

CURRICULUM VITAE – MUHAMMAD FAINAN HANIF

PERSONAL INFORMATION

- Marital status: Married, two children.
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PROFESSIONAL EXPERIENCE

- *Associate Professor*, University of the Punjab (PU), Lahore since **August 2020 to date**. Currently, affiliated with the Institute of Electrical, Electronics and Computer Engineering, PU Lahore.
- *Head of Department and Associate Professor*, Department of Electrical Engineering, the University of Lahore, Lahore Campus, from **February 2020 to August 2020**.
- *Associate Professor*, Department of Electrical Engineering, the University of Lahore, Lahore Campus, from **April 2016 to February 2020**.
- *Assistant Professor*, Department of Electrical Engineering, the University of Lahore, Lahore Campus, from **November 2015 to April 2016**.
- *Research Associate*, School of Computing and Communications, Lancaster University, Lancashire, United Kingdom from **February 2015 to October 2015**.
- *Assistant Professor* (on contract) of Electrical Engineering at the University of Punjab, Lahore, Pakistan from **January 2014 to February 2015**.
- *Postdoctoral Researcher*, Centre for Wireless Communications, University of Oulu, Finland, from **January 2012 to December 2013**.
- *Assistant Professor* (on contract) of Electrical Engineering at the University of Punjab, Lahore, Pakistan from **May 2011 to Dec. 2011**.

EDUCATION AND QUALIFICATIONS

- Ph.D. in Electrical and Electronic Engineering, University of Canterbury, Christchurch, New Zealand, Feb., 2011. Thesis title: *Aspects of Design and Analysis of Cognitive Radios and Networks*. The thesis can be downloaded from:
<https://ir.canterbury.ac.nz/handle/10092/5072>

- B.Sc. (1st class honours) in Electrical Engineering with specialization in Electronics and Communications, University of Engineering and Technology Lahore, Pakistan, 2007.
- F.Sc. (Pre-engineering), Government College University, Lahore, Pakistan, 2002.

AWARDS AND HONOURS

- Exemplary reviewer for the IEEE Transactions on Communications, 2017.
- Exemplary reviewer for the IEEE Transactions on Wireless Communications, 2017 and 2018.
- Exemplary reviewer for the IEEE Wireless Communication Letters, 2012.
- Paper 15 ranked No. 7 in the most accessed documents in December 2011 for the IEEE Transactions on Wireless Communications.
- Paper 17 ranked No. 4 and 5 in the most accessed documents in February and March 2010 respectively, for the IEEE Transactions on Wireless Communications.
- Best Paper Award IEEE CrownCom, France, Cannes, 2010.
- Postgraduate publication Scholarship (2010) awarded by the College of Engineering, University of Canterbury, New Zealand (declined).
- Telecom Postgraduate Research Scholarship awarded by Telecom NZ and NZi3 for PhD studies.
- 2nd overall best performance in B.Sc. Electrical Engineering with a cumulative percentage of 90.34%
- Silver Medalist in the Lahore Board in Pre-Engineering Examinations out of approximately 110,000 candidates.

RESEARCH INTERESTS

- Convex Optimization applications in wireless signal processing with current emphasis on
 - 6G and beyond 5G networks
 - non-orthogonal multiple access systems
 - robust communication with data uncertainty
 - physical layer security
 - cognitive radios and networks
- Statistical aspects of design and analysis of modern wireless systems

