and the computer center.

Over the years this stream has evolved quiet well with a rich blend of mathematical rigor and physical intuition. I have also developed four core laboratories, primarily for the

undergraduate students, where low cost electrical network elements and hands-on experimentation are preferred to expensive demonstration modules. One of the interesting experiments is the non-inverting Deboo Integrator during V and VI semesters. This practice has been well received since it enables the student to apply the theory verbatim and conduct an *experiment* rather than simply *demonstrate*. There are several masters' and doctoral students who work in these laboratories for enriching their fundamentals. Using the resources of these laboratories I guide students in designing and developing low-cost self-navigating mobile robots. For the Robotics & Machine Intelligence (RMI) club under the IEEE student chapter, I have guided several projects, including an all-terrain vehicle, self-balancing bicycle, and a virtual xylophone. These activities have been much sought after in the campus, motivating several students into pursuing research in the USA, the UK, and Australia. In turn this motivates me to nurture the student community here. I have summarized my experiences, partly in teaching and partly in research, and authored two textbooks titled CONTROL ENGINEERING: A COMPREHENSIVE FOUNDATION and LINEAR CIRCUITS: ANALYSIS AND SYNTHESIS.

Post 2005, NIT Tiruchirappalli added research to its otherwise teaching agenda. Continuing with my research in computational complexity for practical control systems, I have collaborated with the Dept. of Aerospace Engg., Indian Institute of Science Bangalore in 2007. Our joint proposal “Towards Reliable Smart and Adaptable Air-Vehicles” was granted major award by the British Council under its maiden UKIERI scheme 2007-11. This was one of the 7 proposals (among sciences, engineering, medicine and so on), and the only NIT, to get this major grant. In addition to IISc Bangalore, I had an opportunity to work closely with the research groups at the University of Leicester (UK), IIT Bombay, and National Aerospace Laboratories (NAL) Bangalore. In particular, I contributed to the design and analysis of path planning algorithms for UAVs and certain on-board electronics for mini and micro air-vehicles. As a part of this project I guided a PhD in the broad area of Networked Control Systems. This was my getting into the field of cyber-physical systems. A couple of months ago a student of mine got her Ph.D. from our institute for her work on Graph Theoretic Modeling and Control of Decongesting Traffic Networks wherein we tapped on V2V and V2I communications and developed a robust framework for the design of very large intersections.

During January-March 2013, I conducted a Certificate Course in Advanced Control Engineering for the scientists at DRDL Hyderabad, with topics such as State-space controller design, Optimal Control & Dynamic Programming, Computational Techniques, and Kalman Filters, tailored to their research activities. Subsequently, one of the senior scientists of the organization worked on these ideas extensively and submitted his PhD thesis on Modern Control Laws for a class of Missile Systems to our institute under my supervision.

In summary, all through I have been quite proactive in the academic activities, albeit an initial emphasis on undergraduate teaching, pertinent to my parent institution. I strengthened myself in peer-networking over years. I have healthy professional relationship

with several universities around the world, as well as with the industry – ABB, NAL, BHEL, DRDO, to name a few.

During 2019, I was invited to deliver a talk "A Fresh Approach to Teaching State-Space Methods in an Undergraduate Course" at the prestigious 12th IFAC Symposium on Advances in Control Education (IFAC-ACE 2019), July 7 – 9, 2019, Philadelphia, USA. Recently I have co-authored a huge reference book *Control Systems: Classical, Modern, and AI based Approaches*, covering the gamut of control and this is published later in 2019 by the Taylor & Francis group, CRC Press, USA.

All along, in the 25+ years of my service here, there was no compromise on the quality of education I have imparted to the students, both undergraduate and graduate. It has been a source of deep inspiration and immense satisfaction receiving periodic mails of appreciation from my passed-out students who stand witness to my mentoring. I look forward to taking up more exciting projects both in theory and in practice that would enrich my learning, and consequently allow me to work for the welfare and growth of the society around me.

