Curriculum Vitae

Neelesh B. Mehta

FASc, FNA, FNASc, FNAE, FIEEE

Contact Information

Professor and Chair
Dept. of Electrical Communication Eng. (ECE)
Indian Institute of Science (IISc)
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Education

- PhD — California Institute of Technology (Pasadena, USA) — 2001
  In Electrical Eng.
  Advisor: Prof. Andrea Goldsmith (Stanford University)
- MS — California Institute of Technology (Pasadena, USA) — 1997
  In Electrical Eng. (GPA: 3.9/4.0)
- B. Tech. — Indian Institute of Technology (IIT), Madras (India) — 1996
  In Electronics & Communications Eng.
  (GPA: 9.73/10, 2nd in the Institute, IIT JEE rank: 17)

Research and Development Experience

Professor (Higher Administrative Grade (HAG) scale), ECE Dept., Indian Institute of Science (IISc), Bangalore Since Oct. 2011

[Related positions: Assistant Professor (2007-11) and Associate Professor (2012-16), Professor (2016-25), ECE Dept., IISc]

- Extensive research on 4G, 5G, and 6G wireless cellular communication standards, WiFi 6 and 7, near-field communications, cooperative communications and relaying, distributed opportunistic selection, multiple access protocols, multiple antenna techniques, interference modeling, energy harvesting, green wireless sensor networks, and spectrum sharing
  - Published 95+ IEEE Transactions papers, 105+ conference papers, 3 book chapters, and filed 3 Indian patents (1 granted) and 4 US patents (2 granted)
  - Citations (Google Scholar): 6580 | h-index: 40
  - Participated in 3GPP standardization meetings on 5G/6G cellular systems
- Engaged in research projects sponsored by industry, and government ministries and agencies
  - *Industry:* British Telecom, Boeing-HCL-Wipro Aerospace Networking Research Consortium (ANRC), Intel India, British Telecom, Nokia, Broadcom Foundation, Qualcomm
  - *Govt. of India:* Ministry of Information Technology (MEITY), Dept. of Telecommunications (DoT), Defense Research & Development Organization (DRDO), Dept. of Science and Technology (DST)

- *Collaborative international funding:* Indo-UK Advanced Technology Center (IUATC), Indo-French Centre for the Promotion of Advanced Research (IFCPAR), Indo-Korea project

Principal Member Technical Staff, Mitsubishi Electric Research Labs (MERL), USA 2003-2007

- Project leader for the 'Beyond 3G' strategic R&D project. Developed novel technologies and intellectual property for next-generation wireless standards and mobile communication products, with a focus on 3GPP standards
- Prepared and presented numerous standards contributions in 3GPP RAN1 meetings on multiple antenna technologies for HSPA and LTE. Succeeded in the adoption of uplink transmit antenna selection technology by 3GPP in LTE
- Pursued research on low hardware complexity antenna selection and enabling technologies, cooperative communications, and cross-layer design in infrastructure-based and ad hoc cooperative communications, spectral efficiency analysis of interference-limited cellular systems with schedulers, and interference modeling methods
- Co-inventor of 25+ issued US patents
- Mentor and collaborator for eight PhD/MS interns from several US universities

Staff Scientist, Broadcom Corp. (Mobile Communications Unit), NJ, USA 2002-2003

- Part of the team responsible for developing and integrating the GSM/GPRS/EDGE standards' protocol stack (e.g., PHY, MAC, RLC, SNDCP layers) in commercially successful chipsets for mobile handsets
- Developed a suite of PERL-based tools and tests for automatic internal regression checking of the physical layer and protocol stack to enable complex system integration
- Involved in exhaustive testing and debugging of mobile handset products in interoperability testing labs and live EDGE and GPRS wireless networks in Europe and USA

Member Technical Staff, AT&T Research Labs (Wireless Systems), NJ, USA 2001-2002

- Pursued extensive research on performance analysis of WCDMA downlinks and performance-determining parameters such as the orthogonality factor. Also, part of a team that developed a WCDMA downlink simulator
- Developed a new COST259 system-level MIMO channel model simulation engine

Visiting Graduate Student Researcher, Stanford University, CA, USA 1999-2000

- Pursued research on packet reservation multiple access and link adaptation in 2.5G (EDGE) cellular systems as part of PhD thesis work

Distinctions and Awards

- J. C. Bose Fellow 2024-28
- Fellowships:
  - Indian Academy of Sciences (IASc) 2024
  - Indian National Science Academy (INSA) 2020
  - Institute of Electrical and Electronics Engineers (IEEE) 2019
  - Indian National Academy of Engineers (INAE) 2015
  - National Academy of Sciences India (NASI) 2013

- Recipient of Qualcomm Innovation Fellowship (QInF) in the superwinner category: With student S. Arthi 2025-26
- Recipient of c for Scientific Research 2022
- Recipient of IISc's Alumni Award for Excellence in Research 2021
- Recipient of the Khosla National Award in Engineering of IIT Roorkee 2019
- Recipient of Qualcomm Innovation Fellowship (QInF): With student S. Arthi 2024-25
- Recipient of Qualcomm Innovation Fellowship (QInF): With student Vineeth Kumar 2018-19
- Recipient of Qualcomm Innovation Fellowship (QInF): With student Reneeta Isaac 2017-18
- Recipient of the Shanti Swarup Bhatnagar Award in Engineering Sciences 2017
- Recipient of the biennial Hari Om Ashram Prerit Vikram Sarabhai Research Award in Electronics, Informatics, Telematics, and Automation & System Analysis or Management, awarded by the Physical Research Laboratories, Ahmedabad, India 2015
- Recipient of Swarnajayanti Fellowship, awarded every year by the Dept. of Science and Technology (DST), Govt. of India, to 12 scientists of age 40 years or less 2016-21
- Recipient of the NASI-Scopus Young Scientist Award 2014
- Recipient of Indian National Academy of Engineering (INAE) Young Engineer Award 2010
- Received Certificate of Appreciation for "*Outstanding Contributions to Global Standardization Activities on Mobile Communication Technologies"* given by Corporate R&D, Mitsubishi Electric Corporation 2007

Other Distinctions and Awards

- Featured Engineer on EETimes.com May 2016
- Co-author of several papers that were among the most accessed papers in IEEEXplore in IEEE Wireless Communications Letters in Apr. 2015 ([J40]), IEEE Transactions on Wireless Communications in Jan. 2015 ([J45]), Sept./Oct. 2014 ([J47]), Apr. 2011 ([J75]), Sept. 2010 ([J78]), and Apr. 2010 ([J81]), and IEEE Transactions on Communications in Aug. 2013 ([J59])
- Co-author of paper ([C67]) that received the best paper award in Communications Track in National Conf. on Communications (NCC), Chennai, India, Jan. 2010
- Co-author of an IEEE Transactions on Wireless Communications paper ([J88]) that was one among the most accessed papers in all of IEEE Xplore Aug. & Sept. 2008
- One of 36 recipients in entire Asia-Pacific region of *AT&T World Leadership* Award 1996
- Awarded the Philips India prize for best undergraduate academic performance in Electronics and Communications Eng., Indian Institute of Technology (IIT), Madras 1996
- Awarded *Institute Merit Prize* for outstanding academic achievements for two consecutive years at the Indian Institute of Technology (IIT), Madras 1995-96
- Secured 17th all India rank (out of 100,000 applicants) in the prestigious joint entrance examination (JEE) for the Indian Institutes of Technology (IIT), 2nd rank (out of 40,000 candidates) in AP state engineering entrance exam (EAMCET), and 1st position in state-level mathematics Olympiad 1991-92
- Recipient of National Talent Search (NTSE) and National Science Talent Scholarships (NSTS) awarded to a select few students within India every year 1992-96

