Curriculum Vitae

Dr. K. Murugesan is working as a Professor (HAG) in the Department of Mathematics at the National Institute of Technology, Tiruchirappalli (NITT). He is teaching and doing research at NITT for more than 31 years. He has attended more than 20 National and International Conferences in India and abroad and has organized more than 12 workshops / conferences in India. He has delivered more than 25 lectures in emerging areas in Mathematics and Computer Applications. He has published more than 65 research papers in National and International journals, Proceedings of Seminars and Symposiums, of which 50 papers are in peer reviewed SCI journals with high impact factor. He has also authored a monograph which was published in France. He has guided 09 research scholars in the area of Numerical Methods, CNN and Image Processing Techniques. He has made academic visits to several countries including the USA, UK, Malaysia, Srilanka and South Korea.

1. Name : **Dr. K. MURUGESAN**
2. Designation: Professor (HAG)
3. Office Address: Department of Mathematics,
   N.I.T. Trichy – 620015.
4. Telephone (Direct) (Optional):
   Telephone : Extn (Optional):
   Mobile (Optional):
5. Email (Primary): murugu@nitt.edu Email (Secondary): kmnitt@gmail.com
6. Field(s) of Specialization: Numerical Analysis, CNN and Image Processing
7. Employment Profile

Job Title	Employer	From	To
Professor (HAG)	The Director	29-04-2019	Till date
Professor	The Director	01-01-2010	28-04-2019
Associate Professor	The Director	01-01-2006	31.12.2009
Assistant Professor	The Director	19-05-2002	31-12-2005
Senior Lecturer	The Director	19-05-1997	18-05-2002
Lecturer	The Director	19-05-1992	18-05-1997

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

Examination	Board / University	Year	Division/ Grade	Subjects
Ph.D.	Bharathiar	1992	---	Mathematics
M.Phil.	Bharathiar	1988	First class	Mathematics
M.Sc.	Bharathiar	1987	First class	Mathematics
B.Sc.	Bharathiar	1985	First class	Mathematics

9. Academic/Administrative Responsibilities within the University

Position	Faculty/Department/Centre/Institution	From	To
Head of the Department	N.I.T., Trichy	30-01-2015	17-01-2018
Associate Dean(Academic)	N.I.T., Trichy	01-09-2008	15-09-2010
Coordinator-I-Year(UG)	N.I.T., Trichy	01-01-2006	11-11-2008
Addl. Coordinator-I-Year-(UG)	N.I.T., Trichy	26-07-2004	31-12-2005
Chairman, Ph.D. Admission Committee	N.I.T., Trichy	28-01-2020	31.03.2022
Chairman, School Advisory Committee	N.I.T., Trichy	01-03-2019	Till date

10. Academic/Administrative Responsibilities outside the University

Position	Institution	From	To
Member of Planning and Monitoring Board	Gandhigram Rural Institute, Gandhigram	04.08.2020	Till date
Senate Member for NITP, Karaikal	N.I.T., Pondicherry, Karaikal.	02-08-2018	10-06-2022
Senate Member for IIIT, Srirangam	IIIT, Srirangam	01-01-2017	31-12-2018

Member, Board of Studies	Gandhigram Rural Institute, Gandhigram	29-04-2018	Till date
Member, Board of Studies (3 years term)	Anna University, Chennai	26-02-2019	Till date
Member, Board of Studies	N.I.T., Pondicherry, Karaikal	22-02-2019	Till date
Member of Academic Council	Kongu Engineering College, Perundurai.	22-06-2018	Till date
Member of Executive Council	Bishop Heber College, Trichy.	2018	2020
Member of Professional / Academic Bodies	ISTE, New Delhi	1992	Till date

11. Awards, Associateships etc.

Year of Award	Name of the Award	Awarding Organization
2007	Best Teacher Award	N.I.T., Trichy
2013	Tamil Nadu Scientist Award (TANSA)	Government of Tamil Nadu
2021	Fellow of Academy of Sciences	The Academy of Sciences, Chennai

12. Fellowships

Year of Award	Name of the Fellowship	Awarding Organization	From (Month/Year)	To (Month/Year)

13. Details of Academic Work

(i) Curriculum Development: Framed the syllabus for M.Sc., Mathematics

(ii) Courses taught at Postgraduate and Undergraduate levels:

- Numerical Analysis (M.Sc.,)
- Engineering Mathematics (M.Tech)
- Fourier Transforms and Numerical Techniques (B.Tech)

(iii)Projects guided at Postgraduate level: 02

(iv)Other contribution(s): Acted as Chairman for Ph.D. Admission committee and Chairman school advisory committee.

