Dr.R.Muthukkumar, *Professor*

Phone: 9994862559
muthukumar@nec.edu.in

Department of Information Technology
National Engineering College,
K.R.Nagar, Kovilpatti,
Tamilnadu 628503.

EDUCATION

PhD	Information and Communication Engineering, Anna University Dissertation: "*Design of Novel Cooperative Spectrum Sensing Schemes for Cognitive Radio Ad Hoc Networks*"	August 2018
ME	Computer Science and Engineering, Manonmaniam Sundaranar University	June 2011
B.TECH	Information Technology, Anna University	April 2005

HONORS AND AWARDS

Infosys-Inspire Faculty Excellence Awards   2016
Bronze

Infosys-Inspire Faculty Excellence Awards   2017
Silver

Recognized Supervisor at Anna University, Chennai   2018
Reference Number: 3340019
Faculty of Information and Communication Engineering

RESEARCH EXPERIENCE

Design of Novel Cooperative Spectrum Sensing Schemes for Cognitive Radio Ad Hoc Networks,   2018
National Engineering College, Anna University, Chennai.
Supervisor: **Dr.D.Manimegalai**

Smart Medical Device for Elderly People and Patients   2019 to 2020
Funded by NewGen IEDC
Amount: 2.5 Lakhs

Smart India Hackathon 2020   2020 to 2021
Participating as Mentor and Won the Second Place

Organized the **Research Lecture Series Seminar**, "*Brain Computing*   2020 to 2021
Interaction: Next Generation Hands-Free Touch-Free Man-Machine
Interaction".
Expert: **Dr. Debasis Samanta**, IIT, Kharagpur
Date: 13.03.2021.

Intelligent Wearable Device for Ensuring Women Safety   2021 to 2022
Submitted to: TIH-IoT & IoE CHANAKYA Group
Fellowship Program on 25.11.2021

Localized Navigation Assistive Device for Blind Pedestrian   2021 to 2022
Submitted to: DST - Technology Development Transfer (Division)
Programme or Scheme: Technology Development Programme
Role: Project Investigator
Cost: Rs.22,74,700/-

TEACHING EXPERIENCE (16 YEARS)

Professor   **July 2022 to Till now**
Department of Information Technology
National Engineering College, K.R.Nagar, Kovilpatti.

Associate Professor   **July 2019 to July 2022**
Department of Information Technology
National Engineering College, K.R.Nagar, Kovilpatti.

Assistant Professor (Senior Grade),   **Aug 2012 to July 2019**
Department of Information Technology
National Engineering College, K.R.Nagar, Kovilpatti.

Assistant Professor   **June 2006 to Aug 2012**
Department of Information Technology
National Engineering College, K.R.Nagar, Kovilpatti.

PUBLICATIONS

Journal Publications

> **Muthukkumar, R.,** Manimegalai, D., Sideshwari, V., "*Energy Efficient Cooperative Spectrum Sensing Using Entropy Based Detector In Cognitive Radio Networks*,"

International Journal of Applied Engineering Research (IJAER), vol. 10, no. 20, 2015, pp. 16096-16100.

Muthukkumar, R., Manimegalai, D., Siva Santhiya, A, "*Detecting Selfish Attack in Cognitive Radio Networks Using Game-Theoretic Approach*", **International Journal of Applied Engineering Research** (IJAER), vol. 10, no. 20, 2015, pp. 16079-16083.

Muthukkumar, R., Manimegalai, D., "*Enhanced Cooperative Spectrum Sensing in CRAHNs Using Distributed Dynamic Load-Balanced Clustering Scheme,*" **Wireless Personal Communications** (Springer), vol. 94, no. 4, 2017, pp. 2513-2531, https://doi.org/10.1007/s11277-016-3566-4, **Impact factor: 2.017**.

Muthukkumar, R., Manimegalai, D., "*Enhancing cooperative spectrum sensing in cognitive radio ad hoc networks using priority-based two-stage detection model,*" **Wireless Networks** (Springer), vol. 24, no. 8, 2018, pp. 3295-3307, https://doi.org/10.1007/s11276-017-1536-8, **Impact factor: 2.701**.

Muthukkumar, R., Manimegalai, D., "*Distributed coalition formation game for enhancing cooperative spectrum sensing in cognitive radio ad hoc networks,*" **IET Networks**, vol. 9, no. 1, pp. 12–22, 2019.

