Dr. R. Perumalraja, PhD.
Professor and Head, Department of IT
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Education:

➢ **Ph.D.** in **Electrical and Computer Engineering** (Jan. 2009 – Aug. 2013)
 Carleton University, Ottawa, Canada,
 Thesis: Security and Protection aware QoS Framework for 4G multihop wireless Networks [Available @ online: https://curve.carleton.ca/system/files/etd/c3b3c4dc-2ca6-4bdd-9253-77d5eb5403df/etd_pdf/42caf97ebc83a5a3b0c5377d95bb44c3/rengaraju-protectionandsecurityawareqosframeworkfor.pdf]

➢ **M.E., communication Systems** (July 2004 – June 2006)
 SSN College of Engineering, Chennai, Tamil Nadu, India.
 Mini project: Direct Sequence Spread Spectrum modulator implementation
 Thesis: QoS based scheduling in IEEE 802.16d OFDMA Network for VBR applications

➢ **B.E., Electronics and Communications Engineering** (June 1998 – Dec. 2001)
 National Institute of Technology (Part-time), Trichy, Tamil Nadu, India.

➢ **D.E.E.E, Diploma in Electricals and Electronics and Engineering** (1993 – 1996)
 Seshasayee Institue of Technology (SIT), Trichy, Tamil Nadu, India.

Employment history

➢ 2014 July – Present – **Professor & Head**, Department of IT, Velammal College of Engineering and Technology, Madurai.

- Being an administrator, took responsibility for overall growth and improved the department in Academics, consultancy and IT services. Inculcate self discipline among students and faculty in the department.
- Personally I produced 95% and above in Anna University exam results and keep the department in top positions among Velammal institutions and other departments in VCET.
- Strong knowledge in implementing the **Outcome Based Education, NBA audit process**. Department got three years of accreditation in 2016-17 NBA audit. Re-accreditation audit was held on March 01, 2019.

- One of the Steering committee members in NAAC accreditation for obtaining A grade.
- Managed the IT services such us, website, SMS portal, CCTV, Student Portal, etc., with the help of faculty and LAB system Admin only.
- Principal Invsetigator of the consultancy project: Quantification of Serum Protein using Image Processing from Gel Electrophoresis Test Image
- Have **Patent Journal publication**, R. Perumalraja and N. Shanmugasundari, "SERUM PROTEIN QUANTIFICATION USING IMAGE PROCESSING", App. No. 201941001286, Published on 18/01/2019
- Have publications through joint research with Prof. Chung-Horng Lung, Carleton University, Ottawa, Canada.
- Subjects Handled: CS6551: Computer Networks, IT6601: Mobile Computing and CS6003 Adhoc and Sensor Networks; CP7101: Design and Management of Computer Networks and NE7202: Network and Information Security for M.E, Network Engineering

- 2013 Sep. – 2014 June **– Associate Professor** in Department of IT**, Velammal College of Engineering and Technology,** Madurai.

  - Subjects handled: CP7101: Design and Management of Computer Networks and NE7202: Network and Information Security for M.E, Network Engineering.
  - NBA Coordinator for the IT department.
  - Coordinator for networking projects: 1. Implementation of switches and routers using NetFPGA, 2. Design of PBX system using Asterisk and 3. Internet connectivity to Boys & Girls hostel using long range WiFi.

- 2009 Jan - 2013 Aug. **– Teaching and Research Assistant** at **Carleton University,**

  - Research on QoS, Security and relay node protection in 4G wireless networks.
  - Design and simulation on RRM framework in WiMAX and LTE networks.
  - Design and simulation on relay node protection in multihop wireless networks using network coding
  - Design, simulation and testbed implementation on WiMAX security support and theoretical analysis on LTE security
  - Teaching assistantship for computer communication, problem solving & programming and Network routing technology.