14. Details of Major R&D Projects

Title of Project	Funding Agency	Duration		Status
		From	To	Ongoing/ Completed

15. Number of PhDs guided

Name of the PhD Scholar	Title of PhD Thesis	Role(Supervisor/ Co-Supervisor)	Year of Award
D. Paul Dhayabaran	A study on Second Order Singular Systems using Extended RK Methods and STWS Technique	Supervisor	2001
E.C.Henry Amirtharaj	Numerical Strategies for the System of IVPs using extended fourth order RK methods based on a Variety of Means	Supervisor	2002
V.Murugesh	An Efficient Numerical Integration for Cellular Neural Networks	Supervisor	2006
S.Sekar	A study on Different types of Singular Systems using RK-Butcher Algorithm	Supervisor	2007
M.V.Judy	Solution to protein folding problem using evolutionary algorithms	Supervisor	2009
P.Elango	Hole-Filler Template Design and Digital Image Inpainting Using Cellular Neural Network	Supervisor	2011
A.Raghunathan	Enhancing Query Performance in Enterprise Web Servers Through Improved Cache Utilization	Supervisor	2012

V.Balakumar	Numerical Solutions for Systems of Volterra Integral Equations using Piecewise Constant Orthogonal Functions	Supervisor	2014
R.Chandra Guru Sekar	A study on System of Volterra Integral and Integro-Differential Equations using STWS Technique	Supervisor	2017

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
15-05-2019	Workshop on Numerical Analysis using MATLAB, N.I.T., Trichy. May 15-19, 2019	National	Workshop Coordinator	NIT	Trichy
02-03-2018	National Conference on Recent Trends in Applied Mathematics	National	Key Note Address	Bishop Heber College	Trichy
28-05-2006	International Conference on Computational Science	International	Speaker	University of Reading	London, UK

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
International Conference on Logic, Information, Control & Computation	International	27-02-2011	Chairman	Gandhigram Rural Institute, Gandhigram
International Conference On Discrete & Computational Mathematics-2017	International	18-02-2017	Chairman	Gandhigram Rural Institute, Gandhigram
National Conference on Mathematical Analysis and Applications,	National	26-03-2019	Chairman	N.I.T., Trichy
National Conference on Recent Trends in Analysis and Applied Mathematics	National	09-05-2013	Chairman	N.I.T., Trichy

18. Invited Talks delivered

Topic	Date	Inviting Organization
Application of Walsh Function to Circuit Problems	23-04-2004	School of Electrical & Computer Engineering, Pusan National University, South Korea
Applications of Mathematics	March 2-3, 2018	Bishop Heber College, Trichy
TEQIP sponsored workshop on Mathematics-II	13th March 2015	Government College of Engineering, Salem

19. Membership of Learned Societies

Type of Membership (Ordinary Member/ Honorary Member / Life Member)	Organization	Membership No. with date
Life Member	ISTE, New Delhi	LM 12412 & 1992

20. Academic Foreign Visits

Country	Duration of Visit	Programme
Pusan National University, South Korea	July 2003 – July 2004	Visiting Professor
University of Central Florida	17-10-2007 to 16-11-2007	Visiting Professor under TEQIP
NTU, Singapore	17-02-2019 to 23-02-2019	Administrative Training

21. Publications

(A) Refereed Research Journals:

Author(s)	Title of Paper	Journal	Volume (No.)	Page numbers	Year	Impact Factor of the Journal (Optional)
S Singh, K Sakkaravarthi, T Tamizhmani, K Murugesan	Painlevé analysis and higher-order rogue waves of a generalized (3+ 1)-dimensional shallow water wave equation	Physica Scripta	97(5)	-	2022	
Sudhir Singh, K Sakkaravarthi,K Murugesan.	Localized nonlinear waves on spatio-temporally controllable backgrounds for a (3+ 1)-dimensional Kadomtsev-Petviashvili-Boussinesq model in water waves	Chaos, Solitons & Fractals	155	-	2022	