Professional Service of Note

Editorships

- Springer Series of Textbooks in Telecommunication and Network Engineering Since 2024
- IEEE Transactions on Systems, Man and Cybernetics: Systems Since 2022
- Guest Editor of a new feature topic on "Telecommunication and Network Engineering Education" in IEEE Communications Magazine 2019
- IEEE Transactions on Communications 2013-2019
- IEEE Wireless Communications Letters 2011-16
- IEEE Transactions on Wireless Communications 2008-11
- Sadhana - Academy Proceedings in Engineering Sciences (journal of the Indian Academy of Sciences) 2013-16
- Journal of Communications and Networking (JCN) in the Personal Communications Systems area 2012-13
- Guest editor of Journal of Communication Networks (JCN) special issue on energy harvesting in wireless networks 2011
- Guest editor of Journal of Communications (JCM) special issue on Practical Physical Layer Techniques for 4G Systems & Beyond 2011

International Service

- Member-at-Large of IEEE ComSoc's Information Technology committee Since 2025
- Member of IEEE ComSoc Fellow search committee Since 2024
- Member of the committee for selecting the Editor-in-Chief of IEEE Wireless Communications Letters 2023
- Member of IEEE ComSoc Nominations and Elections standing committee 2022-24
    - Member Secretary 2022-23
    - Committee responsible for identifying candidates to fill elected society offices, and development of election policies and implementation and supervision of election procedures
- Co-chair of the Membership Development Committee of the Asia-Pacific Board of IEEE ComSoc Since 2023
- Chair of the 4-member Steering Committee that oversees the IEEE Transactions on Wireless Communications 2021-22
- Co-chair of Meetings and Conference Committee (MCC) of the Asia Pacific Board of IEEE ComSoc 2020-21
- Member of Awards Committees for Asia-Pacific Board of IEEE ComSoc 2020-22
- Member of the 4-member Steering Committee that oversees the IEEE Transactions on Wireless Communications 2019-22
- Member of the IEEE ComSoc Awards Committee 2018-20
- Co-chair of the Membership Development Committee of the Asia-Pacific Board of IEEE ComSoc 2018-19
- Chair of the Executive Editorial Committee of the IEEE Transactions on Wireless Communications 2017-18
- Executive Editor of IEEE Transactions on Wireless Communications 2014-17
- Member-at-Large on the Board of Governors of the IEEE Communications Society 2014-15
- Member of IEEE ComSoc's statutory Education and Training Board 2014-19
- Member of IEEE ComSoc's Marketing and Industry Relations Committee 2014-19
- Director of Conference Publications on the Board of Governors of the IEEE Communications Society (first Indian to serve on the Board in its 60-year history) 2012-13

- Member of best paper awards committees of:
  - IEEE ICC 2017 (Paris, France)
  - IEEE ICC 2016 (Kuala Lumpur, Malaysia)
  - IEEE Globecom 2014 (Austin, TX, USA)

Indian Service

- Member of Sectional Committee V (Engineering and Technology) of Indian National Science Academy (INSA) 2022-24
- Member of 6G Task Force, Govt. of India 2022
- Core Member of the Program Advisory Committee (PAC) in Electrical, Electronics & Computer Eng., Science and Engineering Research Board (SERB), Govt. of India Since 2018
- Member of INAE Bangalore Chapter Executive Committee [Treasurer] 2021-23
- Chair of the Joint Telematics Group (JTG), which consists of several IITs and IISc, and coordinates the National Conference on Communications and summer schools 2017-22
- Member of CSIR Domain Expert Group Nov. 2021
- Executive committee member of IEEE Bangalore Section, India 2010-12
- Executive committee member of IEEE Signal Processing Society, Bangalore 2008-2020

Conference Organization: Co-chairing of Program Committees

- IEEE Future Networks World Forum, Bangalore, India, Nov. 2025 [Symposium chair]
- IEEE International Conference on Acoustics, Speech, and Signal Processing, Hyderabad, India, Apr. 2025 [TPC co-chair]
- IEEE Global Communications Conference (Globecom), Cape Town, South Africa, Dec. 2024 [Co-chair of Communication theory symposium]
- IEEE International Conference on Communications (ICC), Rome, Italy, May 2023 [Tutorials co-chair]
- International Conference on Communication Systems & Networks (COMSNETS), Bangalore, India, Jan. 2023 [General co-chair]
- IEEE Vehicular Technology Conference (Fall), Honolulu, USA, Sept. 2019 [Co-chair of Signal transmission and reception track]
- National Conference on Communications (NCC), Bangalore, Feb. 2019 [General co-chair]
- IEEE Global Communications Conference (Globecom), Abu Dhabi, Dec. 2018 [Lead co-chair for Communication theory symposium]
- International Conference on Signal Processing and Communications (SPCOM), IISc, Bangalore, India, Jul. 2018 [TPC co-chair]
- IEEE Vehicular Technology Conference (VTC)-Fall, Vancouver, Canada, Sept. 2014 [Co-chair of Green communications track]
- International Conference on Signal Processing and Communications (SPCOM), Bangalore, Jun. 2014 [Treasurer]
- International Conference on Communication Systems & Networks (COMSNETS), Bangalore, Jan. 2014 [TPC co-chair]
- IEEE Global Communications Conference (Globecom), Atlanta, USA, Dec. 2013 [Co-chair of Green communication systems and networks track]
- IEEE International Conference on Communications (ICC), Budapest, Hungary, Jun. 2013 [Co-chair of Wireless communications symposium]

- International Conference on Signal Processing and Communications (SPCOM), Bangalore, India, Jul. 2012 [Publications]
- Green Telecom and IT workshop, jointly organized by IISc and Bell Labs, Apr. 2012
- International Center for Theoretical Sciences (ICTS) School and Workshop on Network Science in Electrical Engineering and Computer Science, IISc, Jan. 2012 [Local organizing committee]
- IISc Mathematics Initiative (IMI) Workshop on Introduction to Network Science, Bangalore, India, Aug. 2011 [Local organizing committee]
- National Conference on Communications (NCC), Bangalore, India, Jan. 2011 [Communications track co-chair and Publications chair]
- Wireless Systems: Advanced Research and Development (WISARD) workshop of COMSNETS 2011, Bangalore, India, Jan. 2011 [Co-chair]
- International Conference on Signal Processing and Communications (SPCOM), IISc, Bangalore, India, Jul. 2010 [Tutorials co-chair]
- Wireless Systems: Advanced Research and Development (WISARD) workshop of COMSNETS 2010, Bangalore, India, Jan. 2010 [Co-chair]
- IEEE Vehicular Technology Conference (VTC-Fall), Anchorage, USA, Sept. 2009 [Co-chair of Transmission technologies track]
- Chinacom, Huangzhou, China, Aug. 2008 [Co-chair of Frontiers of networking and communications symposium]

Journal Publications

[J1] S. Arthi, Neelesh B. Mehta, Chandramani Singh, "Hybrid Access MAC Protocol in Wi-Fi: Analysis and Optimal Resource Allocation Policy Design," *To appear in IEEE Transactions on Mobile Computing*, 2025.