Muthukkumar, R., Manimegalai, D., "*Secured transmission using trust strategy-based dynamic Bayesian game in underwater acoustic sensor networks,*" **Journal of Ambient Intelligence and Humanized Computing**, vol. 12, pp. 2585–2600, 2021. https://doi.org/10.1007/s12652-020-02418- 9. **Impact factor: 3.662**.

Balammal@Geetha, S., **Muthukkumar, R.,** Seenivasagam, V., "*Enhancing Scalability of Image Retrieval Using Visual Fusion of Feature Descriptors,*" **Intelligent Automation & Soft Computing,** vol. 31, no. 3, pp. 1737–1752, 2022. doi:10.32604/iasc.2022.018822. **Impact factor: 3.401**.

Journal Papers Accepted

Muthukkumar, R., *et al.,* "*A genetic algorithm-based energy-aware multi-hop clustering scheme for heterogeneous wireless sensor networks,*" To be published in: **PeerJ Computer Science**, **Impact factor: 2.41**

Journal Papers in Review

Muthukkumar, R., Manimegalai, D., "*LFDNI-DA: Lightweight Fuzzy rule-based Detection of Network Intrusions and DoS Attacks in the Internet of Things,*" Submitted to: Journal of Industrial Information Integration (Elsevier).

Balammal@Geetha, S., **Muthukkumar, R.,** "*Enhancing scalable and secure image retrieval mechanism in cloud computing using chaotic logistic and henon maps,*" Submitted to: Chaos, Solitons and Fractals (Elsevier).

Balammal@Geetha, S., **Muthukkumar, R.,** *"DiSSeF: Digital Signature-based Secured and Faster Content-Based Image Retrieval Technique,"* Submitted to: Multimedia Tools and Applications (Springer).

International Conference Papers

Muthukkumar, R., Murugeswari, G., *"Flow State Mechanism of Trust based DSR in MANET,"* in: Proceedings of the, International Conference on Recent Advancements in Computing Technology (ICRACT), 2011, pp. 56-62.

Muthukkumar, R., Sivakumar, G., Vimal, S., *"An Efficient Communication Using Biometric Based Authentication and Intrusion Detection in MANET,"* in: Proceedings of the, International Conference on Emerging Trends in Computer and Communication Technology (ICETCCT), pp. 77, 2012.

Muthukkumar, R., Eswari, D., *"Enhanced Routing Protocol in MANET,"* in: Proceedings of the, International Conference on Emerging Trends in Computer and Communication Technology, pp. 57, 2012.

Muthukkumar, R., Shanthi, N., Kumar, T., *"Review of Mobility Aware Clustering Scheme in Mobile Adhoc Network,"* in: Proceedings of the, International Conference on Research Trends in Computer Technologies (ICRTCT), pp. 258-265, 2013.

Muthukkumar, R., Banu Priya, G., Fathima Rizwana, M., *"Topology Controlled Energy Efficiency in Cooperative Adhoc Networks through Energy spanners,"* in: Proceedings of the, International Conference on Innovations in Electronics, Communication and Computing (ICIECC'14), pp. 263-268, 2014.

Muthukkumar, R., Manimegalai, D., Sideshwari, V., *"Energy Efficient Cooperative Spectrum Sensing Using Entropy Based Detector In Cognitive Radio Networks,"* in: Proceedings of the, IEEE Sponsored 2nd International Conference on Innovations in Information, Embedded and Communication systems (ICIIECS), 2015.

Muthukkumar, R., Manimegalai, D., Siva Santhiya, A, *"Detecting Selfish Attack in Cognitive Radio Networks Using Game-Theoretic Approach,"* in: Proceedings of the, IEEE Sponsored 2nd International Conference on Innovations in Information, Embedded and Communication systems (ICIIECS), 2015.

Muthukkumar, R., Manimegalai, D., Siva Santhiya, A, *"Game-Theoretic Approach to Detect Selfish Attacker in Cognitive Radio Ad-Hoc Networks,"* in: Proceedings of the, International Conference on Signal Processing, Communication and Networking (ICSCN), 2015.

Muthukkumar, R., "*Internet of Things (IoT): Smart Home for Crippled Persons,*" in: Proceedings of International Conference on Applied Soft Computing Techniques (ICASCT'18), 2018.

Muthukkumar, R., "*Earthquake Detection Using Adagrad LSTM Network,*" in: Proceedings of International Conference on Science, Technology, Engineering and Management (ICSTEM'18), 2018.

Muthukkumar, R., Lakshmi, B., "*Reinforcing secure-MQTT in Internet of Things using Lightweight Fuzzy Rules-based Intrusion Detection System,*" in: Proceedings of IEEE International Conference on Advanced Computing and Communication Systems (ICACCS)," 2020.