14. Details of Major R&D Projects

Title of Project	Funding Agency	Duration		Status
		From	To	Ongoing/ Completed
Development of Modern Control Laws for a Class of Cruise Missiles	DRDL Hyderabad	2018	2020	Completed
De-congesting India's transportation networks using mobile devices	Information Technology Research Academy (ITRA) under the focus area Mobile Computing, Networking & Applications, to IIT Madras, IMSc Chennai, NIT Tiruchirappalli and Univ. of Calcutta	2015	2018	Completed
Model Driven Engineering for Integration of Industrial Automation Systems with Application	ABB Global Industries and Services Ltd.	2015	2018	Completed

to Water Networks				
Towards Reliable Smart and Adaptable Air-Vehicles	UKIERI (www.ukieri.org	2007	2011	Completed
Robust and Efficient Algorithms for Modern Control Systems.	Dept. of Science and Technology (DST) under SERC for Young Scientists.	2002	2005	Completed

15. Number of PhDs guided

Name of the PhD Scholar	Title of PhD Thesis	Role (Supervisor/ Co-Supervisor)	Year of Award
C. Subba Reddy		Supervisor	On going
V.S. Murthy Arikapalli	Design of Modern Optimal Control Laws for Tactical Vehicles	Supervisor	August 2022
K. Sharmila Devi	Graph Theoretic Modeling and Control for Decongesting Transportation Networks	Supervisor	October 2021
S. Ismail	Fault-Tolerant Auto landing Controller using Diagonally Dominant Backstepping and Neural-Sliding Mode Augmentation	Supervisor	November 2014
P. Kavitha	A Study on the Proofs and Computational Complexity of Stability Criteria in Control Engineering	Supervisor	September 2013
N. Raju	Analysis of Welding Distortion using Strain Gauge based Instrumentation System	Supervisor	December 2010
S. Seshadhri	Estimation & Design Methodologies for Networked Control Systems with Communication Constraints	Supervisor	December 2010
B. Vasuki	Analysis of Uncertainty for Instrumentation Systems using Interval Methods	Co-Supervisor	December 2009

16. Participation in Workshops/ Symposia/ Conferences/ Colloquia /Seminars/ Schools etc. (mentioning the role)

Date (s)	Title of Activity	Level of Event (International/ National/ Local)	Role (Participant/ Speaker/ Chairperson, Paper presenter, Any other)	Event Organized by	Venue
Jan 27–29, 2021	TEQIP III – Professional Development Training Programme for Faculty & Administrators	National	Participant	Indian Institute of Management Visakhapatnam	Indian Institute of Management Visakhapatnam
Sep 23-27, 2019	TEQIP III – Professional Development Training Programme for Faculty & Administrators	National	Participant	Indian Institute of Management Tiruchirappalli	Indian Institute of Management Tiruchirappalli
July 7-9, 2019	Advances in Control Education	International	Speaker	12th IFAC Symposium on Advances in Control Education (IFAC-ACE 2019)	Philadelphia, USA
Sept 22-23, 2014	"Human Cyber Physical System Interaction: Control for the Human Welfare	International	Participant	IFAC & IEEE-CSS sponsored International Workshop, Paris	IFAC & IEEE-CSS sponsored International Workshop, Paris
March 11-15, 2013	Workshop on Probability and Stochastic Processes in Engineering	International	Participant	EE Dept, IIT Bombay	EE Dept, IIT Bombay

17. Workshops/ Symposia/ Conferences/ Colloquia/Seminars Organized (as Chairman/ Organizing Secretary/ Convenor / Co-Convenor)