TEACHING

- University of the Punjab, Lahore, Pakistan: Institute of Electrical, Electronics and Computer Engineering (IEECE) and Punjab University College of Information Technology (PUCIT)—now Faculty of Computing and Information Technology.
 - *Probability Methods in Engineering* (undergraduate level), Spring 2025. IEECE.
 - *Wireless and Mobile Communications* (undergraduate level), Spring 2022, Spring 2023, Spring 2024. IEECE.
 - *Differential Equations* (undergraduate level), Spring 2022, Spring 2023. IEECE.
 - *Linear Algebra* (undergraduate level) Fall 2021, Fall 22, Fall 23, Fall 24. IEECE.
 - *Communication Systems* (undergraduate level), Fall 2021, Fall 23, and Fall 24. IEECE.
 - *Probability and Stochastic Processes*, Fall 22. IEECE.
 - *Engineering Optimization-I* (postgraduate level), Spring 2021. IEECE.
 - *Probability and Statistics* (undergraduate level), Fall 2020. PUCIT.
- The University of Lahore
 - *Probability and Stochastic Processes* (undergraduate level), Spring 2016, Fall 2019.
 - *Advanced Digital Communications* (postgraduate level), Winter 2018.
 - *Advanced Wireless Communications* (postgraduate level), Fall 2017.
 - *Stochastic Processes* (postgraduate level), Fall 2015, Spring 2016, Fall 2016, Winter 2017, Fall 2019.
 - *Optimization Techniques* (postgraduate level), Fall 2016 and Winter 2017.
- *Lectures on Robust Optimization: Theory and Applications*, Centre for Wireless Communications, University of Oulu, Finland, Jan-Feb, 2012.
- Undergraduate courses on *Digital Communications* (Spring 2014), *Wireless and Mobile Communications* (Fall 2011) at the University of the Punjab, Lahore, Pakistan.
- At the University of Canterbury, Christchurch, New Zealand (2007-2011) I was involved in conducting tutorials and labs for undergraduate courses on *Circuits and Systems* and *Signals, Systems and Control*, respectively.

SERVICES & ADMINISTRATIVE DUTIES

My current services and administrative responsibilities include the following at my job:

- *Chair* — Admissions Committee.
- *Member* — Departmental Doctoral Program Committee.
- *Member* — Board of Studies of the Institute and Board of Faculty.
- *Director* (on look after basis). In the absence of the regular Director (Head) of the Institute, I perform the duties of the Head of the Institute on look after basis.

EVENT ORGANIZATION

Chair Tutorial Committee and Member Organizing Committee of IEEE ComSoc (USA) sponsored *International Symposium on Wireless Systems and Networks, 2017 (ISWSN'17)* held at the University of Lahore, Lahore, Pakistan. Proceedings available on IEEEExplore at:

<https://ieeexplore.ieee.org/servlet/opac?punumber=8241164>

PUBLICATIONS

Published/Accepted Articles

Google Scholar profile total citations: 1302

URL: <https://scholar.google.com.pk/citations?user=oLctIxoAAAAJ&hl=en&oi=ao>

1. V. Kumar, **M. F. Hanif**, M. Juntti and L. N. Tran, "A Max-Min Task Offloading Algorithm for Mobile Edge Computing Using Non-Orthogonal Multiple Access," *IEEE Transactions on Vehicular Technology*, vol.72, no. 9, Sept. 2023.
2. O. Lyons, **M. F. Hanif**, M. Juntti and L. N. Tran, "Fast Adaptive Minorization-Maximization Procedure for Beamforming Design of Downlink NOMA Systems," *IEEE Transactions on Vehicular Technology*, vol. 69, no. 7, pp. 8023-8027, July 2020.
3. **M. F. Hanif**, and Zhiguo Ding, "Robust Power Allocation in MIMO-NOMA Systems," *IEEE Wireless Communications Letters*, vol. 8, no. 6, pp. 1541-1545, Dec. 2019.
4. I. Sugathapala, **M. F. Hanif**, B. Lorenzo, S. Glisic, M. Juntti and L.-N. Tran, "Topology Adaptive Sum Rate Maximization in the Downlink of Dynamic Wireless Networks," *IEEE Transactions on Communications*, vol. 66, no. 8, pp. 3501-3516, Aug. 2018.
5. **M. F. Hanif**, M. Juntti, and L. N. Tran, "Antenna Selection With Erroneous Covariance Matrices Under Secrecy Constraints," *IEEE Transactions on Vehicular Technology*, vol. 65, no. 1, pp. 414-420, Jan. 2016.
6. **M. F. Hanif**, Z. Ding, T. Ratnarajah, and G. K. Karagiannidis, "A Minorization-Maximization Method for Optimizing Sum Rate in the Downlink of Non-Orthogonal Multiple Access Systems," *IEEE Transactions on Signal Processing*, vol. 64, no. 1, pp. 76-88, Jan. 2016.
7. **M. F. Hanif**, L. N. Tran, M. Juntti, and S. Glisic, "On Linear Precoding Strategies for Secrecy Rate Maximization in Multiuser Multiantenna Wireless Networks," *IEEE Transactions on Signal Processing*, vol. 62, no. 14, pp. 3536-3551, July 2014.
8. **M. F. Hanif**, L. N. Tran, A. Tolli and M. Juntti, "Computationally Efficient Robust Beamforming for SINR Balancing in Multicell Downlink With Applications to Large Antenna Array Systems," *IEEE Transactions on Communications*, vol. 62, no. 6, pp. 1908-1920, June 2014.
9. L. N. Tran, **M. F. Hanif**, and M. Juntti, "A Conic Quadratic Programming Approach to Physical Layer Multicasting for Large-Scale Antenna Arrays," *IEEE Signal Processing letters*, vol. 21, no. 1, pp. 114-117, Jan. 2014.