Muthukkumar, R., "*Crop yield prediction using Data Analytics with Machine Learning method,*" in: Proceedings of International E-Conference on Recent Advances in Computation, Communication, Internet of Things and Artificial Intelligence, 2021.

Balammal@Geetha, S., **Muthukkumar, R.,** "Enhancing crop yield prediction using ADABAG and SVM classifier," International Conference on "Emerging Technologies and Applications for a Smart and Sustainable world (ICEmTASS'21)," 2021.

Balammal@Geetha, S., **Muthukkumar, R.,** "*Predicting Leaf disease in Holy Basil using Deep learned CNN models,*" International Conference on Advanced Computer Science and Technologies (ICACST 2021), 2021.

Muthukkumar, R., "*Fiddle Tour: Fraudulent Taxi Trip Detection using KNN Machine Learning Algorithm,*" in: Proceedings of International Virtual Conference on Advances in Digital Transformation, Software Technologies and intelligent IoT systems (ICADSIS)", 2022.

National Conference Papers

Muthukkumar, R., Murugeswari, G., "*Security Considerations for Trust –Based DSR in MANET*", in: Proceedings of the, National Conference on Emerging Trends in Computing Technologies, pp. 4, 2011.

Muthukkumar, R., Eswari, D., "*Enhanced Routing Protocol with Route-Handoff in MANET*", in: Proceedings of the, National Conference on Emerging Trends In Information & Communication, pp. 1-6, 2012.

Muthukkumar, R., Gangadharan, M., "*ACRN: Adaptive Control Channel for Adhoc Cognitive Radio Networks*", in: Proceedings of the, National Conference on Emerging Trends in Computer Science and Engineering (ETICSE), 2013.

Muthukkumar, R., Manimegalai, D., BanuPriya, G., Fathima Rizwana, M., "*Energy Efficient Topology Control In Wireless Adhoc Networks Using Cooperative Communication with Energy Spanner*", in: Proceedings of the, Proceedings of National Conference on Computer Technology (ViSiON'14), 2014.

Muthukkumar, R., Manimegalai, D., Sideshwari, V., "*Enhancing Energy Efficient Cooperative Spectrum Sensing in Cognitive Radio Networks*", in: Proceedings of the, National Conference on Frontiers in Applied Sciences and Computer Technology (FACT'15), vol.03, pp. 170-175, 2015.

Muthukkumar, R., Manimegalai, D., Siva Santhiya, A., "*A Novel Scheme for detecting Selfish Users in Cognitive Radio Ad Hoc Networks Using Game-Theoretical Approach*", in: Proceedings of the, National Conference on Frontiers in Applied Sciences and Computer Technology (FACT'15), vol.03, pp. 176-181, 2015.

PATENTS

Muthukkumar, R., "*Open Source Internet of Tangible Things Based Smart Device For Children With Hearing Loss Using Wi-Fi Communication*," Unites States Patent, Application No. 202041053003, Publication Date (U/S 11A): 11.12.2020.

Muthukkumar, R., "*Smart Medical Device for Patients and Elderly People*," India Patent, No. 202241027836, Publication Date (U/S 11A): 03.06.2022.

SUBJECT TAUGHT

- Data Structures and Algorithms
- Algorithm Analysis and Design
- Computer Networks
- Internet and Web Technology
- Network Programming and Management
- Cryptography and Network Security
- Software Engineering
- Wireless Networks
- Cyber Forensics
- Internet of Things
- Cyber Laws and Security Policies
- Information Security and Cryptography

Deputy Controller of Examinations
Responsible for the conduct of all examinations and to arrange for the preparation, scheduling, evaluation and reporting of all examinations and for the payment of remuneration to question paper setters and examiners and all other contingent matters connected with examinations.

Chief Superintendent
Responsible for all the activities connected with the conduct of theory examinations.

Coordinator for NBA-SAR Preparation

Mentor for NAAC – SSR Preparation

ACADEMIC ACHIEVEMENTS

Short term Courses / FDP/Seminars / Conference/ Workshops organized:

Coordinator, AICTE Sponsored SDP on "*Network Programming and Management*" from 07.06.2010 to 12.06.2010.

Coordinator, Anna University, Chennai Sponsored Placement Training programme on "*IT Finishing School Programme*" for final year SC/ST students from 06.07.2010 to 12.09.2010.

Coordinator, BRNS Sponsored National Level Conference on "*Explorations and iNnovations In Advanced Computing (ENIAC)*" on 16.09.2011.