- 2007 Feb - 2008 Dec **– Developer software, nGIN Technologies, India**

  - Team lead for India wireless team for EION's WiMAX products.
  - GUI development for LibraMAX subscriber station using CGI scripts
  - Implementation of Layer-3 security (IPSec – Openswan), and testing
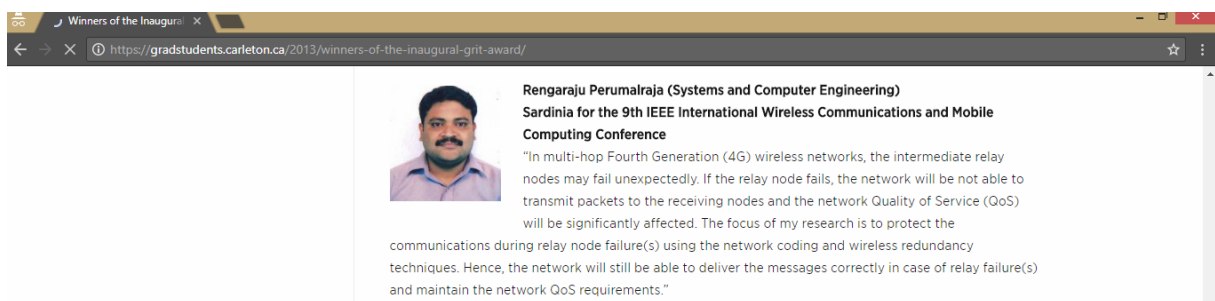 - Integration of EION constellation NMS with WiMAX MAC Layer

- Product verification Testing and validation for IEEE 802.16 products
- 2006 April -2007 Feb – **Engineer-Network Infra., CDOT ALCATEL-LUCENT R&D, India**
  - Closely worked with reverse engineering team
  - MAC level simulation in "Downlink and Uplink burst profile management, closed loop and open loop power control for uplink" in WiMAX

- 2005-2006 –**AU-KBC Research centre**, MIT campus, Chennai, India 600044.
  - Broadband wireless access (IEEE 802.16 Std) – MAC layer simulations.
  - Study on IEEE 802.11 a/b/g/n protocols and WiFi performance testing.

- June 2002 to July 2004 – **Lecturer in Mahendra Engineering College**, Salem, India.
  - Courses handled: Communication systems, Electronic devices, Electronic circuits, Measurement & Instrumentation and Display systems engineering.
  - Commended for achieving 98% results in Anna University examination.

- September 1997 to September 1998 – Apprentice trainee in TNEB, Trichy, India.

- April 1996 to August 1997 – project in charge in M/S R.B Electrical, A Grade Electrical contractor, Trichy, India.
  - 500KVA transformer, 350KVA genset and MV panel errection in Dindugal Cotton Textile Mils, Vadamadurai.

Interested Research Areas

- Wireless Networks (especially on QoS/QoE, Security, SDN), Network Architecture Design for Internet of Things, Smart grid Networks and Disaster Management, also Renewable Energy too.

- https://scholar.google.co.in/citations?user=SLPNcm8AAAAJ&hl=en

Scholarships and awards

- **Graduate Research and Innovative Thinking award – 2013**
  (http://www5.carleton.ca/fgpa/2013/winners-of-the-inaugural-grit-award)

- **Graduate scholarship (departmental) – 2009 to 2013**

- **Dean of graduate studies academic excellence scholarship – 2009 to 2013**

Funded Research Projects

1

Funding Agency: AICTE

Scheme: MODROB

Title: Modernisation of IoT Lab with Data Science and Cloud Infrastructure

Sanctioned Amount: 6.8L

Period: 2019 – 2021

2

Funding Agency: DST

Scheme: Technology Development Programme (AGRO-36/2019)

Title: Design and Development of Low-cost Nutrient Sensors and Smart Solar Powered Fertigation System

Amount Requested: 19L

Status: Project was Selected for Funding, Qutation submitted, Approval & Fund release are awaiting due to Covid-19. DST stalled the fuding for sanctioned projects in 2020.