R Sekar, K Murugesan	Numerical Solutions of Non-Linear System of Higher Order Volterra Integro-Differential Equations using Generalized STWS Technique	Differential Equations and Dynamical Systems	29(3)	609-621	2021	
Sudhir Singh, A Mukherjee, K Sakkaravarthi, K Murugesan	Computing wave solutions and conservation laws of conformable time-fractional Gardner and Benjamin–Ono equations	Pranana	95(1)	1-13	2021	
Sudhir Singh, K Murugesan	Higher dimensional localized and periodic wave dynamics in an integrable (2+1)-dimensional deep water oceanic wave model 2021	Waves in random and complex media	-	1-20	2021	
Sudhir Singh, K Sakkaravarthi,K Murugesan.	Bernstein Polynomial Collocation Method for Acceleration Motion of a Vertically Falling Non-spherical Particle	Advances in Fluid Dynamics	-	673-683	2021	
Sudhir Singh, Lakhveer Kaur,	Computing solitary wave	Physica A: Statistical	560	-	2020	

R. Sakthivel, K. Murugesan	solutions of coupled nonlinear Hirota and Helmholtz equations 2020	Mechanics and its Applications				
Sudhir Singh, Lakhveer Kaur, K Sakkaravarthi, R Sakthivel and K Murugesan .	Dynamics of higher-order bright and dark rogue waves in a new (2+ 1)-dimensional integrable Boussinesq model 2020	Physica Scripta	95(11)	-	2020	
Singh, S., Sakkaravarthi, K., Murugesan, K. et al.	Benjamin-Ono equation: Rogue waves, generalized breathers, soliton bending, fission, and fusion 2020	Eur. Phys. J. Plus	135(10)	1-17	2020	
Sudhir Singh and K. Murugesan et.all,	Dynamics of optical solitons and conservation laws of a new (2+1)-dimensional integrable nonlinear evolution equation in deep water oceanic waves	Modern Physics Letters B	34(5)	-	2020	
A. Purusothaman, K. Murugesan, and Ali J. Chamkha,	3D modeling of natural convective heat transfer from a varying rectangular heat generating source	Journal of Thermal Analysis and Calorimetry	138(1)	597–608	2019	

A. Purusothamana, A. Baïrib, and K. Murugesan,	Thermal state of electronic assemblies equipped with an array of heaters and coolers (HACs) subjected to natural convection	Thermal Science and Engineering Progress	11	317-324	2019	
A. Purusothamana, R. Chandra Guru Sekarb and K. Murugesan,	Magnetic field and vibration effects on the onset of thermal convection in a grade fluid permeated anisotropic porous module	Thermal Science and Engineering Progress	10	138–146	2019	
R.Chandra Guru Sekar. and K. Murugesan	Single term walsh series method for the system of nonlinear delay volterra integro-differential equations describing biological species living together	International Journal of Applied and computational Mathematics	4(1)	1-13	2018	
R.Chandra Guru Sekar R. and K. Murugesan	STWS approach for Hammerstein system of nonlinear Volterra integral equations of the second kind	International Journal of Computer Mathematics	94(9)	1867-1878	2017	

R.Chandra Guru Sekar R. and K. Murugesan,	Numerical solutions of delay Volterra integral equations using single-term Walsh series approach	International Journal of Applied and Computational Ma thematics	3(3)	2409-2421	2017	
R Sekar, K Murugesan	Single-Term Walsh Series Approach for the System of Linear and Non-linear Volterra Integral Equations of First Kind 2	International Journal of Applied and Computational Mathematics	3(3)	2639-2653	2017	
R Chandra Guru Sekar, V Balakumar, K Murugesan	Method of solving linear system of Volterra integro-differential equations using the Single Term Walsh Series	International Journal of Applied and Computational Mathematics	3(2)	549-559	2017	
R.Chandra Guru Sekar R. and K. Murugesan	System of linear second order Volterra integro-differential equations using single term Walsh series technique	Applied Mathematics and Computation.	273	484-492	2016	
Balakumar, V; Murugesan, K	Numerical solution of Volterra integral-algebraic equations	Applied Mathematics and Computation,	263	165-170	2015	