Coordinator, Workshop on "*Education and Career Planning*" for +2 Students from 05.11.2011 to 06.11.2011.

Coordinator, CISCO Academy Meet on "*Emerging Trends In Green Networking Technologies*" Sponsored by CISCO Systems on 08.03.2013.

Coordinator and Expert, Two Days Hands on training and workshop on "*Network Simulator – NS2*" from 04.10.2013 to 05.10.2013.

Coordinator and Expert, Two Days Hands on training and workshop on "*Network Simulator – NS2*" from 26.09.2014 to 27.09.2014.

EXPERT LECTURES DELIVERED

Resource Person in SDP on **"Network Programming and Management"** at National Engineering College, Kovilpatti on 10 June, 2010.

Resource Person in Workshop on **"Network Simulator – NS2"** at National Engineering College, Kovilpatti on 4-5 October, 2013.

Resource Person in Workshop on "**Network Simulator – NS2**" at National Engineering College, Kovilpatti on 26-27 September, 2014.

Resource Person in IEEE Student branch Workshop on **"Network Simulator – NS2"** at National Engineering College, Kovilpatti on 01 August, 2015.

Resource Person in FDP on **"Web Programming"** at National Engineering College, Kovilpatti on 8 June, 2016.

Resource Person in FDP on **"Problem Solving and Python Programming"** at National Engineering College, Kovilpatti on 9 June, 2018.

WORKSHOP / SEMINAR / FDP / STTP ATTENDED

Webinar *"Current Trends in Research & Innovation - Research Paper Publications - IPR and Patents - Research Projects & Fundraising"* from **27-31, August 2021** conducted by **"Institute for Academic Excellence, Hyderabad"** in collaboration with "Collegiate Education & Technical Education Department, Telangana.

AICTE – MARGDARSHAN Sponsored **FDP** on *"Embracing Online Teaching and Learning"* on **03-07, May 2021** at National Institute of Technology, Tiruchirappalli.

STTP on *"Emerging Trends in Advanced Medical Systems, Applications & System Design Methodologies"* from **12– 17, October 2020** at **GH Raisoni College of Engineering, Nagpur.**

AICTE Training And Learning (ATAL) Academy Online FDP on *"Cyber Security"* from **07 – 11, September 2020** at **BMS Institute of Technology and Management, Bangalore.**

STTP on *"Internet of Things in Healthcare Application"* from **24-29, August 2020** at **Dr.N.G.P. Institute of Technology, Coimbatore.**

Two Week Online Short Term Training Programme on *"Research Methodology"* during **06-18, July 2020** at **Gautam Buddha University, Greater Noida, Uttar Pradesh.**

FDP on *"Cyber Security Techniques and Tools"* from **15-19, June 2020** at **Sai Ram Engineering College, Chennai.**

Webinar on *"Art of Writing Research Paper"* on **May 29, 2020** at **Gautam Buddha University, Greater Noida, Uttar Pradesh.**

FDP on *"Cyber Security"* during **23rd to 27th May 2020** at **Vaagdevi College of Engineering, Hyderabad.**

Short term course on **"Selected Topics on Modern Wireless Networks and Internet of Things"** from **15-21, September 2019** at **Indian Institute of Technology, Kharagpur.**

UGC Sponsored Workshop on **"*Exam Reforms*"** during **18.05.2019 – 19.05.2019** at **University of Hyderabad, Hyderabad**.

AICTE Sponsored Workshop on **"*Exam Reforms*"** on **07.05.2019** at **PSG College of Technology, Coimbatore.**

IET sponsored **"*IoT India Congress*"** during **09.10.2018 – 10.10.2018 NIMHANS Convention Centre, Bengaluru.**

FDP on **"*Internet of Things*"** during **18.06.2018 – 22.06.2018** at **National Institute of Technology, Warangal.**

FDP on *"Data Science Research and Big data Analytics"* during **11.12.2017 – 23.12.2017** at **National Engineering College, Kovilpatti.**

Industrial Training on **"*Android App development and Web development using PHP, .Net*"** during **16.06.2017 – 18.06.2017** at **Tekinit Solutions, Chennai.**

FDP on *"Technology Enabled Teaching Learning Process"* during **27.05.2017 – 29.05.2017** at **NITTTR, Chennai.**

Short Term Course on *"Tools for Cyber Security: A Laboratory Course"* during **22.05.2017 – 26.05.2017** at **Indian Institute of Technology, Bombay.**

Workshop on "*National Cyber Defence Summit*" during **30.09.2016 - 01.10.2016** at **Anna University, Chennai.**