Publications

Patent Journal

N Shanmuga Sundari and R Perumalraja, "SERUM PROTEIN QUANTIFICATION USING IMAGE PROCESSING", Application No. 201941001286, Published on 18/01/2019, pp. 2020.

International Conference:

1. Shanmugasundari Natesan, Perumalraja Rengaraju, "Quantification of Serum Protein using 2D Electrophoresis Image", *7th IEEE Int'l Conference on Computer Communication and Informatics,* Coimbatore, 2018.

2. Perumalraja Rengaraju, V Raja Ramanan and Chung-Horng Lung, "Detection and prevention of DoS attacks in Software-Defined Cloud networks", *IEEE Int'l Conference on Dependable and Secure Computing, Taipei,* 2017.

3. Perumalraja Rengaraju, S. Senthil Kumar and Chung-Horng Lung, "Investigation of Security and QoS on SDN Firewall Using MAC Filtering", *6th IEEE Int'l Conference on Computer Communication and Informatics,* Coimbatore, 2017.

4. Anu S, Vijayaprabha R, Kamalesh S and Perumalraja Rengaraju, "Enhanced Bio Pest Control System Using Video Sensor Networks", *4th IEEE Int'l Conference on Advanced Computing and Communication System*, Coimbatore, 2017.

5. Perumalraja Rengaraju, and Chung-Horng Lung, "Network Architecture and QoS Study on Software Defined LTE Vehicular Networks", *IEEE Int'l Conference on Communication Electronics System*, Coimbatore, 2016.

6. R. Perumalraja, S. R Pandian and C-H. Lung, "Communication Networks and Non-Technical Energy Loss Control System for Smart Grid Networks", *Proc. of IEEE Intl' Conf. on Innovative Smart Grid Technologies – Asia*, Malaysia, 2014.

7. Kavitha Chellapandian and Perumalraja Rengaraju, "Smart Wireless Healthcare Monitoring for Drivers Community", *Proc. of IEEE Intl' Conf. on Communication and Signal Processing,* Melmaruvathoor, Chennai, 2014.

8. Perumalraja Rengaraju, Chung-Horng Lung and Anand Srinivasan, "QoS and Protection of Relay Nodes in 4G Wireless Networks Using Network Coding", *Proc. of 9th IEEE Int'l Conference on Wireless Communications and Mobile Computing, Italy, July 2013*.

9. Perumalraja Rengaraju, Chung-Horng Lung and Anand Srinivasan, "Adaptive Admission Control and Packet Scheduling Schemes for QoS Provisioning in Multihop WiMAX Networks", *Proc. of 8th IEEE Int'l Conf. on Wireless Communications and Mobile Computing*, 2012.

10. Perumalraja Rengaraju, Chung-Horng Lung and Anand Srinivasan, "Communication Requirements and Analysis of Distribution Networks Using WiMAX Technology for Smart Grids", *Proc. of 8th IEEE Int'l Conf. on Wireless Communications and Mobile Computing*, 2012.

11. Basil Saeed, Perumalraja Rengaraju, Chung-Horng Lung and Anand Srinivasan, "QoS and Protection of Wireless Relay Nodes Failure Using Network Coding", *Proc. of International Symposium on Network Coding,* 2011, pp. 1-5.

12. Perumalraja Rengaraju, Chung-Horng Lung and Anand Srinivasan, "Measuring and Analyzing WiMAX Security and QoS in Testbed Experiments", *Proc. of IEEE Conference on Communication,* 2011, pp. 1-5.

13. Perumalraja Rengaraju, Chung-Horng Lung and Anand Srinivasan, "Design of Distributed Security Architecture for Multihop WiMAX Networks", *Proc. of 8th Annual Conference on Privacy, Security and Trust*, 2010, pp.54-61.

