

Tharaka Nilantha Samarasinghe, Ph.D., B.Sc. Eng., CEng, SMIEEE

Web: <https://tharakas.staff.uom.lk>

Email: tharakas@uom.lk

ACADEMIC AND PROFESSIONAL QUALIFICATIONS

- **Doctor of Philosophy (Ph.D.)**, University of Melbourne, Australia (2012).
- **Bachelor of Science in Electronic & Telecommunication Engineering (B.Sc. Eng.)**, University of Moratuwa, Sri Lanka (2008). First class honours with a cumulative GPA of 4.01.
- **Passed Finalist**, Chartered Institute of Management Accountants (CIMA), United Kingdom (2008).
- **Chartered Engineer (C. Eng.)**, Corporate Member, The Institution of Engineers Sri Lanka (2021).
- **Senior Member**, Institute of Electrical and Electronics Engineers (IEEE).

TEACHING AND PROFESSIONAL EXPERIENCE

- **Professor**, Dept. of Electronic and Telecommunication Engineering, University of Moratuwa, Sri Lanka (2024 Jan. to date).
- **Senior Lecturer**, Dept. of Electronic and Telecommunication Engineering, University of Moratuwa, Sri Lanka (2015-2023).
Undergraduate Teaching: Random Signals and Processes, Introduction to Telecommunications, Analog and Digital Communications, Digital Communications.
Postgraduate Teaching: Information Theory, Digital Communications, Engineering Mathematics, Wireless Communications, Wireless Networks.
- **Head**, Dept. of Medical Technology, Faculty of Medicine, University of Moratuwa (2024 Jan. to date).
- **Postdoctoral Research Fellow**, School of Engineering, RMIT University, Australia (2022-2023).
- **Postdoctoral Research Fellow**, Dept. of Electrical and Computer Systems Engineering, Monash University, Australia (2012-2014).
- **Honorary Fellow**, Dept. of Electrical and Electronic Engineering, University of Melbourne, Australia (2016-2023).
- **Visiting Lecturer**, Technology Faculty, University of Kelaniya, Sri Lanka (2018-2019).
Undergraduate Teaching: Introduction to Telecommunications.
- **Visiting Lecturer**, IESL College of Engineering, Sri Lanka (2015-2021).
Undergraduate Teaching: Communication Engineering, Electromagnetics.
- **Visiting Lecturer**, Northshore College of Business and Technology, Sri Lanka (2015-2019) – affiliated program of the University of the West of England, United Kingdom.
Undergraduate Teaching: Telecommunication Systems, Digital Signal Processing, Wireless Sensor Networks.
- **Student Library Assistant**, Scholarly Information, University of Melbourne, Australia (2010-2012).
- **Teaching Assistant**, Dept. of Electrical and Electronic Engineering, University of Melbourne, Australia (2010–2012). Undergraduate Teaching: Digital Communications.
- **Engineer**, Radio Network Design, Planning and Optimization, Mobitel Pvt. Ltd, Sri Lanka (2008-2009).

OTHER WORK-RELATED EXPERIENCE

- **Course Coordinator**, M.Sc. in Telecommunications, Dept. of Electronic and Telecommunication Engineering, University of Moratuwa (2017-2021).
Responsibilities: In charge of administrative functions of the course including coordinating with students and teaching staff, advertising, handling student enrolments, timetabling and budgeting.
- **Board Member**, Centre for Intelligent Transport Systems, University of Moratuwa (2019 - 2022).
- **Student Mentor**, Dept. of Electronic and Telecommunication Engineering, University of Moratuwa (2016 to date)