	using block pulse functions					
Balakumar, V, Murugesan, K;	Single-term Walsh series method for systems of linear Volterra integral equations of the second kind	Applied Mathematics and Computation	228	371-376	2014	
Balakumar, V, Murugesan, K	Numerical solution of systems of linear Volterra integral equations using block-pulse functions	Malaya Journal of Matematik	S(1)	77-84	2013	
Balakumar, V; Murugesan, K	A Numerical Method for a Class of Linear Fractional Differential Equations	Mathematical Modelling and Scientific Computation	283	360-366	2012	
V Murugesh, K Murugesan, Kyung Tae Kim	Simulation of Non-linear Singular System Using RK-Butcher Algorithm	International Conference on Hybrid Information Technology, Springer, Berlin, Heidelberg, ,		625-632.	2011	
Raghunathan, A; Murugesan, K	Performance-Enhanced Caching Scheme for Web Clusters for Dynamic Content	International Journal of Business Data Communications and Networking (IJBDCN)	7(3)	16-36	2011	
Murugesan, K; Balakumar, V	Study on singular systems of index three via Runge-Kutta	International Journal of Pure and Applied Mathematics	70(5)	723-733	2011	

	method of order-10					
Elango, P; Murugesan, K	Image restoration using cellular neural network with contour tracking ideas	International Journal of Computer Theory and Engineering	2(5)	724	2010	
Elango, P, Murugesan, K	CNN based Augmented Reality Using Numerical Approximation Techniques	International Journal of Signal & Image Processing	1	205-210	2010	
Raghunathan, A; Murugesan, K	Schema-based cache validation of dynamic content to improve query performance of web services	Journal of Web Engineering		116-131	2010	
Raghunathan, A, Murugesan, K	Optimized frequent pattern mining for classified data sets	International Journal of Computer Applications	1(27)	20-29	2010	
Elango, P; Murugesan, K	Digital image inpainting using cellular neural network	Int. J. Open Problems Compt. Math	2(3)	439-450	2009	
Judy, MV, Ravichandran, KS, Murugesan, K	A multi-objective evolutionary algorithm for protein structure prediction with immune operators	Computer methods in biomechanics and biomedical engineering	12(4)	407-413	2009	
Murugesh, V; Murugesan, K	RK–Butcher algorithms for singular	International Journal of Computer	86(3)	523-536	2009	

	system-based electronic circuit	Mathematics				
Vajravelu, Kuppalapalle; Sreenadh, S; Reddy, R Hemadri; Murugesan, K	Peristaltic transport of a Casson fluid in contact with a Newtonian fluid in a circular tube with permeable wall	International Journal of Fluid Mechanics Research	36(3)		2009	
Judy, MV, Ravichnadran, KS; Murugesan, K;	Enhancement of Protein Folding Problem using a Genetic Algorithm with Introns	Journal of Computational Intelligence in Bioinformatics	1(1)	35-43	2008	
K Murugesan, P Elango	CNN based Hole filler template design using numerical integration techniques	International Conference on Artificial Neural Networks, Springer, Berlin, Heidelberg		490-500	2007	
V Murugesh, K Murugesan	Simulation of time-multiplexing cellular neural networks with numerical integration algorithms	International Conference on Computational Science,Springer, Berlin, Heidelberg		457-464	2006	
Gopal, Devarajan; Murugesh, V; Murugesan, K	Numerical solution of second-order robot arm control problem using Runge–Kutta–Butcher algorithm	International Journal of Computer Mathematics	83(3)	345-356	2006	

