



**Dr.R.RAJA**  
**Assistant Professor & Head i/c**

### Contact

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**Academic Qualifications: M.Sc., M.Phil., PhD**

**Teaching Experience: 05 Years**

**Research Experience: 09 Years**

### Additional Responsibilities

1. Member of the organizing committee in the International Workshop on Data Analysis Using SPSS (IWDAUS-2016) during December 15-19, 2016.
2. Member of the organizing committee in the National Conference on Pure and Applied Mathematics (NCPAM 16) during March 30-31, 2016.

3. Act as a Co-ordinator for the State Level Quiz Contest 2016 on February 15<sup>th</sup>, 2016.
4. Acting as a Computer Lab in charge in Department of Mathematics from 2015 to till date.
5. Acting as a Placement Cell coordinator in Department of Mathematics from 2015 to till date.
6. Acting as a Student Counselling Cell coordinator in Department of Mathematics from 2015 to till date.
7. Member of the Doctoral Committee for the student S. Loganathan (Register No.385) in the Department of Mathematics.
8. Act as a member of the squad team for November 2015 Regular Examinations of our Affiliated Colleges.
9. Member of the UGC SAP-DRS (Level-I) in the Department of Mathematics.
10. Deputed as an University Representative to oversee the conduct of Distance Education Examination for December 2012 May 2013, May 2014, December 2014, May 2015, December 2015, May 2016 and December 2016, respectively.
11. Act as a member of the organizing committee in the Three day Orientation Programme to the Fresher's for 2014-2015 batch.
12. Act as a Co-ordinator for Village Placement Programme (VPP) for the academic Year 2013-2014.

### Areas of Research

Abstract and Fractional Differential Equations, Control Theory, Neural Networks, Stability Analysis of Dynamical Systems, Synchronization and Chaos Theory, Genetic Regulatory and Oscillatory Networks

### Research Supervision / Guidance

Program of Study		Completed	Ongoing
Research	Ph.D.	--	05
	M.Phil.	13	07
Project	PG	32	10

## Publications

International		National		Others
Journals	Conferences	Journals	Conferences	Books / Chapters / Monographs / Manuals
31	-	-	04	01

Cumulative Impact Factor (as per JCR)	:	38.402
h- index	:	07
i 10 index	:	135
Total Citations	:	178

## Funded Research Projects

### Completed Projects

S. No	Agency	Period		Project Title	Budget (Rs. In lakhs)
		From	To		
1	UGC	2013	2015	Studies on Stability Issues of Neural Networks	5,40,000

## Distinctive Achievements / Awards

1. Awarded travel grant for the sum of Rs.1, 80, 000/- from NBHM for attending International Congress of Industrial and Applied Mathematics (ICIAM 2015) in Beijing, China during August 10-14, 2015.
2. Awarded travel grant for the sum of Rs.2, 00, 000/- from NBHM for attending International Congress of Mathematicians (ICM 2014) in Seoul, South Korea during August 15-21, 2014.
3. Sir. C.V. Raman Budding Innovator Award for the year 2010 from Periyar University, Salem.
4. Awarded Senior Research Fellow under Rajiv Gandhi National Fellowship, 2008.
5. Awarded Junior Research Fellow under Rajiv Gandhi National Fellowship, 2005.

## Events organized in leading roles

1. Act as a Co-ordinator for the State Level Quiz Contest 2016 on February 15th, 2016.
2. Act as a Co-ordinator for Village Placement Programme (VPP) for the academic year 2013-2014.

## Events Participated

### Conferences / Seminars / Workshops: 15

1. Participated in the "*National Conference on Bridging Innovative Trends in Pure and Applied Mathematics*" held at Bannari Amman Institute of Technology, Erode during July 15-16, 2016.
2. Participated in the "*International Conference on Innovations in Computer Science & Technology (ICICST 2016)*" held at Alagappa University, Karaikudi during April 4-5, 2016.
3. Participated in the "*International Conference on Nonlinear Dynamical Systems (ICNDS 2016)*" held at Bharathiar University, Coimbatore during March 24-26, 2016.
4. Participated in the "*International Congress for Industrial and Applied Mathematics (ICIAM 2015)*", was held in Beijing, China during August 10 - 14, 2015.
5. Participated in the "*International Congress for Mathematicians (ICM 2014)*", was held in Seoul, South Korea during August 15 - 21, 2014.
6. Participated in the "*Second National Conference on Advances in Differential Equations and Applications*" held at Periyar University, Salem during March 29-30, 2012.
7. Participated in the National Workshop on "*Decompositions of Graphs and Product Graphs*" held at Periyar University during June 22-25, 2011.
8. Participated in the "*National Conference on Advances in Differential Equations and Applications*" held at Periyar University, Salem during October 7-8, 2010
9. Participated in the "*International Conference on Futuristic Computer Applications*" held at IISC Bangalore February 25, 2010.
10. Participated in the "*One day seminar on partial differential equations in commemoration of Prof. E. K. Ramasami's retirement*" held at Bharathiar University, Coimbatore on November 6, 2009.
11. Participated in the "*Fifth Annual Instructional Conference of ADMA and Graph Theory Day V*" held at Periyar University, Salem during June 8-10, 2009.
12. Participated in the National Workshop on "*Mathematical Modeling and Computational Mathematics*" held at Gandhigram Rural University, Gandhigram during February 23-28, 2009.
13. Participated in the "*National Seminar on Algebra and its Applications*" held at Periyar University, Salem during February 12-13, 2009.