- **Curriculum Development (CD)/Program Accreditation (PA):**
 - B.Sc. Eng. (Hons.), Dept. of Electronic and Telecommunication Engineering, University of Moratuwa, Sri Lanka (2020, 2024) (CD).
 - M.Sc. in Telecommunications, Dept. of Electronic and Telecommunication Engineering, University of Moratuwa, Sri Lanka (2018) (CD).
 - B.Sc. Eng. (Hons.), Department of Electrical and Electronic Engineering, University of Sri Jayewardenepura, Sri Lanka (2016) (CD).
 - Pg. Dip., Department of Electronic and Telecommunication Engineering, IESL College of Engineering, Sri Lanka (2015) (CD).
 - National Diploma in Engineering Sciences, Institution of Engineering and Technology, Katunayaka, Sri Lanka (2019) (CD & PA).
 - B.Tech., Electronic and Telecommunication Engineering Technology, Faculty of Technology, Rajarata University of Sri Lanka (2021,2024) (CD & PA).
 - B.Sc. Eng. (Hons.), Dept. of Electronic and Telecommunication Engineering, University of Moratuwa, Sri Lanka (2024 Jan. to date) – Department PA lead.
 - B.Sc. Eng. (Hons.), Electronic and Telecommunication Engineering, General Sir John Kotelawala Defence University, Sri Lanka (2021, 2025) – PA evaluation panel member representing IESL.
 - B.Sc. Eng. (Hons.), Electronic and Telecommunication Engineering, Cinec Campus, Sri Lanka (2025) – PA evaluation panel member representing IESL.
 - B.Tech. Eng. (Hons.), Electronic and Communication Engineering, The Open University of Sri Lanka, Sri Lanka (2025) – PA evaluation panel member representing IESL.
- **Consultant:** Sri Lanka Police; Department of National Museums, Sri Lanka; Telecommunication Regulatory Commission of Sri Lanka; Special Task Force, Sri Lanka Police; Coconut Cultivation Board, Sri Lanka.
- **Chairman,** IEEE Communications Society - Sri Lanka Chapter (2019-2021), IEEE Sri Lanka Section (2026).
- **Treasurer,** IEEE Sri Lanka Section (2020), Association of Engineer Teachers, University of Moratuwa (2019-2022).
- **Vice Chairman,** IEEE Communications Society - Sri Lanka Chapter (2022-2023), IEEE Sri Lanka Section (2025).
- **Senior Treasurer,** Sports Council, University of Moratuwa (2019-2022).

PROJECTS AND RESEARCH

- **Research Interests:** Wireless Communications, Information Theory, Intelligent Transportation Systems, Vehicle-to-Vehicle Communication.
- **PhD Thesis:** Opportunistic beamforming in wireless networks: optimal selective feedback policies and the feedback-capacity tradeoff, University of Melbourne, Australia (2009-2012).
- **Postdoctoral Projects:**
 - At RMIT University (2022-2023)
 - AI-enabled communication systems, supported by Defence Science and Technology Group (DSTG), Department of Defence, Australia
 - Distributed Autonomous Spectrum Management, TAS-Defence CRC project: Consunet, RMIT, DSTG and University of Sydney.
 - Hybrid Fibre Coaxial Proactive Network Management Project, funded by a leading Telecommunication operator in Australia.
 - Taming Uncertainty: A Stochastic-Geometric Foundation for Complex Wireless Networks- Monash University, Australia, under ARC Discovery Project DP110102729 (2012-2014).
 - Multi-user MIMO Techniques for Cellular Systems- contributed as an external collaborator to the Ph.D. project of student M. Wang of the University of Melbourne (2012-2014).