Workshop on **"*National Teachers' Congress*"** during **23.09.2016 – 25.09.2016** at **Maharashtra Institute of Technology, Pune.**

Workshop on **"*Formulation of Research and Development Grant Proposals by Scientists and Technologies*"** during **18.11.2015 – 20.11.2015** at **National Engineering College, Kovilpatti.**

STTP on *"Pedagogy for Effective use of ICT in Engineering Education"* during **08.01.2015 – 31.01.2015** at **Regional Centre of Anna University, Tirunelveli.**

Seminar on **"*Research Approaches and Contemporary Issues of Functional Genomics, Proteomics & Micro array biological Modeling using machine Learning in Bioinformatics Application*"** during **13.11.2104 – 14.11.2014** at **National Engineering College, Kovilpatti.**

ISTE Annual Convention on *"Empowering Indian Engineering Education for Global Expectations"* during **07.11.2014 – 08.11.2014** at **National Engineering College, Kovilpatti.**

Workshop on **"*Training of Evaluators/Resource Persons on Outcome Based Accreditation Phase I and II*"** during **05.03.2014 & 14.03.2014 – 16.03.2014** at **National Engineering College, Kovilpatti.**

Seminar on *"Research Challenge in Cooperative Communication and Cognitive Radio Networks"* on **11.11.2013** at **PSG College of Technology, Coimbatore.**

Workshop on *"Network Simulator (NS-2) for Wireless Networks"* during **28.09.2012 – 29.09.2012** at **SONA College of Technology, Salem.**

Workshop on *"Recent Networking Technology Trends"* during **29.03.2012 – 30.03.2012** at **B.S.Abdur Rahman University, Chennai.**

Industrial Training on *"Cisco Networking Academy Instructor Training Program on CCNA 3 & 4"* during **29.11.2011 – 08.12.2011** at **VIT, Chennai Campus.**

Workshop on *"EMC^2 Academic Summit"* during **04.02.2011 – 05.02.2011** at **SRM University, Chennai.**

Seminar on *"Research Issues in Wearable Computing"* during **28.01.2011 – 29.01.2011** at **National Engineering College, Kovilpatti.**

Workshop on *"Network Simulator – 2"* on **22.10.2010** at **Kamaraj College of Engineering and Technology, Virudhunagar.**

Workshop on *"Free Open Source Software (FOSS)"* during **29.09.2010 – 30.09.2010** at **Mepco Shelenk Engineering College, Sivakasi**.

Workshop on *"IT Finishing School Programme for SC/ST Students for Engineering"* during **14.04.2010 – 18.04.2010** at **KSR College of Technology, Thiruchengode**.

Workshop on *"Grid Computing"* during **25.05.2009 – 27.05.2009** at **National Engineering College, Kovilpatti.**

Seminar on *"Autonomic Computing"* during **01.08.2008 – 02.08.2008** at **National Engineering College, Kovilpatti.**
SDP on *"Web engineering & e-biz solutions J2EE Vs .Net"* during **26.11.2007 – 08.12.2007** at **Mepco Shelenk Engineering College, Sivakasi.**

FDP on **"J2EE & Websphere Admin"** during **09.08.2007 – 10.08.2007** at **Bannari Amman Institute of Technology, Sathyamangalam.**

Seminar on *"Recent methods & tools for design of fault tolerant systems for Wireless Networks"* during **02.08.2007 – 03.08.2007** at **National Engineering College, Kovilpatti.**

Seminar on *"Pervasive Computing"* during **20.04.2007 – 21.04.2007** at **National Engineering College, Kovilpatti.**

Seminar on *"Software Quality Management"* during **09.02.2007 – 10.02.2007** at **National Engineering College, Kovilpatti.**

Seminar on *"Knowledge Engineering"* during **05.01.2007 – 06.01.2007** at **National Engineering College, Kovilpatti.**

FDP on *"Visual Programming"* during **13.11.2006 – 25.11.2006** at **Mepco Shelenk Engineering College, Sivakasi.**

Workshop on **"Foundation of Middleware Technologies**" during **21.09.2006 – 23.09.2006** at **Thiyagarajar College of Engineering, Madurai.**

PH.DS/ PROJECTS GUIDED

Part-time Scholar: **2**

Full-time Scholar: **1**

PROFESSIONAL MEMBERSHIP

- Lifetime member - Institution of Electronics and Telecommunication Engineers (IETE)

- Computer Science Teachers Association (CSTA)

DECLARATION

I solemnly declare that all the above information is correct to the best of my knowledge and belief.

(Dr.R.MUTHUKKUMAR)