14. Participated in the “15th Ramanujan Symposium on Dynamic Equations” during February 4-6, 2008.
15. Participated in the “95th Indian Science Congress held at Andhra University”, was held in Visakhapatnam during January 3 - 7, 2008.

### **Other Training Programs**

1. Participated in the “Refresher Course” organized by the Academic Staff College, Pondicherry University, Puducherry from September 7-27, 2016.
2. Participated in the “Orientation Programme” organized by the Academic Staff College, Madurai Kamaraj University, Madurai from May 30-June 29, 2013.
3. Participated in the “Orientation Programme” organized by the Curriculum Development Cell, Alagappa University, Karaikudi from August 24-31, 2012.

### **Overseas Exposure / Visits**

1. Visited Beijing, China for attending the “International Congress of Industrial and Applied Mathematics (ICIAM 2015)” in during August 10-14, 2015.
2. Visited Seoul, South Korea for attending the “International Congress of Mathematicians (ICM 2014)” in during August 15-21, 2014.

### **Membership in**

#### **Professional Bodies**

1. Member in Institute for *Engineering Research and Publication (IFERP)*.
2. Member in *Asian Council for Science Editors*.
3. Member of the Scientific and Technical Committee in *World Academy of Science, Engineering and Technology*.
4. Member in *Association for Computing Machinery*.

#### **Editorial Board**

1. Guest Editor for the special issue “*Dynamics of Neural Networks and Applications*” in *Optimization in Mathematical Problems in Engineering*.
2. Guest Editor for the special issue “*Stability and Control of Stochastic Systems*” in *Mathematical Problems in Engineering*.

3. Guest Editor for the special issue "*Stability and Its Application of Stochastic Systems*" in the International Journal of Differential Equations.
4. Editor for the "*Journal of Engineering and Applied Mathematics*" from 2015 to till date.
5. Editorial board for "*World Academy of Science, Engineering and Technology*" from 2016 to till date.

### **Advisory Board**

1. Member of the International Scientific Committee in *2016 International Conference on Mathematical, Computational and Statistical Sciences and Engineering (MCSSE2016)* which will be held on October 30-31, 2016 in Shenzhen, China.
2. Member of the Technical Programme Committee in *2016 International Conference on Mechanical Design and Control Engineering [MDCE2016]* which will be held on November 19-20, 2016 in Wuhan, China.

### **Others**

1. Member of the Reviewer board in *Advances in Difference Equations*
2. Member of the Reviewer board in *American Mathematical Society*
3. Member of the Reviewer board in *Canadian Journal of Physics*
4. Member of the Reviewer board in *Circuits, Systems and Signal Processing*
5. Member of the Reviewer board in *Computers and Mathematics with Applications*
6. Member of the Reviewer board in *Communications in Computer and Information Science*
7. Member of the Reviewer board in *IEEE Transactions on Neural Networks*
8. Member of the Reviewer board in *Intelligent Control and Automation*
9. Member of the Reviewer board in *International Journal of Machine Learning and Cybernetics*
10. Member of the Reviewer board in *Journal of The Franklin Institute*
11. Member of the Reviewer board in *Journal of Applied Mathematics and Mechanics*
12. Member of the Reviewer board in *Mathematical Problems in Engineering*
13. Member of the Reviewer board in *Neural Computing and Applications*
14. Member of the Reviewer board in *Neurocomputing*
15. Member of the Reviewer board in *Neural Networks*
16. Member of the Reviewer board in *Nonlinear Analysis: Hybrid Systems*
17. Member of the Reviewer board in *International Journal of Advanced Computer Science and Applications*
18. Member of the Reviewer board in *Nonlinear Dynamics*
19. Member of the Reviewer board in *IEEE Transactions on Cybernetics*
20. Member of the Reviewer board in *Applied Mathematics and Computation*
21. Member of the Reviewer board in *International Academy of Computer & IT Engineering*

## Resource persons in various capacities

1. Invited as a Chief Guest and delivered a talk in the “*PG Mathematics Association*”, Department of Mathematics, Seethalakshmi Achi College for Women, Pallathur on September 3, 2016.
2. Delivered a talk in the “*National Conference on Recent Trends in Applied Mathematics (NCRTAM 16)*” organized by PG and Research Department of Mathematics, St. Joseph's College of Arts and Science (Autonomous), Cuddalore during July 22-23, 2016.
3. Delivered a lecture in the 20 day “*Young Scientist Programme*” organized by Periyar University, Salem and Tamilnadu State Council for Science and Technology, Chennai from May 02-21, 2011.