- **Postgraduate Supervision:**

- **Ph.D.:** N.B.A.G.P. Wijesiri, Modeling the Medium Access Control Layer Performance of Cellular Vehicle-to-Everything Mode 4 and IEEE 802.11p (2023).
- **M.Phil. / M.Sc.:**
 - M.H.M. Hassaan, On Demand Deployment of UAV Base Stations in Wireless Communication Networks (2022).
 - T.C. Wickramarachchi, Experimental Evaluation of DSRC/Wi-Fi Hybrid Systems in Intelligent Transportation Systems, ongoing.
 - I.J. Ranawaka, An Energy Efficient D2D Model with Guaranteed Quality of Service for Cloud Radio Access Networks (2021).
 - G.D.R. De Silva, 5G for Telehealth: Utility of Local Mobile Network Operator Architecture and Network Slicing (2021).
 - K.G.N. Chandimal, An Iterative Capacity Dimensioning Scheme for an LTE Advanced Network Under Resource Constraints (2019).
 - N.S. Ranaweera, K-best Sphere Detector Based Receiver for MIMO Non-Orthogonal Multiple Access Systems (2019).
 - W.N. Manamperi, Enhancing the Wi-Fi Direct Protocol for Data Communication in Vehicular Ad-hoc Network (2018).
 - B. Arunn, Performance Analysis of Wi-Fi Direct for Vehicular Communication (2017).

- **Other Related Projects:**

- Modeling the Medium Access Control Layer Performance of New Radio Vehicle-to-Everything (NRV2X) Mode 2 and IEEE 802.11bd (2024-2026)
- Physical layer security for intelligent reflecting surface assisted two-way communications (2020-2022).
- Channel estimation for intelligent reflecting surface-aided multi-user MISO communications (2020-2022).
- Deep learning for non-intrusive load monitoring, (2020-2021).
- Device-free user authentication, activity classification and tracking using passive Wi-Fi sensing: A deep learning-based approach (2019-2021).
- Insights from the MAC and physical layers for intelligent transportation systems (ITS) applications using open source VANET simulators (2017-2020).
- Remaining useful life estimation of industrial machinery (2018-2019).
- Intelligent transport systems (ITS) applications using Wi-Fi beaconing (2019-2020).
- Coverage, content caching and delivery in cellular networks with underlay clustered device-to-device networks (2017-2019).
- Experimental evaluation of Wi-Fi Direct for vehicular ad-hoc networks, (2016-2017).
- Wireless energy beamforming using received signal strength feedback (2015-2017)
- Software tools for Wi-Fi interference analysis and wave propagation modeling for optimum access point locations (2015-2017).

- **List of Publications – Journals:**

- S Kandeepan, M Tripathi, K Wang, D Gossink, **T Samarasinghe**, C. Divarathne “Guided-Aloha for Secondary Access with Spectrum Prediction”, IEEE Access 13, 2025.
- C. Sandeepa, E. Zeydan, **T. Samarasinghe**, M. Liyanage, "Federated Learning for 6G Networks: Navigating Privacy Benefits and Challenges," IEEE Open Journal of the Communications Society, 2025.
- V. Mithulavan, **T. Samarasinghe**, R. Valluvan, A. Karnan, N. Sathiparan, D. N. Subramaniam, "Investigation on the Effectiveness of Fourier Shape Analysis in Classifying Milled Aggregates," Construction and Building Materials, 2025.
- H. Hydher, D.N.K. Jayakody, K.T. Hemachandra, **T. Samarasinghe**, "UAV Deployment in WSN System for Emergency/remote Area Applications," Computer Networks, 2025.
- G.P. Wijesiri, J. Haapola, **T. Samarasinghe**, “Performance Enhancement of C-V2X Mode 4 Utilizing

Multiple Candidate Single-subframe Resources,” IEEE Transactions on Intelligent Transportation Systems, 2023.