Title of Activity	Level of Event (International/ National/ Local)	Date (s)	Role	Venue
ICECON 2019, International Conference on Instrumentation & Control Engineering	International	19th to 21st Dec 2019	Co-General Chair	NIT Tiruchirappalli
12th IFAC Symposium on Advances in Control Education (IFAC-ACE 2019)	International	July 7 – 9, 2019	Member, International Program Committee, & Associate Editor	Philadelphia, USA
4th IFAC Conference on Advances in Control & Optimization of Dynamical Systems (ACODS)	International	Feb1-5, 2016	General Chair	NIT Trichy
ICECON 2009	International		Convener	NIT Trichy
ICECON 2007	International		Organizing Secretary	NIT Trichy
National Conference on Instrumentation & Control Engineering (ICECON)	International	Dec 4-6 2003	Founder Organizing Secretary	NIT Trichy

18. Invited Talks delivered

Topic	Date	Inviting Organization
A Fresh Approach to Teaching State-Space Methods in an Undergraduate Course	July 7-9, 2019.	Advances in Control Education, 12th IFAC Symposium on Advances in Control Education (IFAC-ACE 2019), Philadelphia, USA.
AICTE Margdarshan FDP on Process Optimization & Control	June 2019.	NIT Trichy
Systems & Control for Society Through Institute – Industry Collaboration	March 22-23, 2018	ABB Academia Co-Creation Workshop, ABB, Bangalore
Advances and Success Stories of Robust & Adaptive Control	September 8-9, 2017	Dept of Aerospace Engineering, Indian Institute of Science,

		Bangalore,
Control in Finance	May 27, 2017	IDRBT, Hyderabad
Industry 4.0	March16,2017	ABB, Bangalore
TEQIP funded Faculty Development Programme	Jun-July, 2016	Dept. of EEE, NIT Calicut
Nature Inspired Computing in Engg Appls	April6-8, 2015	IISc., Bangalore
TEQIP funded Faculty Development Programme	Dec 2013	Dept. of EEE, NIT Calicut
TEQIP funded FDP	Nov. 2013	Dept. of ICE, PSG Institute of Technology, Coimbatore
Certificate Course on Advanced Control Engineering for the Scientists	Jan - Mar, 2013	DRDL, Hyderabad
UKIERI workshop	December 2011	NAL Bangalore
UKIERI Symposium	Sept 2011	Dept. of Engg., Univ. of Leicester, UK
UKIERI workshop	December 2010	IIT Bombay
UKIERI workshop	Dec 2009	NIT-T
Challenges in Control Engineering Workshop	Jan 2009	NIT-T
Invited Lecture	Oct 2008	Aerospace Engineering Dept, IISc Bangalore
UKIERI workshop	August 2008	IISc Bangalore
UKIERI Symposium	July 2008	Dept. of Engg., Univ. of Leicester, UK
AICTE STTP on Process Identification & Control	June 2008	NIT-T
Texas A&M University, USA	April 2008	Texas A&M University, USA

19. Membership of Learned Societies

Type of Membership (Ordinary Member/ Honorary Member / Life Member)	Organization	Membership No. with date
Senior Member	The Institution of Electrical & Electronics Engineers (IEEE), USA	Member since 1994 Senior Member since 2013
Member	The Society for Industrial & Applied Mathematics (SIAM)	Member since 2013

20. Academic Foreign Visits

Country	Duration of Visit	Programme
Electrical & Computer Engg. (ECE) Dept., Texas A & M Univ., College Station, TX 77843 USA	From April 13 to May 9, 2008	This TEQIP I sponsored visit is upon invitation from Dr. Shankar P Bhattacharyya, Robert M Kennedy Professor, ECED, TAMU. During this period, I have delivered the following lectures and initiated joint research in the area of Algorithmic aspects of PID Controller Design." i. "Mathematics of Robust Control," Lecture to the Graduate Students ii. "Robust Stability: Hermite Biehler Theorem and its Proof," Lecture to the Graduate Students iii. "A New Algorithm for Fixed Order Multivariable Controller Synthesis," Lecture to the Research Students & Faculty iv. "Stability Analysis and Control Design Using Time-Series Data," Lecture to the Research Students & Faculty
University of Leicester, UK	From June 30 to July 25, 2008, and again from September 5 to 18, 2011.	These visits are part of my collaborative research "Towards Reliable Smart and Adaptable Air-Vehicles" funded by British Council under the UKIERI Scheme