Evans, David J; Murugesan, K; Sekar, S; Kim, Hyun-Min	Non-linear singular systems using RK–Butcher algorithms	International Journal of Computer Mathematics	83(1),	131-142	2006	
Dhayabaran, D Paul; Amirtharaj, EC Henry; Murugesan, K; Evans, DJ	Numerical Solution of Robot Arm Model using STWS and RKHeM Techniques	Computational Methods		1695-1699	2006	
K Murugesan, S Sekar, V Murugesh, David J Evans	Numerical strategies for the system of first-order IVPS using the RK–Butcher algorithm	International Journal of Computer Mathematics, Taylor & Francis	82(11)	1379-1387.	2005	
Park, JY; Murugesan, K; Evans, David J; Sekar, S; Murugesh, V	Optimal control of time-varying singular systems using the RK–Butcher algorithm	International Journal of Computer Mathematics	82(1),	617-627	2005	
Murugesan, K; Gopalan, NP; Gopal, Devarajan	Error free butcher algorithms for linear electrical circuits	ETRI Journal	27(2)	195-205	2005	
Murugesh, V; Murugesan, K	Simulation of Cellular Neural Networks using the RK-Butcher algorithm	International Journal of Management and Systems	21	65-78	2005	
JY Park, K	Observer	International	82(1)	111-123	2005	

Murugesan, David J Evans, S Sekar, V Murugesh	design of singular systems (transistor circuits) using the RK–Butcher algorithms	Journal of Computer Mathematics, Taylor & Francis				
Murgesh, V; Murugesan, K	Comparison of numerical integration algorithms in raster CNN simulation	Asian Applied Computing Conference		115-122	2004	
Park, JY; Evans, David J; Murugesan, K; Sekar, S; Murugesh, V	Optimal control of singular systems using the RK–Butcher algorithm	International Journal of Computer Mathematics	81(2)	239-249	2004	
Sekar, S; Murugesh, V; Murugesan, K;	Numerical Strategies for the System of Second Order IVPs Using the RK-Butcher Algorithms	IJCSA	1(2)	96-117	2004	
Murugesan, K; Sekar, S; Murugesh, V; Park, JY;	Numerical solution of an industrial robot arm control problem using the RK–Butcher algorithm	International Journal of Computer Applications in Technology,	19(2)	132-138	2004	
Murugesan, K; Dhayabaran, Paul; Amirtharaj, Henry; Evans, David	Numerical strategy for the system of second order IVPs using RK method based on centroidal mean	International Journal of Computer Mathematics	80(2)	233-241	2003	

Sekar, S; Murugesh, V; Murugesan, K	The RK-Butcher Algorithm Approach To Stiff Systems Of Higher Dimension	Mathematical and computational Models	233		2003	
Murugesan, K; Dhayabaran, D Paul; Amirtharaj, EC Henry;	A study of second-order state-space systems of time-invariant and time-varying transistor circuits using the STWS technique	International Journal of Electronics	89(4)	305-315		
Murugesan, K; Dhayabaran, D Paul; Amirtharaj, EC Henry; Evans, David J ,	A fourth order embedded Runge-Kutta RKACeM (4, 4) method based on arithmetic and centroidal means with error control	International Journal of Computer Mathematics	79(2)	247-269	2002	
Ponalagusamy, R; Murugesan, K; Dhayabaran, D Paul; Amirtharaj, EC Henry	Numerical solution of heat flow problem by a combined method of rayleigh ritz with STWS and RKHM	Advances In Modelling And Analysis-A	38(1/2)	29-48	2001	
Murugesan, K; Paul Dhayabaran, D;	A comparison of extended Runge-Kutta	International Journal of Computer	78(2),	225-252	2001	

Henry Amirtharaj, EC; Evans, David J	formulae based on variety of means to solve system of IVPs	Mathematics				
K Murugesan, D Paul Dhayabarant, EC Henry Amirtharaj	Numerical solution of time varying singular systems via Single Term Walsh Series technique	Proceedings of the Congress of the Indian Society of Theoretical and Applied Mechanics	45	181	2000	
Murugesan, K; Paul Dhayabaran, D; Evans, David J	Analysis of non-linear singular system from fluid dynamics using extended Runge-Kutta methods	International Journal of Computer Mathematics	76(2)	239-266	2000	
K Murugesan, DP Dhayabaran, DJ Evans	Section B: Applications-Analysis of Second Order Multivariable Linear System Using Single Term Walsh Series Technique and Runge Kutta Method	International Journal of Computer Mathematics	72(3)	367-374	1999	
Murugesan, K; Dhabaran, D Paul; Evans, David J	Analysis of different second order systems via Runge-Kutta method	International Journal of Computer Mathematics	70(3)	477-493	1999	
Murugesan, K; Paul Dhayabaran, D; Evans, David J	Analysis of second order multivariate linear system using single term walsh	International Journal of Computer Mathematics	72(3)	367-374	1999	