[J2] Ashok Reddy Chavva, Neelesh B. Mehta, "Latent Thompson Sampling-Based mmWave Receive Beam Measurement and Selection to Tackle User Orientation Changes and Mobility," *To appear in IEEE Transactions on Wireless Communications*, 2025, doi: 10.1109/TWC.2025.3575718.

[J3] S. Sruthy, Neelesh B. Mehta, "Fairness-Aware Optimal Power and Discrete Rate Adaptation for K-user NOMA with Imperfect SIC and Adaptive Decoding Order," *IEEE Transactions on Vehicular Technology*, vol. 74, no. 10, pp. 16104-16120, Oct. 2025, doi: 10.1109/TVT.2025.3572279.

[J4] T. V. S. Sreedhar, Neelesh B. Mehta, "INI and ICI in Mixed-Numerology MIMO-OFDM Systems in Spatially Correlated Time-Varying Wideband Channels: Analysis and Mitigation," *To appear in IEEE Transactions on Wireless Communications*, 2025, doi: 10.1109/TWC.2025.3575614.

[J5] Sayantan Adhikary, Neelesh B. Mehta, "Energy-Efficient Distributed Detection through Feedback-Assisted Ordered Transmissions in the Presence of Fading and Quantization," *IEEE Transactions on Communications*, Vol. 73, No. 7, pp. 5264-5278, Jul. 2025, doi: 10.1109/TCOMM.2024.3516482.

[J6] Sriram Ganesan, Neelesh B. Mehta, R. Sarvendranath, "Codebook-Based IRS System: Impact of Channel Estimation Errors and Pilot Power Adaptation on Codeword Selection and Data Rate," *IEEE Transactions on Wireless Communications,* Vol. 23, No. 12, Dec. 2024, pp. 19902–19915, doi: 10.1109/TWC.2024.3488189.

[J7] Vinay U. Pai, Neelesh B. Mehta, Chandramani Singh, "Novel Insights from a Cross-Layer Analysis of TCP and UDP Traffic over Full-Duplex WLANs," *IEEE Transactions on Mobile Computing*, Vol. 24, No. 4, Apr. 2024, pp. 3288–3301, doi: 10.1109/TMC.2024.3510099.

[J8] Prasoon Raghuwanshi, Onel Luis Alcaraz Lopez, Neelesh B. Mehta, Hirley Alves, Matti Latva-aho, "Neural Network-Based Bandit: A Medium Access Control for the IIoT Alarm Scenario," *IEEE Open Journal of the Communications Society*, Vol. 5, 2024, pp. 7511–7524, doi: 10.1109/OJCOMS.2024.3506033.

[J9] Suji Naduvilpattu, Neelesh B. Mehta, "Optimal Time and Power Allocation for Phase-Shift Configuration and Downlink Channel Estimation in RIS-Aided Systems," *IEEE Transactions on Wireless Communications*, Vol. 23, No. 8, Aug. 2024, pp. 9419–9431, doi: 10.1109/TWC.2024.3362383.

[J10] S. Sruthy, Neelesh B. Mehta, "Power and Discrete Rate Adaptation in Wideband NOMA in Frequency-Selective Channels," *IEEE Transactions on Wireless Communications*, Vol. 23, No. 5, May 2024, pp. 4186–4198, doi: 10.1109/TWC.2023.3315709.

[J11] T. V. S. Sreedhar, Neelesh B. Mehta, "Inter-Numerology Interference in Mixed Numerology OFDM Systems in Time-Varying Fading Channels with Phase Noise," *IEEE Transactions on Wireless Communications*, Vol. 22, No. 8, Aug. 2023, pp. 5473–5485, doi: 10.1109/TWC.2023.3234363.

[J12] Govindu Sai Kesava, Neelesh B. Mehta, "Multi-Connectivity for URLLC and Coexistence with eMBB in Time-Varying and Frequency-Selective Fading Channels," *IEEE Transactions on Wireless Communications*, Vol. 22, No. 6, Jun. 2023, pp. 3599–3611, doi: 10.1109/TWC.2022.3219730.

[J13] T. V. S. Sreedhar, Neelesh B. Mehta, "Refined Bounds for Inter-Carrier Interference in OFDM due to Time-Varying Channels and Phase Noise," *IEEE Wireless Communication Letters*, Vol. 11, No. 12, Dec. 2022, pp. 2522–2526, doi: 10.1109/TWC.2022.3207322.

[J14] Suji Naduvilpattu, Neelesh B. Mehta, "Optimal Energy-Efficient Antenna Selection and Power Adaptation for Interference-Outage Constrained Underlay Spectrum Sharing," *IEEE Transactions on Communications*, Vol. 70, No. 9, Sept. 2022, pp. 6341–6354, doi: 10.1109/TCOMM.2022.3188836.

[J15] Bala Venkata Ramulu Gorantla, Neelesh B. Mehta, "Interplay Between Interference-Aware Resource Allocation Algorithm Design, CSI, and Feedback in Underlay D2D Networks," *IEEE Transactions on Wireless Communications*, Vol. 21, No. 5, May 2022, pp. 3452–3463, doi: 10.1109/TWC.2021.3121874.

[J16] Ashok Kumar Reddy Chavva, Neelesh B. Mehta, "Millimeter-Wave Beam Selection in Time-Varying Channels with User Orientation Changes," *IEEE Transactions on Wireless Communications*, Vol. 20, No. 11, Nov. 2021, pp. 6987–7000, doi: 10.1109/TWC.2021.3079355.

[J17] R. Sarvendranath, Neelesh B. Mehta, "Statistical CSI Driven Transmit Antenna Selection and Power Adaptation in Underlay Spectrum Sharing Systems," *IEEE Transactions on Communications*, Vol. 69, No. 5, May 2021, pp. 2923–2934, doi: 10.1109/TCOMM.2021.3057871.

[J18] Rama Kiran, Neelesh B. Mehta, "User-Pair Scheduling and Mode Selection in Asymmetric Full-Duplex Systems with Limited Feedback: Algorithm and Scaling Laws," *IEEE Transactions on Wireless Communications*, Vol. 20, No. 5, May 2021, pp. 2863–2875, doi: 10.1109/TWC.2020.3044919.