10. **M. F. Hanif**, L. N. Tran, A. Tolli, M. Juntti and S. Glisic, "Efficient Solutions for Weighted Sum Rate Maximization in Multicellular Networks With Channel Uncertainties," *IEEE Transactions on Signal Processing*, vol. 61, no. 22, pp. 5659-5674, Nov. 2013.
11. **M. F. Hanif**, "Efficient Algorithm for Selecting Secrecy Rate Maximizing Antennas," *IEEE Communications Letters*, vol. 17, no. 9, pp. 1818-1821, Sept. 2013.
12. L. N. Tran, **M. F. Hanif**, A. Tolli and M. Juntti, "Fast Converging Algorithm for Weighted Sum Rate Maximization in Multicell MISO Downlink," *IEEE Signal Processing Letters*, vol. 19, no. 12, pp. 872-875, Dec. 2012.
13. **M. F. Hanif**, P. J. Smith and P. A. Dmochowski, "Statistical interference modelling and deployment issues for cognitive radio systems in shadow fading environments," *IET Communications*, vol. 6, no. 13, pp. 1920-1929, Sept. 2012.
14. **M. F. Hanif**, N. C. Beaulieu and D. J. Young, "Two Useful Bounds Related to Weighted Sums of Rayleigh Random Variables With Applications to Interference Systems," *IEEE Transactions on Communications*, vol. 60, no. 7, pp. 1788-1792, July 2012.
15. **M. F. Hanif**, P. J. Smith, D. P. Taylor and P. A. Martin, "MIMO Cognitive Radios with Antenna Selection," *IEEE Transactions on Wireless Communications*, vol. 10, no. 11, pp. 3688-3699, Nov. 2011.
16. **M. F. Hanif** and P. J. Smith, "Level Crossing Rates of Interference in Cognitive Radio Systems," *IEEE Transactions on Wireless Communications*, vol. 9, no. 4, pp. 1283-1287, April 2010.
17. **M. F. Hanif** and P. J. Smith, "On the Statistics of Cognitive Radio Capacity in Shadowing and Fast Fading Environments," *IEEE Transactions on Wireless Communications*, vol. 9, no. 2, pp. 844-852, Feb. 2010.

Conference Proceedings

1. V. Kumar, A. Papazafeiropoulos, **M. F. Hanif**, L.-N. Tran and M. F. Flanagan, "A Low-Complexity Solution to Sum Rate Maximization for IRS-assisted SWIPT-MIMO Broadcasting," in *Proc. IEEE Vehicular Technology Conference (Spring)*, pp. 1-5, Florence, Italy, 2023.
2. I. Sugathapala, L.-N. Tran, **M. F. Hanif**, B. Lorenzo, S. Glisic and M. Juntti, "SOCP Based Joint Throughput Maximization and User Association in Dynamic Networks," in *Proc. IEEE ICC 2015 Workshop on MIMO and Cognitive Radio Technologies in Multihop Network*, pp. 573-578 June 2015.
3. **M. F. Hanif**, P. J. Smith and M.-S. Alouini, "SINR Balancing in the Downlink of Cognitive Radio Networks with Imperfect Channel Knowledge," in *Proc. IEEE International Conference on Cognitive Radio Oriented Wireless Networks and Communications (CrownCom 2010)*, Cannes, France, pp. 1-5, June 2010 (**Won Best Student Paper Award**).