21. Publications - **only recent ones, most cited**

(A) Refereed Research Journals:

Author(s)	Title of Paper	Journal	Volume(No.)	Page numbers	Year	Impact Factor of the Journal (Optional)
Arikapalli V.S.N.M.;Bhowmick	Investigative design of	Sadhana - Academy	47		2022	

S.;Rao P.V.R.R.B.;Ayyagari R.	missile longitudinal dynamics using LQR-LQG controller in presence of measurement noise and inaccurate model	Proceedings in Engineering Sciences				
Kumaravel S.D.;Ayyagari R.	A graph-theoretic approach for optimizing signalized intersections under connected vehicle environment	Sadhana - Academy Proceedings in Engineering Sciences	46		2021	
Kumaravel S.D.;Malikopoulos A.;Ayyagari R.	Optimal Coordination of Platoons of Connected and Automated Vehicles at Signal-Free Intersections	IEEE Transactions on Intelligent Vehicles			2021	
Arikapalli V.S.N.M.;Bhowmick S.;Rao P.V.R.R.B.;Ayyagari R.	Missile longitudinal dynamics control design using pole placement and LQR methods – A critical analysis	Defense Science Journal,	**Volume** 71	699-708	2021	
Sharmila Devi, K., & Ramakalyan Ayyagari	A Decentralized Signal Control for Non-lane-	IEEE Tr. Intelligent Transportation	vol. 21, No. 4	1741-1750	2020	5.744

	based Heterogeneous Traffic under V2I Communication	Systems				
D. Ganesha Perumal, S. Seshadhri, B. Subathra, G. Saravanakumar, & R. Ayyagari	MILP based autonomous vehicle path-planning controller for unknown environments with dynamic obstacles	Int. J. Heavy Vehicle Systems	Vol. 23, No. 4	350-369	2016	
S. Ismail, A.A. Pashilkar, R. Ayyagari & N. Sundararajan	Diagonally dominant backstepping autopilot for aircraft with unknown actuator failures and severe winds	The Aeronautical Journal (of the Royal Aeronautical Society, UK)	Vol. 118, No. 1207		2014	
S. Ismail, A.A. Pashilkar, R. Ayyagari & N. Sundararajan	Improved Neural-aided Sliding Mode Controller for Autolanding under Actuator Failures and Severe Winds	Elsevier J. Aerospace Science & Technology	Vol. 33, No. 1	55-64	2014	
S. Seshadhri, & R. Ayyagari	Advanced driver assistance system for AHS over communication links with random packet dropouts	Elsevier J. Mech. Systems and Signal Processing,	Vol. 49	53-62	2014	
P. Kavitha, and R. Ayyagari	Simple and Straight Proofs of Stability Criteria for LTIL	Transactions of the Institute of Measurement & Control	Vol. 36, No. 4	523- 528	2014	

	Systems					
P. Kavitha, and R. Ayyagari,	A computationally faster algorithm to test the stability of characteristic polynomials	Int. J. Systems, Control and Communications	Vol. 5, No. 2	166-176	2013	
P. Kavitha, and R. Ayyagari	Computational Complexity of Kharitonov's Robust Stability Test	Int. J. Control Science and Engg.	Vol. 3, No. 3	81-85	2013	
S. Ismail, A.A. Pashilkar, R. Ayyagari & N. Sundararajan	Neural-Sliding Mode Augmented Robust Controller for Autolanding of Fixed Wing Aircraft	Polish J. of AI and Soft Computing Research, (Polish Neural Network Society)	Vol. 2, No. 4	317-330	2012	
S. Seshadhri, & R. Ayyagari	Dynamic controller for Network Control Systems with random communication delay	Int. J. Systems, Control and Communications	Vol. 3, No. 2	178-192	2011	
S. Seshadhri, & R. Ayyagari,	Platooning over packet-dropping links	Int. J. Vehicle Autonomous Systems	Vol. 9, Nos. 1-2	46 – 62	2011	