[J19] Vineeth Kumar, Neelesh B. Mehta, "Exploiting Correlation with Wideband CQI and Making Differential Feedback Overhead Flexible in 4G/5G OFDM Systems," *IEEE Transactions on Wireless Communications*, Vol. 20, No. 4, Apr. 2021, pp. 2579–2591, doi: 10.1109/TWC.2020.3043299.

[J20] Sayan Sen Gupta, Neelesh B. Mehta, "Ordered Transmissions Schemes for Detection in Spatially Correlated Wireless Sensor Networks," *IEEE Transactions on Communications*, Vol. 69, No. 3, Mar. 2021, pp. 1565–1577, doi: 10.1109/TCOMM.2020.3047087.

[J21] Sayan Sen Gupta, Saikiran Pallapothu, Neelesh B. Mehta, "Ordered Transmissions for Energy-Efficient Detection in Energy Harvesting Wireless Sensor Networks," *IEEE Transactions on Communications*, Vol. 68, No. 4, Apr. 2020, pp. 2525–2537, doi: 10.1109/TCOMM.2020.2964545.

[J22] R. Sarvendranath, Neelesh B. Mehta, "Exploiting Power Adaptation with Transmit Antenna Selection for Interference-Outage Constrained Underlay Spectrum Sharing," *IEEE Transactions on Communications*, Vol. 68, No. 1, Jan. 2020, pp. 480–492, doi: 10.1109/TCOMM.2019.2950680.

[J23] Rama Kiran, Neelesh B. Mehta, Jestin Thomas, "Design and Network Topology-Specific Renewal-Theoretic Analysis of a MAC Protocol for Asymmetric Full-Duplex WLANs," *IEEE Transactions on Communications*, Vol. 67, No. 12, Dec. 2019, pp. 8532–8544, doi: 10.1109/TCOMM.2019.2944907.

[J24] Bala Venkata Ramulu Gorantla, Neelesh B. Mehta, "Resource and Computationally Efficient Subchannel Allocation for D2D in Multi-Cell Scenarios with Partial and Asymmetric CSI," *IEEE Transactions on Wireless Communications*, Vol. 18, No. 12, Dec. 2019, pp. 5806–5817, doi: 10.1109/TWC.2019.2939131.

[J25] Vineeth Kumar, Neelesh B. Mehta, "Modeling and Analysis of Differential CQI Feedback in 4G/5G OFDM Cellular Systems," *IEEE Transactions on Wireless Communications*, Vol. 18, No. 4, Apr. 2019, pp. 2361–2373, doi: 10.1109/TWC.2019.2903047.

[J26] Sayan Sen Gupta, Neelesh B. Mehta, "Revisiting Effectiveness of Energy Conserving Opportunistic Transmission Schemes in Energy Harvesting Wireless Sensor Networks," *IEEE Transactions on Communications*, Vol. 67, No. 4, Apr. 2019, pp. 2968–2980, doi: 10.1109/TCOMM.2018.2889331.

[J27] Reneeta Sara Isaac, Neelesh B. Mehta, "Efficient Computation of Multivariate Rayleigh and Exponential Distributions," *IEEE Wireless Communications Letters,* Vol. 8, No. 2, Apr. 2019, pp. 456–459, doi: 10.1109/LWC.2018.2875999.

[J28] R. Sarvendranath, Neelesh B. Mehta, "Impact of Multiple Primaries and Partial CSI on Transmit Antenna Selection for Interference-Outage Constrained Underlay CR," *IEEE Transactions on Wireless Communications*, Vol. 18, No. 2, Feb. 2019, pp. 942–953, doi: 10.1109/TWC.2018.2886889.

[J29] R. Sarvendranath, Neelesh B. Mehta, "Transmit Antenna Selection for Interference-Outage Constrained Underlay CR," *IEEE Transactions on Communications*, Vol. 66, No. 9, Sep. 2018, pp. 3772–3783, doi: 10.1109/TCOMM.2018.2831662.

[J30] Reneeta Sara Isaac, Neelesh B. Mehta, "A Correlation-aware Splitting Algorithm for Opportunistic Selection," *IEEE Transactions on Communications*, Vol. 66, No. 3, Mar. 2018, pp. 1250–1261, doi: 10.1109/TCOMM.2017.2772266.

[J31] Sai Kiran Bulusu, Neelesh B. Mehta, Suresh Kalyanasundaram, "Rate Adaptation, Scheduling, and Mode Selection in D2D Systems with Partial Channel Knowledge," *IEEE Transactions on Wireless Communications*, Vol. 17, No. 2, Feb. 2018, pp. 1053–1065, doi: 10.1109/TWC.2017.2773616.

[J32] Priyanka Das, Neelesh B, Mehta, "Rate-Optimal Relay Selection for Average Interference-Constrained Underlay CR," *IEEE Transactions on Communications*, Vol. 65, No. 12, Dec. 2017, pp. 5137–5148, doi: 10.1109/TCOMM.2017.2740209.

[J33] Vineeth Kumar, Neelesh B. Mehta, "Base Station-Side Rate Estimation for Threshold-Based Feedback, and Design Implications in Multi-User OFDM Systems," *IEEE Transactions on Wireless Communications*, Vol. 16, No. 11, Nov. 2017, pp. 7634–7645, doi: 10.1109/TWC.2017.2752154.

[J34] Vikas Kumar Dewangan, Neelesh B. Mehta, "Revisiting and Optimizing the Design of the Timer-Based Distributed Selection Scheme for Tackling Imperfect Power Control," *IEEE Transactions on Wireless Communications*, Vol. 16, No. 11, Nov. 2017, pp. 7646–7657, doi: 10.1109/TWC.2017.2752157.

[J35] Jobin Francis, Neelesh B. Mehta, "Throughput-Optimal Scheduling and Rate Adaptation for Reduced Feedback Best-M Scheme in OFDM Systems," *IEEE Transactions on Communications*, Vol. 65, No. 7, Jul. 2017, pp. 3053–3065, doi: 10.1109/TCOMM.2017.2686866.

[J36] Amit K. Dutta, K. V. S. Hari, Chandra R. Murthy, Neelesh B. Mehta, and Lajos Hanzo, "Minimum Error Probability MIMO-Aided Relaying: Multihop, Parallel, and Cognitive

Designs," *IEEE Transactions on Vehicular Technology*, Vol. 66, No. 6, Jun. 2017, pp. 5435–5440, doi: 10.1109/TVT.2016.2614901.

[J37] Jobin Francis, Neelesh B. Mehta, S. N. Ananya, "Best-M Feedback in OFDM: Base-Station-Side Estimation and System Implications," *IEEE Transactions on Wireless Communications*, Vol. 15, No. 5, May 2016, pp. 3616–3227, doi: 10.1109/TWC.2016.2523990.

[J38] Priyanka Das, Neelesh B, Mehta, "Direct Link-Aware Optimal Relay Selection and a Low Feedback Variant for Underlay CR," *IEEE Transactions on Communications*, Vol. 64, No. 6, Jun. 2015, pp. 2044–2055, doi: 10.1109/TCOMM.2015.2432026.

