

Dhanesh Raj

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Summary

Currently pursuing my Ph.D. in Computer Engineering under Dr. Maneesha V Ramesh with research interests in wireless networks and pervasive computing, specifically Quality of Service (QoS) in marine 5G heterogeneous networks.

Experience

PhD Student

2017 – 2024

Center for Wireless Networks & Applications, Amrita Vishwa Vidyapeetham, Kerala, India

OceanNet – in developing Public Safety Networks and Mission Critical Services for fishermen based on real time functional deployment of a mobile infrastructure for offshore communications and networking in the coastal region targeting to ensure effective communication whilst tackling natural disasters and hazards.

Thesis Title - "Service Provisioning in Resource Constrained Marine Vehicular IoT Networks in Extreme Environment"

ICM Research Student

Feb – July 2016

Dept. of Information Engineering and Computer Science, University of Trento, Italy

Research activity as part of Erasmus+ International Credit Mobility (ICM) student exchange, focusing on theoretical analysis and simulation of a DTN Architecture for Fishing Vessels; Cooperative Device-to-Device Communication and Resource Allocation in Cognitive Radio.

Education

Masters in Wireless Networks and Applications

2012 – 2014

Amrita Vishwa Vidyapeetham, Amritapuri, Kerala

CGPA: 8/10

Bachelors in Engineering

2004 – 2008

Anna University, Chennai - India

CGPA: 8.2/10

Achievements

- **ICDCN 2023 Travel Conference Grant Award Winner**
- Published Papers in **ICDCN -2023, 2017, COMSNETS - 2020 , INFOCOM, WiOpt, Springer journal - CSI Transactions on ICT**
- **Phase II Winner - 5G Hackathon 2022**, Dept of Telecommunication - Govt of India for "Public Safety and Mission Critical Services for Fishermen at Sea"
- **Phase I Winner- 5G Hackathon 2021**, Dept of Telecommunication - Govt of India for "Public Safety and Mission Critical Services for Fishermen at Sea"
- **COMSNETS 2020 Travel Conference Grant Award Winner**
- **ITRA Research Fellowship** for MICRONET project
- **Amrita Bright Idea Award Winner 2013** for innovative idea on "Wireless Real Artificial Urinary Sphincter Control for Urinary Incontinence"
- **Amrita Innovation Seed Grant Winner 2013** "Wireless Real Artificial Urinary Sphincter Control for Urinary Incontinence"

Area of Interest

Wireless Network Modeling and Design, 5G Networks and OpenRAN, Machine Learning, Data Visualisation

Publications

Sruthy Anand, Dhanesh Raj, A.M. Abhishek Sai, Sethuraman N Rao, and Maneesha V Ramesh. 2023. "*Techno-Social Synergy for Disaster Resilience in Coastal Communities: A Sustainable Approach*", In Proceedings of the 24th International Conference on Distributed Computing and Networking (ICDCN '23). [Paper](#)

D. Raj, M. V. Ramesh and S. N. Rao '*Link Quality Measurements for Marine Vehicular to Infrastructure Network (V2I)*', 2020 International Conference on COMMunication Systems & NETWORKS (COMSNETS), Bengaluru, India, 2020. [Paper](#)

D Raj '*Performance Evaluation of QoS in Marine Vehicle to Infrastructure (V2I) Network*', 2020 International Conference on COMMunication Systems & NETWORKS (COMSNETS), Bengaluru, India, 2020. [Paper](#)

Ramesh, M.V., Prabha, R., Thirugnanam, H. et al. Achieving sustainability through smart city applications: protocols, systems and solutions using IoT and wireless sensor network. CSIT 8, 213–230 (2020). [Paper](#)

D. Raj, S. S. Lekshmi, B. B. Nair and S. Ponnekanti, '*Effective Gi-LAN optimisation towards Hardening the 5G Service Provider Platform*', 2019 International Conference on Wireless Communications Signal Processing and Networking (WiSPNET). [Paper](#)

S. S. Lekshmi, M. S. Anjana, B. B. Nair, D. Raj and S. Ponnekanti, '*Framework for Generic Design of Massive IoT Slice in 5G*', 2019 International Conference on Wireless Communications Signal Processing and Networking (WiSPNET). [Paper](#)

S. L. Lekshmi, D. Raj and S. Ponnekanti, '*Connectivity Platform to Deliver Sync as a Service for 5G Digital Enterprise*', 2019 International Conference on Wireless Communications Signal Processing and Networking (WiSPNET). [Paper](#)

S. N. Rao, D. Raj, V. Parthasarathy, S. Aiswarya, M. V. Ramesh and V. Rangan, "A novel solution for high speed internet over the oceans," IEEE INFOCOM 2018 - IEEE Conference on Computer Communications Workshops (INFOCOM WKSHPS), Honolulu, HI, USA, 2018, pp. 906-912. [Paper](#)