14. Perumalraja Rengaraju, Chung-Horng Lung and Anand Srinivasan, "QoS Assured Uplink Scheduler for WiMAX Networks", *Proc. of IEEE Vehicular Technology Conference*, Ottawa, Canada, May 2010, pp. 1-5.

15. Perumalraja Rengaraju, Chung-Horng Lung, Qu Yi and Anand Srinivasan, "An Analysis on mobile WiMAX Security", *Proc. of IEEE Toronto International Conference on Science and Technology for Humanity*, 2009, pp. 439-444.

16. Perumalraja Rengaraju, J. Jackson Juliet roy and S. Radha " Multimedia Supported Uplink Scheduling for IEEE 802.16d OFDMA Network" *Proc. of INDICON 2006, IEEE Conference, India*.

International Journal / IEEE Transactions:

17. R.Perumalraja, M.B.P.Nivetha, G.Priyanka, P.Sowmiya, "Novel Three- Tier Architecture for Implementing Industry 4.0", International Research Journal of Engineering and Technology, Vol: 07 Iss: 04, Apr 2020, pp. 4388-4393.

18. R.Perumalraja, S.Prasanthini, S.Soundariya, M.Vishnupriya, "Mobile Application for Blood Pressure Monitoring and Control", International Research Journal of Engineering and Technology, Vol: 07 Iss: 04, Apr 2020, pp. 1653-1659.

19. S. Senthil Kumar, B.S.Dhivyalekshmi, S.Preethi and R. Perumalraja, "PBX Implementation in LAN Using Asterisk Open Source Software", Int'l Journal of Applied Engineering Research, 2015, Vol. 10, No.55, pp. 66-69.

20. S. Senthil Kumar, R Perumalraja, et al., "Smart Traffic Control System for Smart Cities", Int'l Journal of Applied Engineering Research, 2015, Vol. 10, No.55, pp. 146-148.

21. M. Sarathkumar, J.Rajeevrathan, R. Perumalraja, et al., "Smart Air Pollution Monitoring System for Industries using IOT Techniques", Int'l Journal of Applied Engineering Research, 2015, Vol. 10, No.55, pp. 1448-1451.

22. R. Hemajanani, R. Perumalraja and S. Chowmya, "Software Defined LTE Vehicular Network", Int'l Journal of Applied Engineering Research, 2015, Vol. 10, No.55, pp. 1812-1817.

23. R.Niveditha, R.Perumalraja, et al., "Designing a Low Cost Acoustic Modem for Underwater Communication", Int'l Journal of Applied Engineering Research, 2015, Vol. 10, No.55, pp. 2308-2311.

24. Hassan Halabian, Perumalraja Rengaraju, et al. "A Reservation-based Call Admission Control Scheme and System Modeling in 4G Vehicular Networks", EURASIP Journal on Wireless Communications and Networking, 2015.

25. Perumalraja Rengaraju, Chung-Horng Lung and Anand Srinivasan, "QoS Aware Distributed Security Architecture for 4G Multihop Wireless Networks", IEEE Transactions on Vehicular Technology, Vol. 63 : Issue 6, 2014, pp. 2886 – 2900.

26. Perumalraja Rengaraju, Chung-Horng Lung, F. Richard Yu and Anand Srinivasan, "On QoE Monitoring and E2E Service Assurance in 4G Wireless Networks", IEEE Wireless Communication Magazine, Volume 19: Issue 4, 2012, pp. 89-96.

27. Perumalraja Rengaraju, Chung-Horng Lung, Anand Srinivasan and R.H.M. Hafez, "Qos Improvements in Mobile WiMAX Networks", Journal of Engineering and Applied Sciences, Vol. 3: Issue 1, 2010, pp. 107-118.

National Conference:

28. Perumalraja Rengaraju, J. Jackson Juliet roy and S. Radha "QoS based Scheduling in IEEE 802.16d OFDMA Network for VBR applications", *Proc. on National Conference on Communication Technologies, 2006, national conference, India*. **Best paper award in wireless comm. track**.