- S Karunarathna, S Wijethilaka, P Ranaweera, KT Hemachandra, **T Samarasinghe**, M Liyanage “The Role of Network Slicing and Edge Computing in the Metaverse Realization”, IEEE Access 11, 2023.
- G.P. Wijesiri, J. Haapola, **T. Samarasinghe**, “The Effect of Multiple Access Categories on the MAC Layer Performance of IEEE 802.11 p,” IEEE Transactions on Communications, 2022.
- S. Sumanthiran, D. Kudathanthirige, K. T. Hemachandra, **T. Samarasinghe**, G. Aruma Baduge, “Rank-1 Matrix Approximation Based Channel Estimation for Intelligent Reflecting Surface-Aided Multi-User MISO Communications,” IEEE Communications Letters, 2021
- M. Wijewardena, **T. Samarasinghe**, K. T. Hemachandra, S. Atapattu, J. S. Evans, “Physical Layer Security for Intelligent Reflecting Surface Assisted Two-Way Communications,” IEEE Communications Letters, 2021
- G.P. Wijesiri, J. Haapola, **T. Samarasinghe**, “A Discrete-Time Markov Chain Based Comparison of the MAC Layer Performance of C-V2X Mode 4 and IEEE 802.11p,” IEEE Transactions on Communications, 2021
- H. Hydher, D.N.K. Jayakody, K.T. Hemachandra, **T. Samarasinghe**, “Intelligent UAV deployment for a disaster-resilient wireless network,” Sensors, 2020
- V. Jayasundara, H. Jayasekara, **T. Samarasinghe**, K. T. Hemachandra, “Device-Free User Authentication, Activity Classification and Tracking using Passive Wi-Fi Sensing: A Deep Learning Based Approach,” IEEE Sensors Journal, 2020.
- S. Abeywickrama, **T. Samarasinghe**, C. K. Ho, Y. Chau “Wireless Energy Beamforming Using Received Signal Strength Indicator Feedback,” IEEE Transactions on Signal Processing, 2018.
- **T. Samarasinghe**, H. Inaltekin, J.S. Evans "Modeling and Analysis of Opportunistic Beamforming for Poisson Wireless Networks" IEEE Transactions on Wireless Communications, 2016.
- M. Wang, **T. Samarasinghe**, J.S. Evans "Optimizing User Selection Schemes in Vector Broadcast Channels" IEEE Transactions on Communications, 2015.
- **T. Samarasinghe**, H. Inaltekin, J.S. Evans "On the Outage Capacity of Opportunistic Beamforming with Random User Locations" IEEE Transactions on Communications, 2014.
- **T. Samarasinghe**, H. Inaltekin, J.S. Evans " On Optimal Downlink Coverage in Poisson Cellular Networks with Power Density Constraints" IEEE Transactions on Communications, 2014.
- **T. Samarasinghe**, H. Inaltekin, and J. Evans, “Optimal Selective Feedback Policies for Opportunistic Beamforming”, IEEE Transactions on Information Theory, 2013.
- **T. Samarasinghe**, H. Inaltekin, and J. Evans, “The Feedback-Capacity Tradeoff for Opportunistic Beamforming under Optimal User Selection,” Elsevier Performance Evaluation, 2012 (invited paper).

- **List of Publications – Conferences:**

- List available at: <https://tharakas.staff.uom.lk>

GRANTS & AWARDS

- **Co-Investigator**, Senate Research Council Grant SRC/LT/2015/7, University of Moratuwa (2015).
- **Principle Investigator**, Senate Research Council Grant SRC/LT/2018/2, University of Moratuwa (2018).
- **Co-Investigator**, AHEAD/RA3/RIC/MRT/ITS- Multidisciplinary Transport Development Project of the University of Moratuwa under World Bank Grant 6026-LK/8743-LK (2019)
- **President's Award for Scientific Publication**, Government of Sri Lanka (2016, 2021).
- **Research Excellence with Distinction**, University of Moratuwa (2016, 2018-2022).
- **Research Excellence**, University of Moratuwa (2017).
- **National Research Council Merit Award**, Government of Sri Lanka (2015, 2018).
- **Melbourne International Fee Remission Scholarship** (MIFRS) and **Melbourne Research Scholarship** (MRS), University of Melbourne (2009-2012).
- **The Most Outstanding Undergraduate**, University of Moratuwa (2008).
- **University Colours**, University of Moratuwa (2004-2007).