(B) Conferences/Workshops/Symposia Proceedings

Author(s)	Title of Abstract/ Paper	Title of the Proceedings	Page numbers	Conference Theme	Venue	Year
Ramakalyan Ayyagari	A Fresh Approach to Teaching State-Space Methods in an Undergraduate Course	12th IFAC Sym. on Adv. in Control Edn. (IFAC-ACE 2019), Philadelphia, July 7 – 9, 2019	97 – 102		IFAC PapersOnLine	2019

Lakshmi Prasanna, M., Shiladitya B., P.V.R.R. Bhogendra Rao, V.S.N.Murthy, A., and Ramakalyan Ayyagari	Instrumentation Network for Assessment of Impact on Operator due to Weapon Firing – An Approach Paper	The International Conf. on Instrumentation & Control Engg. (ICECON 2019)			NIT Tiruchirappalli, Dec 19 – 21,2019	2019
V.S.N.Murthy, A., P.V.R.R. Bhogendra Rao, Chandrakanth V., Ramakalyan Ayyagari	Detection and Tracking of Targets using Deep Learning Techniques	the Int. Conf. on Instr. & Control Engg. (ICECON 2019)			NIT Tiruchirappalli, Dec 19 – 21, 2019	2019
Sharmila Devi, K., Ramakalyan Ayyagari	Design of Optimal Phase Plan for Urban Signalized Intersections accommodating Safe Pedestrian Crosswalks	21st Int. Conf. on Int. Trans. Systems (ITSC), USA, Nov, 2018.			USA, Nov, 2018.	2018
Ambili, T.A., Sharmila Devi, K., Thilagavathy, M.S., Ramakalyan Ayyagari	Design of Optimal Phase Plans for Isolated Intersections using Vertex Coloring and Binary Integer Linear Programming	21st Int. Conf. on Int. Transportation Systems (ITSC), Maui, Hawaii, USA, November 4-7, 2018			Maui, Hawaii, USA, November 4-7, 2018	2018
Dey, Abhishek, Ramakalyan Ayyagari	Robust PID Controller Design Using Fuzzy Pole Placement Techniques	In Proc. Fourth International Conference on Advances in Control & Optimization of Dynamical Systems, NIT Tiruchirappalli,			NIT Tiruchirappalli, India, 2016	2016

		India, 2016				
Ambili, T.A., Ramakalyan Ayyagari	Polynomial Modeling and Parameter Estimation of Class B Power Amplifiers,	In Proc. Fourth International Conference on Advances in Control & Optimization of Dynamical Systems, NIT Tiruchirappalli, India, 2016			NIT Tiruchirappalli, India, 2016	2016
Hituraj Sahu, Ramakalyan Ayyagari	Interval Fuzzy Type-II Controller for the Level Control of a Three Tank System,"	In Proc. Fourth International Conference on Advances in Control & Optimization of Dynamical Systems, NIT Tiruchirappalli, India, 2016			NIT Tiruchirappalli, India, 2016	2016
B. Sreram, Furio Buonopane, Seshadhri Srinivasan, B. Subathra, R. Ayyagari	Verification of Design Contracts for Cyber-Physical System Design Using Evolutionary Optimization	In Proc. of IEEE Int. Conf. on Circuit, Power, and Computing Technologies (2015 ICCPCT), Nagercoil, Tamilnadu, March 19-20, 2015			Nagercoil, Tamilnadu, March 19-20, 2015	2015
Shaik Ismail, A. Pashilkar, R. Ayyagari	Phase Compensation & Anti-windup Design for Neural-aided Sliding Mode Fault-tolerant Autoland Controller	In Proc. of IEEE Int. Conf. on Cognitive Computing and Information Processing (2015 CCIP), Noida, India, March 3-5, 2015			Noida, India, March 3-5, 2015	2015
M. Jerome Moses and A. Ramakalyan	A Computationally Faster	" In Proc. of IEEE Int. Sym. on Intelligent			SJCE, Mysore (2013)	2013