## Recent Publications

1. **R. Raja**, Q. Zhu, S. Senthilraj, R. Samidurai and W.Hu, (2016), “Improved results on delay-dependent  $H_{\infty}$  control for uncertain systems with time-varying delays”, **Circuits, Systems and Signal Processing**, In Press, Accepted. (SCI, Springer Publication, IF: 1.178).
2. K. Balasundaram, **R. Raja**, Q. Zhu and S. Chandrasekaran, (2016), “New global asymptotic stability of discrete-time recurrent neural networks with multiple time-varying delays in the leakage terms and impulsive effects”, **Neurocomputing**, Vol.214, Pp. 420-429. (SCI, Elsevier Publication, IF: 2.083).
3. S. Senthilraj, **R. Raja**, Q. Zhu, R. Samidurai and H. Zhou, (2016), “Delay-dependent asymptotic stability criteria for genetic regulatory networks with impulsive perturbations”, **Neurocomputing**, Vol.214, Pp.981-990. (SCI, Elsevier Publication, IF: 2.083).
4. S. Senthilraj, **R. Raja**, Q. Zhu, R. Samidurai and Z. Yao, (2016), “Delay-interval-dependent passivity analysis of stochastic neural networks with Markovian jumping parameters and time delay in the leakage term”, **Nonlinear Analysis: Hybrid Systems**, Vol.22, Pp.262-275. (SCI, Elsevier Publication, IF: 2.375).
5. S. Senthilraj, **R. Raja**, Q. Zhu, R. Samidurai, Z. Yao, (2016), “New delay-interval-dependent stability criteria for static neural networks with time-varying delays”, **Neurocomputing**, Vol.186, Iss.19, Pp. 1-7. (SCI, Elsevier Publication, IF: 2.083).
6. S. Senthilraj, **R. Raja**, F. Jiang, Q. Zhu and R. Samidurai, (2016), “New delay-interval-dependent stability analysis of neutral type BAM neural networks with successive time delay components”, **Neurocomputing**, Vol.171, Pp.1265-1280. (SCI, Elsevier Publication, IF: 2.083).

7. S. Senthilraj, **R. Raja** and R. Samidurai, (2016), "A note on delay dependent stability analysis of uncertain neutral systems with nonlinear perturbations", **Asian Journal of Mathematics and Computer Research**, Vol.7, Iss.3, Pp.245-258. (*International Press Publication*)
8. R. Samidurai, S. Rajavel, **R. Raja** and Q. Zhu, (2015), "Robust passivity analysis for neutral-type neural networks with mixed and leakage delays", **Neurocomputing**, Vol.175, Pp.635-643. (SCI, *Elsevier Publication*, IF: 2.083).
9. R. Suresh Kumar, G. Sugumaran, **R. Raja**, Q. Zhu and U. Karthik Raja, (2015), "New stability criterion of neural networks with leakage delays and impulses: a piecewise delay method", **Cognitive Neurodynamics**, Vol.10, Pp.85-98. (SCI, *Springer Publication*, IF: 2.159).
10. S. Senthilraj, **R. Raja**, Q. Zhu, R. Samidurai and Z. Yao, (2015), "Exponential passivity analysis of stochastic neural networks with leakage, distributed delays and Markovian jumping parameters", **Neurocomputing**, Vol.175, Pp.401-410. (SCI, *Elsevier Publication*, IF: 2.083).
11. **R. Raja**, Q. Zhu, S. Senthilraj and R. Samidurai, (2015), "Improved stability analysis of uncertain neutral type neural networks with leakage delays and impulsive effects", **Applied Mathematics and Computation**, Vol.266, Pp.1050-1069. (SCI, *Elsevier Publication*, IF: 1.345)
12. **R. Raja**, S. Senthilraj and R. Samidurai, (2015), " $H_\infty$  control for fuzzy neutral systems with mixed delays using delay partition approach", **Asian Journal of Mathematics and Computer Research**, Vol.3, Iss.1, Pp.1-18. (*International Press Publication*)
13. **R. Raja**, U. Karthik Raja, R. Samidurai, and A. Leelamani, (2015), "Improved stochastic dissipativity analysis of uncertain discrete-time neural networks with multiple delays and impulses", **International Journal of Machine Learning and Cybernetics**, Vol.6, Pp.289-305. (SCIE, *Springer Publication*, Impact Factor: 1.110)
14. **R. Raja**, U. Karthik Raja, R. Samidurai, and A. Leelamani, (2014), "Passivity analysis for uncertain discrete-time stochastic BAM neural networks with multiple time varying delays", **Neural Computing and Applications**, Vol.25, Pp.751-766. (SCIE, *Springer Publication*, Impact Factor: 1.492)
15. **R. Raja**, U. Karthik Raja, R. Samidurai, and A. Leelamani, (2014), "Dynamic analysis of discrete-time BAM neural networks with stochastic perturbations and impulses", **International Journal of Machine Learning and Cybernetics**, Vol.5, Iss.1, Pp.39-50. (SCIE, *Springer Publication*, Impact Factor: 1.110)