D Raj, S. Duttgupta , Ramesh M.V '*Delay Tolerant Routing Protocol for Heterogeneous Marine Vehicular Mobile Ad-hoc Network*', 2017 IEEE International Conference on Pervasive Computing and Communication Workshops (PerCom 2017). [Paper](#)

Dhanesh Raj, Vickram Parthasarathy, Sethuraman N. Rao, and Maneesha V. Ramesh. 2017, 'Performance Assessment of an Extremely Challenged Mobile Infrastructure Network over the Oceans.' In Proceedings of the 18th International Conference on Distributed Computing and Networking (ICDCN '17). [Paper](#)

L. Rajagopal and D. Raj, '*Study of synchronization facets for 5G small cell use case scenario*', 2017 2nd International Conference on Communication and Electronics Systems (ICCES). [Paper](#)

S. Swetha and D. Raj, '*Optimized video content delivery over 5G networks*', 2017 2nd International Conference on Communication and Electronics Systems (ICCES). [Paper](#)

H. S. Jennath, Nandesh Nair, Sethuraman Rao, Dhanesh Raj, Sujatha Narayanan, and Dilip Krishnaswamy, 'A Resilient Self-Organizing Offshore Communication Network for Fishermen.' In Proceedings of the 18th International Conference on Distributed Computing and Networking (ICDCN '17). [Paper](#)

S. N. Rao, D. Raj, S. Aiswarya and S. Unni 'Realizing cost-effective marine internet for fishermen', 2016 14th International Symposium on Modeling and Optimization in Mobile, Ad Hoc, and Wireless Networks (WiOpt), Tempe, AZ, 2016. [Paper](#)

Unni. S, Raj. D, Rao. S, Kalyan P.S '*Performance Measurement and Analysis of Long Range Wi-Fi Network for Over-the-Sea Communication*', Modeling and Optimization in Mobile, Ad Hoc, and Wireless Networks (WiOpt 2015), 13th International Symposium on, 25-29 May 2015. [Paper](#)

Jennath H.S, Raj. D, Rao. S, Kaimal. A '*Comparative Study of Backhaul Options for Communication at Sea*', Sixth International Conference on Advances in Communication, Network, and Computing – CNC 2015, Mar 28-29, 2015 in Chennai, India. [Paper](#)

Nair B.D, Raj. D, Rao. S 'Security Considerations in a Marine Communication Network for Fishermen', AIRCC International Journal on Cybernetics & Informatics(IJCI) – CNC 2015, Mar 28-29, 2015 in Chennai, India. [Paper](#)

Maneesha V. Ramesh, Dhanesh Raj, and N. Dilraj 'An Assistive Device for Managing Urinary Incontinence', In Proceedings of the 6th IBM Collaborative Academia Research Exchange Conference (I-CARE) on I-CARE 2014 (I-CARE 2014). ACM, New York, NY, USA, Article 3, 4 pages. [Paper](#)

Maneesha V Ramesh, Dhanesh Raj, Dr. Sanjeevan K V, Dilraj N 'Design of Wireless Real Time Artificial Sphincter Control System for Urinary Incontinence', International Symposium on Technology Management and Emerging Technologies, May 27-28, 2014. [Paper](#)

Teaching

18WN714 - 5G Small Cells - TA

15CSE370 - Wireless and Mobile Communication - Course Faculty

18WN624 - Mobile Communication Networks - TA

18WN626 - Internet of Things: Architecture and System Design - TA

16WN717 - Cloud Computing and Internet of Things - TA

16WN624 - Mobile Communication Networks - TA

16WN713 - 4G Mobile Broadband and Small Cell Networks - TA

16WN625 - Research Learning and Problem Formulation - TA

Activities & Services

Invited Talk at 38th National Convention Of Electronics And Telecommunication Engineers, IEI Kochi session on "OpenRAN for Empowering Connectivity in Next-Generation Communication Networks"

Presented paper at ICDCN 2023

Presented 5G private network-based solution as "OceanNet - Public Safety and Mission Critical Services for Fishermen at Sea" at DoT and Indian Mobile Congress Exhibition 2020

Presented Poster and Graduate Forum papers at COMSNETS 2020

Member of O-RAN representing Amrita Vishwa Vidyapeetham in next generation research group

Organizer and coordinator for AmritaWNA 10 years Celebrations and Alumni Meet 2019

Writing technical posts in telecomHall discussion forum as an active member

Coordinator of Remote Triggered Lab Workshop 2017 and Antenna HF Package Workshop 2017

Attended IEEE International 5G Summit at Trivandrum 2017

Participant of IEEE ComSoc Summer School, Trento - Italy

Actively participated in ITRA MICRONet Review Feedback and Evaluation meetings and workshops funded by DoT, Govt. of India

References

Dr. Maneesha Vinodini Ramesh

Provost - Strategic Initiatives, International, Research & Innovation, AI + X

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Dr. Sessaiah Ponnekanti

Business Development Manager, Net AI, Edinburgh, Scotland

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