	Randomized Algorithm for NP-Hard Controller Design Problem	Informatics [Published in Recent Advances in Intelligent Informatics, Vol. 235 (2014), pp. 411- Page 4 of 10 417, Springer-Verlag] SJCE, Mysore (2013)				
M. J. Moses, and R. Ayyagari	The Benefits of Noise in Systems and Control	In Proc. of 3rd IEEE Conference on Power, Control, Signals & Computation, Thrissur, India, 2014			Thrissur, India, 2014	2014
M. J. Moses, and R. Ayyagari	A Brief Survey of Stochastic Resonance and Its Applications to Control.	In Proc. Third International Conference on Advances in Control & Optimization of Dynamical Systems, Kanpur, India, 2014.			Kanpur, India, 2014.	2014
A. Pashilkar, S. Ismail, R. Ayyagari, & N. Sundarrajan	Design of a Nonlinear Dynamic Inversion Controller for Trajectory Following and Maneuvering for Fixed Wing Aircraft	IEEE Sym. on Comp. Intelligence for Security and Defense Applications (2013 CISDA), Nanyung Technological Univ., April 16 – 19 2013.			Nanyung Technological Univ., April 16 – 19, 2013	2013
A. Pashilkar, S. Ismail, R. Ayyagari, & N. Sundarrajan	Improved Autolanding Controller for Aircraft	IEEE Symposium on Computational Intelligence for			Nanyung Technological Univ., April 16 – 19, 2013.	2013

	Encountering Unknown Actuator Failures	Security and Defense Applications (2013 CISDA), Nanyung Technological Univ., April 16 – 19, 2013.				
V. Mishiga, S. Seshadhri, S. Ashok, S. Ramaswamy, and R. Ayyagari	An Analytical Framework for Analysis and Design of Networked Control Systems with Random Delays and Packet Losses	25th Annual Canadian Conf. Elec. & Comp. Engg, Montreal 29th April to 2nd May 2012.			Montreal 29th April to 2nd May 2012	2012
S. Seshadhri, Srini Ramaswamy, R. Ayyagari, N. Venkateswaran	Hybrid Systems Approach for Networked Control Systems Subjected to Random Communication Delays	2nd Int. Conf. on Advances in Control and Optimization of Dynamical Systems (ACODS)," IISc Bangalore, 16th to 18th Feb 2012			IISc Bangalore, 16th to 18th Feb 2012	2012
Shaik Ismail, A. Pashilkar, R. Ayyagari	Guaranteed Stability and Improved Performance against Actuator Failure using Neural Aided Sliding Mode Controller for Autolanding Tasks	IFAC Workshop on Embedded Guidance Navigation and Control in Aerospace (EGNCA), IISc Bangalore, 11th to 15th February 2012.			IISc Bangalore, 11th to 15th February 2012.	2012
S. Seshadhri and R. Ayyagari	Consensus among robotic agents over packet dropping links	IEEE Int. Conf. BMEI & CISP, Yantai University, China, 16 - 18 Oct, 2010.			China, 16 - 18 Oct, 2010.	2010

(C) Books & Monographs

Author(s)	Title of Book/Monograph	Name of Publishers	Year of Publication	ISSN/ISBN Number
Raol, Jitendra & Ramakalyan Ayyagari	Control Systems: Classical, Modern, and AI Based Approaches	CRC Press, Taylor & Francis group, USA	2020	978 – 0 – 8153 – 4630 – 2
S. Seshadhri and R. Ayyagari	Formation Control in Multi-Agent Systems over Packet Dropping Links	CRC Press, USA	2013	978-1-4398-6300-8
A. Ramakalyan	Linear Circuits: Analysis & Synthesis	Oxford Univ. Press	2005	0 – 19 – 567001 – 0
A. Ramakalyan	Control Engineering: A Comprehensive Foundation	Vikas Publishing House, New Delhi, India	2003	81 – 259 – 1432 – 3