16. **R. Raja**, U. Karthik Raja, R. Samidurai, and A. Leelamani, (2013), "Dissipativity of discrete-time BAM stochastic neural networks with Markovian switching and impulses", **Journal of The Franklin Institute**, Vol.350, Iss.10, Pp.3217-3247. (SCIE, Elsevier Publication, Impact Factor: 2.327).
17. U. Karthik Raja, **R. Raja**, R. Samidurai, and A. Leelamani, (2013), "Exponential stability for stochastic delayed recurrent neural networks with mixed time-varying delays and impulses: the continuous-time case", **Physica Scripta**, Vol.87, Article ID 055802, 11 Pages. (SCIE, IOP Publication, Impact Factor: 1.194)
18. **R. Raja**, R. Sakthivel and S.Marshall Anthoni, (2012), "Linear matrix inequality approach to stochastic stability of uncertain delayed BAM neural networks", **IMA Journal of Applied Mathematics**, Vol.78, Pp.1156-1178. (SCI, Oxford Publication, Impact Factor: 1.034)
19. **R. Raja**, R. Samidurai, (2012), "New delay dependent robust asymptotic stability for uncertain stochastic recurrent neural networks with discrete and distributed time varying delays", **Journal of The Franklin Institute**, Vol.349, Pp. 2108-2123. (SCIE, Elsevier Publication, Impact Factor: 2.327)
20. **R. Raja**, R. Sakthivel and S.Marshall Anthoni, (2011), "Exponential stability for discrete-time stochastic BAM neural networks with multiple delays and impulses", **ISRN Discrete Mathematics**, Vol.1, Article ID 153409, 23 pages. (Hindawi Publication)
21. **R. Raja**, R. Sakthivel and S.Marshall Anthoni, (2011), "Delay-dependent stability criteria of stochastic uncertain Hopfield neural networks with unbounded distributed delays and impulses", **Advances in Systems Science and applications**, Vol.10, Iss.no.1, Pp.94-110. [Institute of General System Studies, Impact Factor: 0.340]
22. **R. Raja** and S.Marshall Anthoni, (2011), "Global exponential stability of BAM neural networks with time-varying delays: The discrete-time case", **Communications in Nonlinear Science and Numerical Simulation**, Vol.16, Pp.613-622. [SCIE, Elsevier Publication, Impact Factor: 2.834]
23. **R. Raja**, R. Sakthivel, S.Marshall Anthoni and H. Kim, (2011), "Stability of impulsive Hopfield neural networks with Markovian switching and time-varying delays", **International Journal of Applied Mathematics and Computer Science**, Vol.21, Pp.127-135. [University of Zielona Gora Publication, Impact Factor: 1.037]
24. R. Sakthivel, **R. Raja** and S.Marshall Anthoni, (2011), "Exponential stability for delayed stochastic BAM neural networks with Markovian jumping and impulses", **Journal of Optimization Theory and Applications**, Vol.150, Pp.166-187. [SCI, Springer Publication, Impact Factor: 1.160]
25. R. Sakthivel, **R. Raja** and S.Marshall Anthoni, (2010), "Asymptotic stability of delayed stochastic genetic regulatory networks with impulses", **Physica Scripta**, Vol.82, Iss.no.5, ID.005009. [SCIE, IOP Publication, Impact Factor: 1.194]

26. **R. Raja**, R. Sakthivel and S.Marshal Anthoni, (2010), "Stability analysis for discrete-time stochastic neural networks with mixed time delays and impulsive effects", **Canadian Journal of Physics**, Vol.88, Iss.no.12, Pp.885-895. [SCI, *NRC Research Publication*, Impact Factor: 0.964]
27. **R. Raja** and S.Marshal Anthoni, (2010), "Stability criteria for stochastic recurrent neural networks with two time-varying delays and impulses", **International Journal of Computer Applications**, Vol.1, Iss.no.28, Pp.33-41. [*Cornel University Publication*, Impact Factor: 0.814]