[J39] Shilpa Rao, Neelesh B. Mehta, "Energy Harvesting WSNs for Accurately Estimating the Maximum Sensor Reading: Trade-offs and Optimal Design," *IEEE Transactions on Wireless Communications*, Vol. 14, No. 8, Aug. 2015, pp. 4562–4573, doi: 10.1109/TWC.2015.2422811.

[J40] Priyanka Das, Neelesh B. Mehta, Gagandeep Singh, "Novel Relay Selection Rules for Average Interference-Constrained Cognitive AF Relay Networks," *IEEE Transactions on Wireless Communications*, Vol. 14, No. 8, Aug. 2015, pp. 4304–4315, doi: 10.1109/TWC.2015.2419221.

[J41] Salil Kashyap, Neelesh B. Mehta, "Power Gain Estimation and Its Impact on Binary Power Control in Underlay Cognitive Radio," *IEEE Wireless Communications Letters*, Vol. 4, No. 2, Apr. 2015, pp. 193–196, doi: 10.1109/LWC.2015.2394496.

[J42] S. N. Ananya, Neelesh B. Mehta, "Performance of OFDM Systems with Best-m Feedback, Scheduling, and Delays for Uniformly Correlated Subchannels," *IEEE Transactions on Wireless Communications*, Vol. 14, No. 4, Apr. 2015, pp. 1983–1993, doi: 10.1109/TWC.2014.2378279.

[J43] Arjun Anand, Neelesh B. Mehta, "Quick, Decentralized, Energy-Efficient One-Shot Max Function Computation Using Timer-Based Selection," *IEEE Transactions on Communications*, Vol. 63, No. 3, Mar. 2015, pp. 927–937, doi: 10.1109/TCOMM.2014.2386330.

[J44] Vikas Kumar Dewangan, Neelesh B. Mehta, "Timer-Based Distributed Node Selection Scheme Exploiting Power Control and Capture," *IEEE Transactions on Wireless Communications*, Vol. 14, No. 3, Mar. 2015, pp. 1457–1467, doi: 10.1109/TWC.2014.2367018.

[J45] Jobin Francis, Neelesh B. Mehta, "Characterizing the Impact of Feedback Delays on Wideband Rate Adaptation," *IEEE Transactions on Wireless Communications*, Vol. 14, No. 2, Feb. 2015, pp. 960–971, doi: 10.1109/TWC.2014.2363083.

[J46] Parag S. Khairnar, Neelesh B. Mehta, "Discrete-Rate Adaptation and Selection in Energy Harvesting Wireless Systems," *IEEE Transactions on Wireless Communications*, Vol. 14, No. 1, Jan. 2015, pp. 219–229, doi: 10.1109/TWC.2014.2337296.

[J47] Salil Kashyap, Neelesh B. Mehta, "Optimal Binary Power Control for Underlay CR with Different Interference Constraints and Impact of Channel Estimation Errors," *IEEE*

Transactions on Communications, Vol. 62, No. 11, Nov. 2014, pp. 3753–3764, doi: 10.1109/TCOMM.2014.2363179.

[J48] Shilpa Rao, Neelesh B. Mehta, "Hybrid Energy Harvesting Wireless Systems: Performance Evaluation and Benchmarking," *IEEE Transactions on Wireless Communications*, Vol. 13, No. 9, Sept. 2014, pp. 4782–4793, doi: 10.1109/TWC.2014.2331978.

[J49] B. Sainath, Neelesh B. Mehta, "Interference-Constrained Optimal Power-Adaptive Amplify-and-Forward Relaying and Selection for Underlay Cognitive Radios," *IEEE Transactions on Communications*, Vol. 62, No. 8, Aug. 2014, pp. 2709–2720, doi: 10.1109/TCOMM.2014.2337901.

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Patents

Co-inventor of 30+ patents on novel MIMO technologies, low hardware complexity antenna selection and enabling methods, cooperative communication techniques, sensor networks, and interference modeling methods for cellular and ad hoc networks

Patents Filed in India PTO

[IP1] *Method to enhance measurement and reporting in cellular system,* Priyanka Dey, Deepak *Padmanabhan* Mayakumari, Chandra Murthy, Yashvanth L, Neelesh B Mehta, Jeniston Deviraj, Klutto Milleth, Bhaskar Ramamurthi, Application number: 202341076641, Nov. 9, 2023.

Patents Granted in India PTO

[IP1] *Energy-efficient and fast controlled descent for over-the-air assisted federated learning,* Sayantan Adhikary, Neelesh B. Mehta, Application number 202341081598, Patent number 572389, Granted on Oct. 22, 2025.

[IP2] *Method and system for enabling non-orthogonal multiple access (NOMA) communication in a wideband communication system*, Sruthy S., Neelesh B. Mehta, Application number 202341035752, Patent number 546310, Granted on Jul. 29, 2024.

Patents Filed in US PTO

[P1] *Method for online-learning-based mmWave receive beam subset measurement to address user orientation changes and mobility,* A. K. R. Chavva and N. B. Mehta, Provisional filing, Application number: 202441096108, Dec. 5, 2024.

[P2] *Method to enhance measurement and reporting in cellular system,* Priyanka Dey, Deepak *Padmanabhan* Mayakumari, Chandra Murthy, Yashvanth L, Neelesh B Mehta, Jeniston

Deviraj, Klutto Milleth, Bhaskar Ramamurthi, Application number: 202341076641, Nov. 8, 2024.

Patents Granted in US PTO

[P3] *Method and apparatus for selecting beam pairs in a beamforming based communication system*, Ashok Kumar Reddy Chavva, Neelesh B. Mehta, Shubham Khunteta, Sripada Kadambar, Anirudh Reddy Godala, Chaiman Lim, US patent number 12119914-B2.

[P4] *Transmit power scaling method and system to detect occurrences using geographically distributed sensors,* Neelesh B. Mehta, US patent numbers 9749716, 9118980.

[P5] *Antenna selection with frequency-hopped sounding reference signals*, Neelesh Mehta, Koon Hoo Teo, Jinyun Zhang, US patent numbers 9337890, 9025471, 8842554, 8238405.

[P6] *Queued cooperative wireless networks configuration using rateless codes*, Neelesh B. Mehta; Vinod Sharma; Gaurav Bansal, US patent numbers 9083420, 8432848.

[P7] *Antenna selection with frequency-hopped sounding reference signals*, Neelesh B. Mehta, Koon Hoo Teo, Jinyun Zhang, Gennadiy V. Vinokur, Man-On Pun, US patent number 8913551.

[P8] *Method and system for generating antenna selection signals in OFDM tranceivers with fewer RF chains than antennas in MIMO wireless networks*, Neelesh B. Mehta, Erdem Bala, Jinyun Zhang, US patent number 8824420.

[P9] *Methods and systems for real-time monitoring of environments*, Neelesh B. Mehta, US patent number 8823544.

[P10] *Method and system for generating antenna selection signals in wireless networks,* Koon Hoo Teo, Neelesh B. Mehta, Jinyun Zhang, US patent numbers 8483186, 8331297, 8228858, 8,223723.