	series technique and runge kutta method					
Balachandran, K; Murugesan, K	Note on single-term Walsh series method for singular systems 1	IEE Proceedings D-Control Theory and Applications	139(3)	347-348	1992	
Phat, VN; Murugesan, K	A note on constrained controllability of linear descriptor systems	Optimization	25(1),	77-81	1992	
Balachandran, K; Murugesan, K	Optimal control of singular systems via single-term Walsh series	International Journal of Computer Mathematics	43(3-4)	153-159	1992	
Balachandran, K & Murugesan, K	Analysis of transistor circuits using the single-term Walsh series technique	International Journal of Electronics	71(3)	397-401	1991	
Balachandran, K & Murugesan, K	Numerical solution of a singular nonlinear system from fluid dynamics	International Journal of Computer Mathematics	38(3-4)	211-218	1991	
Balachandran, K & Murugesan, K	Analysis of electronic circuits using the single-term Walsh series approach	International Journal of Electronics	69(3)	327-332	1990	
Balachandran,	Analysis of	International Journal	36(1-2)	9-12	1990	

K & Murugesan, K	nonlinear singular systems via STWS method	of Computer Mathematics				
Balachandran, K; Murugesan, K	Analysis of different systems via single-term Walsh series method	International Journal of Computer Mathematics	33(3-4)	171-179	1990	

(B) Conferences/Workshops/Symposia Proceedings

Author(s)	Title of Abstract/ Paper	Title of the Proceedings	Page numbers	Conference Theme	Venue	Year
Sudhir Singh, K. Murugesan	Bernstein polynomial collocation method for acceleration motion of a vertically falling non-spherical particle	Lecture Notes in Mechanical Engineering – Springer (SCOPUS)	-	ICAFD-2018	-	2018
Sudhir Singh, K. Sakkarvarthi, K. Murugesan	Dynamics and Control of Interaction Waves of Sixth-order Nonlinear Ramani Equation	Accepted in AIP Conference Proceedings(SCOPUS)	-	National Conference on Advances in Applied Sciences and Mathematics (NCASM-20)	-	2020
V.Balakumar and K.Murugesan	A Numerical Method for a class of Linear Fractional Differential Equations	Proceedings in Communications in Computer and Information Science (CCIS), Vol. 283	360-366	International Conference on Mathematical Modelling and Scientific Computation (ICMMSC)	Gandhigram Rural Institute – Deemed University, Dindigul	2012
V.Murugesh, K.Murugesan	Simulation of Non-	Proceedings in	625-632	Convergence and Hybrid	Daejeon, Korea	2011

and Kyung Tae Kim	linear Singular System Using RK-Butcher Algorithm	Communications in Computer and Information Science (CCIS), Vol. 206		Information Technology - 5th International Conference (ICHIT)		
D.Paul Dhayabaran, E.C.Henry Amirtharaj, K.Murugesan and D.J.Evans	Numerical Solution of Robot Arm Model using STWs and RKHeM Techniques	Proceedings of First International Conference on Computational Methods	1695 – 1699			2006
M.V.Judy, K.S.Ravichandran and K.Murugesan	An Enhanced Multi-objective Evolutionary Approach for Protein Structure Prediction	IEEE	1918-1923	Interntional Advance Computing Conference (IACC)	Patiala, India	2009

(C) Books & Monographs

Author(s)	Title of Book/Monograph	Name of Publishers	Year of Publication	ISSN/ISBN Number
K.Balachandran and K.Murugesan	Applications of Single-Term Walsh Series Techniques to Singular Systems	AMSE Press, Tassin, France	1992	-