[P11] *Wireless networks incorporating antenna selection based on received sounding reference signals*, Koon Teo, Neelesh B. Mehta, Jia Tang, US patent number 8086272.

[P12] *Wireless networks incorporating implicit antenna selection based on received sounding reference signals*, Koon Teo, Neelesh B. Mehta, Jia Tang, US patent number 8055301.

[P13] *Multiple power-multiple access in wireless networks for interference cancellation*, Andreas F. Molisch, Raymond Yim, Neelesh B. Mehta, US patent number 8054776.

[P14] *Method for selecting antennas in a wireless networks*, Koon Teo, Neelesh B. Mehta, Andreas F. Molisch, US patent number 8046029.

[P15] *Method and system for processing reference signals in OFDM systems using transmission time interval groupings*, Shengjie Zhao, Hanqing Lou, Neelesh B. Mehta, Jinyun Zhang, US patent number 7912115.

[P16] *Multiple access by varying received power in wireless networks*, Neelesh B. Mehta, Andreas F. Molisch, Raymond Yim, US patent number 7778659.

[P17] *Asymmetric cooperation in downlink cellular networks with relay stations*, Natasha Devroye, Neelesh B. Mehta; Andreas F. Molisch, US patent number 7778598.

[P18] *Method and system for selecting antennas adaptively in OFDMA networks*, Zhifeng Tao, Chun Nie, Neelesh B. Mehta, Andreas F. Molisch, Jinyun Zhang, US patent number 7756099.

[P19] *Decentralized and dynamic route selection in cooperative relay networks,* Neelesh B. Mehta, Ritesh Madan, Andreas F. Molisch, Jinyun Zhang, US patent number 7706283.

[P20] *Method and system for switching antennas during transmission time intervals in OFDMA systems*, Neelesh B. Mehta, Erdem Bala, Jinyun Zhang, US patent number 7697623.

[P21] *Method and system for communicating in cooperative relay networks*, Neelesh B. Mehta, Ritesh Madan, Andreas F. Molisch, Jinyun Zhang, US patent number 7684337.

[P22] *Cooperative relay networks using rateless codes*, Andreas F. Molisch, Neelesh B. Mehta, Jonathan Yedidia, Jinyun Zhang, US patent number 7673219.

[P23] *Route selection in cooperative relay networks,* Andreas F. Molisch, Neelesh B. Mehta, Jonathan Yedidia, Zhifeng Tao, Zafer Sahinoglu, Philip Orlik, Jin Zhang, US patent number 7593342.

[P24] *Method and system for antenna selection in wireless networks,* Neelesh B. Mehta, Erdem Bala, Jinyun Zhang, Andreas F. Molisch, US patent number 7583939.

[P25] *Space time transmit diversity with subgroup rate control and subgroup antenna selection in multi-input multi-output communications systems*, Neelesh B. Mehta, Pallav Sudarshan, Andreas F. Molisch, Jinyun Zhang, US patent number 7542446.

[P26] *System and method for transmitting signals in cooperative base station multi-user MIMO networks,* Neelesh B. Mehta, Hongyuan Zhang, Andreas F. Molisch, Jinyun Zhang, US patent number 7526036.

[P27] *Pilot and data signals for MIMO systems using channel statistics,* Neelesh B. Mehta, Fadel F. Digham, Andreas F. Molisch, Jinyun Zhang, US patent number 7443925.

[P28] *RF-based antenna selection in MIMO systems*, Neelesh B. Mehta, Pallav Sudarshan, Andreas F. Molisch, Jin Zhang, US patent number 7327983.

[P29] *Method for representing a combination of signals with a distribution of a single lognormal random variable*, Neelesh B. Mehta, Andreas F. Molisch, Jingxian Wu, Jin Zhang, US patent number 7280942.

[P30] *Multiple antennas at transmitters and receivers to achieving higher diversity and data rates in MIMO systems*, Neelesh B. Mehta, Pallav Sudarshan, Andreas F. Molisch, Jin Zhang, US patent number 7020446.

Wireless Standards Experience

- Active participant and contributor to physical layer discussions in RAN working group 1 of third generation partnership project (3GPP) standard. Participated in discussions for HSUPA, LTE, LTE-Advanced, and 5G NR. Developed technology that led to essential IP
- Research and publications on topics in IEEE 802.11n (wireless local area network) and IEEE 802.16m (Advanced WiMAX)

Teaching Experience

- *Next Generation Wireless Systems: Design and Analysis (IISc)* 2010-22
  Digital communication over fading channels; Adaptation; Multi-user systems; Long Term Evolution (LTE) standard overview; Comparison with WiMAX; Cooperative communications and relays: Relation to multi-antenna techniques, Cognitive radio
- *Wireless Communications (IISc)* Since 2008
  Wireless channel modeling, diversity techniques, multiple access and interference, cellular mobile radio systems, capacity of wireless channels, multi-user diversity, MIMO – channel models, diversity, spatial multiplexing, capacity and architectures, OFDM
- *Digital Communications (IISc)* 2009, 2010, 2017, 2022 onwards
  Representation of signals and systems, digital modulation techniques and performance, optimum receiver structures, signal design for band-limited channels, coding and coded modulation techniques – capacity approaching schemes, ISI and equalization, digital communication over fading channels
- *Teaching Assistant* at Caltech for undergraduate and graduate courses on 1996-98
  - Linear systems
  - Wireless communications

Keynotes, Tutorials, and Invited Talks

Keynote/Plenary Talks

- "Paradigms for Estimating RIS Configuration: An Achievable Rate Perspective," in CEFIPRA-sponsored workshop on "6G Wireless Networks: Challenges and Opportunities" at INRIA Saclay Center, Paris, France, Oct. 2024
- "Channel Estimation in 6G RIS-Aided Systems," in IEEE BHARAT 6G SUMMIT, IIIT Bangalore, Aug. 2024
- "Implications of Full-Duplex Capability on Next-Generation Wireless Systems," in CLEF: Cloud, Edge, and Fog for Smart Industries workshop co-located with IEEE/ACM International Symposium on Cluster, Cloud and Internet Computing (CCGrid 2023), May 2023
- "A Perspective on Capabilities of Full-Duplex Communications in 6G," in Forum M: Multilateral Collaboration on 6G Research in AP Region, 2023 Global 6G Conference, Mar. 2023
- "Coexistence of Heterogeneous Applications in 5G: A Physical Layer Perspective," in International Workshop on 5G and Beyond Wireless Communication - Application to Positioning and Precision Technologies, IIT Tirupati, Mar. 2023
- "The Role of Link Quality Metrics in Cellular System Design, Analysis, and Simulations," in National Conference on Communications, IIT Guwahati, Feb. 2023

- "Interference-Aware Design in 5G and Beyond Cellular Communication Systems," in CALCON, Dec. 2022
- "Full-Duplex Communications for Next Generation Cellular and Wireless Local Area Networks," in 2nd International Conference on Advanced Communication Technologies and Signal Processing [Virtual], NIT Rourkela, Dec. 2021
- "Rate Adaptation and Scheduling in 4G/5G: How to Make Do with Reduced Feedback?" in IEEE ComSoc 5G Summit, Bangalore, Aug. 2019
- "Reduced Feedback Schemes and Base Station-Side Estimation Techniques for 4G/5G Cellular Systems," in HyWIT workshop, IIT Hyderabad, Sep. 2018
- "Energy Harvesting Wireless Networks: Promises and Challenges," in Conference on Information and Communication Technology (CICT), IIIT Gwalior, Gwalior, Nov. 2017
- "Max Function Computation in Green Energy Harvesting Wireless Sensor Networks," in International Workshop on Green and Energy Efficient Networks (GREEN), WiOpt, Mumbai, May 2015
- "Opportunism in Current & Next Generation Wireless Communication Systems" in IEEE 8th International Conference on Industrial and Information Systems (ICIIS), Kandy, Sri Lanka, Dec. 2013

Tutorials

- "Rate Adaptation and Scheduling in Wideband Cellular Communication Systems," at Conference on Information and Communication Technology (CICT), IIIT Gwalior, Nov. 2017
- "Energy Harvesting Wireless Communication Systems," at National Conf. on Communications, Kanpur, Mar. 2014 (jointly with Chandra R. Murthy)
- "Cooperative Communication Systems: Theory and Practice," at IIIT Hyderabad organized by IEEE Communications/Signal Processing Chapters, Sep. 2010
- "Cooperative Communications: Theory and Practice," at SPCOM 2010, Bangalore, Jul. 2010 (jointly with P. Vijay Kumar)
- "Cooperative Communications," in DRDO-IISc workshop on advances in communications and networking, IISc, Bangalore, Apr. 2008

Lectures and Invited Talks in India

- "Next-generation WiFi," INAE Engineers Conclave, IIT Kanpur, Oct. 2025.
- "Channel Estimation Paradigms in Wireless Systems Aided by Reconfigurable Intelligent Surfaces," Workshop on Reconfigurable Intelligent Surfaces for 6G, Visvesvaraya National Institute of Technology (VNIT), Nagpur, Mar. 2025.
- "Cross-Layer Implications of Full-duplex Capability on Next-Generation WiFi," Paradigms for Beyond 5G Communication, IIT Gandhinagar, Mar. 2025.
- "Pursuing Higher Studies in ECE and a Glimpse into Research," IIIT Surat, Feb. 2025.
- "Channel Estimation in IRS-Aided Systems," Workshop on Driving Technology, Policy and Education in India in honour of Prof. Bhaskar Ramamurthi, IIT Madras, Apr. 2024
- "A Sneak Peak into 6G," IITDM Kancheepuram, Mar. 2024
- "Multi-Connectivity for HRLLC and Coexistence With eMBB," TSDSI Tech Deep Dive conference, Oct. 2023
- "Wideband NOMA in Frequency-Selective OFDM Systems: Theory and Fairness," IIT Kanpur, Jul. 2023
- "Towards Extreme Energy-Efficiencies in Wireless Sensor Networks," Shiv Nadar University, Oct. 2022
- "Beyond 5G Research in India," India-Japan intergovernmental consultation and public-private workshop, Sept. 2021
- "On the Role of Interference in the Design of Next Generation Wireless Communication Systems," Institute Colloquium, Division of Electrical, Electronics, and Computer Sciences (EECS), Indian Institute of Science, Mar. 2021

- "New System Design Challenges in Implementing Full-Duplex Communications in Next Generation Wireless Networks," IEEE Computer Society Student Branch Chapter, IIT Kharagpur, Feb. 2021
- "System Design Challenges in Incorporating Full-Duplex Communications in Beyond 5G Systems," TSDSI SGN workshop on 6G and beyond, Feb. 2021
- "On the Fundamental Influence of Interference in the Design of Next Generation Wireless Communication Systems," IIT Roorkee Khosla Award talk, Dec. 2020
- Panelist in Vaibhav Vaishwik Bharatiya Vaigyanik Summit on "Cellular Evolution to 5G and Beyond, Including THz Technologies Communication Technologies," Oct. 2020
- "Energy-Efficient Data Aggregation Through Ordered Transmissions in Energy Harvesting Wireless Sensor Networks," Samsung India Research Network 2020, Sept. 2020
- "Ordered Transmission Schemes for Energy-Efficient Detection in Energy Harvesting Wireless Sensor Networks," National Conference on Communications (NCC), IIT Kharagpur, Feb. 2020
- "The Different Role of Energy-Efficiency in Energy Harvesting Wireless Sensor Networks," Jadavpur University, Feb. 2020
- "Enabling Rate Adaptation and Scheduling in 4G/5G Cellular Systems with Reduced Feedback," Inaugural address, Faculty Development Program on 5G, MS Ramaiah Institute of Technology, Bangalore, Jan. 2020
- "Understanding 4G/5G Communication Systems," INAE-VTU Lecture Series, VTU Regional Center, Bangalore, Nov. 2019
- "Energy Efficiency in 5G/Next Generation Communications," Intel India Research Colloquium, Bangalore, Oct. 2019
- "Energy-Efficient Ordering and Selection in Energy Harvesting Wireless Sensor Networks," Talk at IIITDM Jabalpur, Oct. 2019
- "Selection in Wireless Communication Systems: Interesting Algorithms and Applications," Institute Bhatnagar series talk at IIT Ropar, Oct. 2019
- "Revisiting the Design of Wireless Sensor Networks with Energy Harvesting Sensors," Invited talk at IIT Indore, Jan. 2019
- "Base Station-Side Estimation Algorithms for Cellular Systems with Reduced Feedback," Invited talk at IEEE CONECCT, Bangalore, Mar. 2018
- "Opportunistic Selection in Next Generation Wireless Communication Systems: A Primer," Institute seminar at Indraprastha Institute of Information Technology (IIIT) Delhi, Feb. 2017
- Lectures on 4G cellular systems and cognitive radio in TEQIP workshop "Recent Advances in Communications and Signal Processing," Vasavi College of Engineering, Hyderabad, Telangana, India, Nov. 2015
- "Energy Harvesting-Based Green Wireless Communication Systems," Intel Bangalore, Aug. 2015
- Lectures on "Wireless communications" in Science Academies' Lecture Workshop on Wireless Communication and Networking, Amal Jyothi College of Engineering, Kanjirapally, Kerala, India, Jul. 2015
- "Revisiting Amplify-and-Forward Relaying in Cooperative Communications and Underlay Cognitive Radio," IIT Delhi, Sep. 2014
- "Energy Harvesting-Based Green Wireless Communication Systems," 2014 Indo-American Frontiers of Engineering Symposium, Mysore, May 2014
- "Green Networks Technologies for Green Communications," IEEE ANTS workshop, Dec. 2012
- "Opportunistic Selection and Adaptation in LTE: An Overview," IEEE ComSoc LTE workshop, Bangalore, Sept. 2013
- "Opportunism in Next Generation Wireless Communication Systems," IEEE Standards Workshop on Last Mile Connectivity, C-DoT, Bangalore, Jul. 2013
- IEEE Industry Day talk on Broadband wireless systems, Mar. 2011
- "Cooperative Communications and How it Affects Our Models for Communication," IISc-Microsoft Research India Workshop, Feb. 2008

Invited Talks Abroad

- "Fundamental Trade-offs in Channel Estimation for RIS-Aided Systems," University of Texas, Dallas, USA, June 2024
- "New Physical Layer Technologies and Co-existence Aspects in 6G," Taiwan-India Bilateral Symposium 2024, National Chung Hsing University, Taichung, Taiwan, May 2024
- "Fundamental Trade-offs in Channel Estimation in RIS-Aided Systems," Workshop on Sensing and Communications for 6G, Seoul National University, Seoul, S. Korea, Apr. 2024
- "Using Multi-connectivity to Meet the Reliability and Latency Requirements of URLLC in 5G and Beyond Systems," University of Southern California, USA, Nov. 2023
- "Transmit Antenna Selection in Underlay Spectrum Sharing: Role of Interference Constraint, Channel State Information, and Power Adaptation," Center for Cyber-Physical Systems and Internet of Things and Ming Hsieh Institute for Electrical & Computer Engineering Joint Seminar Series, University of Southern California, USA, Dec. 2019
- "Transmit Antenna Selection in Underlay Cognitive Radio: Understanding the Role of the Interference Constraint," at KAUST, Saudi Arabia, Dec. 2018
- "Opportunistic Selection in Wireless Systems: Who, How, and What if," at Qualcomm, San Diego, USA, Dec. 2015
- "Timer-Based Distributed Selection Schemes for Wireless Networks," at Zhejiang University, Huangzhou, China, Apr. 2013
- "Timer-Based Distributed Selection Schemes for Wireless Networks," at National University of Singapore, Singapore, Nov. 2012
- "Timer-Based Distributed Selection Schemes for Wireless Networks," at the Institute for Infocom Research (IIR) workshop, Singapore, Nov. 2012

Sponsored Research Projects

- 6G with AI/ML: Resource-Efficient, Distributed Federated Learning that Exploits Over the Air Computing 2023-26
  - Funded by Qualcomm 6G UR
- Next generation wireless research and standardization on 5G and beyond 2021-25
  - Funded by the Ministry of Electronics & Information Technology (MEITY), Govt. of India
- Inter-AP coordination in next generation WiFi standards 2021-23
  - Funded by British Telecom
- WiFi modelling 2020-23
  - Funded by Boeing-Wipro-HCL Aerospace Network Research Consortium (ANRC)
- Reduced feedback techniques for link adaptation, scheduling, and MIMO in 5G wireless systems 2019-21
  - Funded by British Telecom
- Baseband algorithms and energy-efficiency in 5G communications 2019-21
  - Funded by Intel India
- Indigenous 5G testbed project 2018-21
  - Funded by Dept. of Telecommunications, Govt. of India
- Data Management for Aerospace Internet of Things 2018-20
  - Funded by Boeing-Wipro-HCL Aerospace Network Research Consortium (ANRC)
- 5G research and building next gen solution for Indian market 2015-19
  - Funded by Ministry of Information Technology, Govt. of India
- Unrestricted research grant from Broadcom Foundation, USA 2013-15
- Unrestricted research grant on 4G/5G cellular systems 2014-16
  - Funded by Nokia, Bangalore
- Interference-constrained, spectrally-efficient cooperative relaying for high band radios

2015-18
  - Funded by Defense Research and Development Organization (DRDO)-IISc program on mathematical engineering
- Device to device communications for LTE-advanced cellular networks 2014-18
  - Funded by Indo-French Centre for the Promotion of Advanced Research
  - Indian partners: IIT Kanpur, TIFR Mumbai
  - French partners: Alcatel-Lucent Bell Labs, Telecom Paris Tech, INRIA, ALBLF
- Framework for external QoS management for 4G wireless base stations 2014
  - Funded by Bharat Electronics Limited (BEL)
- Intelligent cognitive radio system design in interference-limited environments 2012-15
  - Funded by Boeing-Wipro-HCL Aerospace Network Research Consortium
- Green wireless sensor networks 2012-15
  - Funded by Boeing-Wipro-HCL Aerospace Network Research Consortium
- India-UK advanced technology centre (IU-ATC-PHASE 2) of excellence in next generation networks systems and services 2012-15
  - Funded by Dept. of Science and Technology
- Spectrum sensing, spectrum management & resource allocation for cognitive radio 2011-12
  - Funded by Defence Research and Development Organization (DRDO)
- Selection criteria and distributed selection algorithms in wireless cellular and sensor networks 2010-11
  - Funded by DRDO-IISc Program on Mathematical Engineering
- Providing QoS to real and non-real time applications over WiMAX network 2009-12
  - Funded by Ministry of Information Technology (MITO)
- Energy budget allocation and wireless system design for aeroplane deployment of energy harvesting sensors 2008-11
  - Funded by Boeing-Wipro-HCL Aerospace Network Research Consortium
- Fundamental physical layer aspects of cognitive radio 2008-11
  - Funded by Boeing-Wipro-HCL Aerospace Network Research Consortium
- Interference modeling in spatially distributed shadowed wireless systems 2007-09
  - Funded by DRDO-IISc Program on Mathematical Engineering

Academic Service

- Chair of the Electrical Communication Engineering (ECE) department, IISc Since Oct. 2023
- Chair of the Program Curriculum Committee (PCC) of the new M.Tech. (Online) ECE program of IISc for industry professionals 2021-2023
- Chair of the Faculty Search and Selection committee, ECE department, IISc 2020-2023
- Member of IISc's Young Researcher Meeting organizing committee 2020-21
- Chair of the ECE M. Tech. course restructuring committee, IISc 2020
- Member of the Admissions committee, IISc 2020-23
- Member of the Library Purchase committee, IISc Since Apr. 2018
- Member of the Communications and Networks committee (TINA), IISc 2014-20
- Member of the Faculty Selection and Search committee, ECE department, IISc 2013-20
- Member of the Faculty Selection committees of:
  - IIT Delhi (May 2025) | DAIICT (Apr. 2025) | NIT Karnataka, Surathkal (Oct. 2024) | IIT Hyderabad (Jun. 2024) | IIT Madras (Apr. 2024) | IIT Dharwad (Apr. 2022, Jan. 2023) | IIT BHU Varanasi (Apr. 2022, Sept. 2022, Aug. 2023) | IITDM Kanchipuram (Jun. 2019, Dec. 2020)

- Member of Board of Studies, ECE Dept., M. S. Ramaiah University, Bangalore Since 2022

Consultancy

- Samsung India Electronics Ltd., New Delhi (Expert consultant) 2023
- Lekha Wireless Solutions Pvt. Ltd., Bangalore (Expert consultant on communication networks and signal processing) 2018-19
- ARM Embedded Technologies Pvt. Ltd. Bangalore (3GPP LTE technical advice and talk on LTE specific aspects) 2009
- Mitsubishi Electric Research Labs (MERL), Cambridge, MA, USA (3GPP RAN1 LTE standards participation) 2008