4. **M. F. Hanif** and P. J. Smith, “On MIMO Cognitive Radios with Antenna Selection,” in *Proc. IEEE Wireless Communications and Networking Conference (WCNC 2010)*, Sydney, Australia, pp. 1-6, April 2010.
5. **M. F. Hanif**, P. J. Smith and M. Shafi, “On the Statistics of Cognitive Radio Capacity in Shadowing and Fast Fading Environments,” in *Proc. IEEE International Conference on Cognitive Radio Oriented Wireless Networks and Communications (CrownCom 2009)*, Hannover, Germany, pp. 1-6, June 2009.
6. **M. F. Hanif**, M. Shafi, P. J. Smith and P. A. Dmochowski, “Interference and Deployment Issues for Cognitive Radio Systems in Shadowing Environments,” in *Proc. IEEE International Conference on Communications (ICC 2009)*, Dresden, Germany, pp. 1-6, June 2009.
7. **M. F. Hanif**, P. J. Smith and M. Shafi, “Performance of Cognitive Radio Systems with Imperfect Radio Environment Map Information,” in *Proc. IEEE Australian Communication Theory Workshop (AusCTW 2009)*, Sydney, Australia, pp. 61-66, Feb. 2009.

Submitted/Working Papers

1. **M. F. Hanif**, L.-N. Tran, Z. Ding, and T. Ratnarajah, “A Robust Design for BackCom Assisted Hybrid NOMA”, pre-print available at: <https://arxiv.org/abs/2505.07762>.

SERVICES

TPC Member

- IEEE WCNC 2026
- IEEE INFOCOM 2025 Poster
- IEEE ICC 2025 (Green Communication Systems and Networks Symposium)
- IEEE Wireless Communications and Networking Conference (WCNC) 2025 (Resource Allocation and Machine Learning Track)
- IEEE Virtual Conference of Communications (VCC) 2024
- IEEE Vehicular Technology Conference (VTC) 2024-Fall (Vehicular Communications, Unmanned Vehicle Communications, Vehicular Networks and Telematics)
- IEEE Vehicular Technology Conference (VTC) 2024-Spring (Spectrum Management, Spectrum Sharing and Green Communications)
- IEEE Globecom 2024 (Green Communication Systems and Networks)
- IEEE Wireless Communications and Networking Conference (WCNC) 2024 (Resource Allocation and Machine Learning Track)
- IEEE Virtual Conference of Communications (VCC) 2023

- IEEE ICC 2023 (Green Communication Systems and Networks Symposium)
- IEEE Globecom 2022 (Green Communication Systems and Networks)
- IEEE ICC 2022 (Green Communication Systems and Networks Symposium)
- IEEE ICC 2021 (Green Communication Systems and Networks Symposium)
- IEEE Globecom 2021 (Green Communication Systems and Networks)
- IEEE ICC 2020 Workshop on Scalable Massive MIMO Technologies for Beyond 5G
- IEEE Globecom 2020 (Green Communication Systems and Networks)
- IEEE Globecom 2018 (Communication Theory and Green Communications Systems and Networks tracks)
- IEEE ICC 2018 (Green Communications Systems and Networks Symposium)
- IEEE Wireless Communications and Networking Conference (WCNC) 2018
- IEEE International Conference on Computing, Networking and Communications (ICNC) 2018: Cognitive Computing and Networking (COG)
- IEEE Globecom 2017 (Green Communications Systems and Networks, and Communication Theory Tracks)
- IEEE Globecom 2016 (Green Communication Systems and Networks, and Communication Theory Tracks)
- IEEE International Conference on Computing, Networking and Communications (ICNC) 2016: Cognitive Computing and Networking (COG)
- IEEE International Conference on Connected Vehicles & Expo. (ICCVE) 2015
- IEEE Globecom 2015 (Sel. Areas in Commun. Symp. - Green Commun. and Computing)
- IEEE INFOCOM 2015 (Workshop on Mobile Cloud and Virtualization)
- IEEE International Conference on Connected Vehicles & Expo. (ICCVE) 2014
- IEEE Globecom 2014 (Sel. Areas in Commun. Symp. - Green Commun. Systems and Networks)
- IEEE Globecom 2014 (Cognitive Radio and Networks Symposium)
- IEEE INFOCOM 2014 (Workshop on Mobile Cloud Computing)
- IEEE Asia Pacific Conference on Wireless and Mobile (APWiMob) 2014
- IEEE International Conference on Connected Vehicles Expo. (ICCVE) 2013

- IEEE Globecom 2013 (Cognitive Radio and Networks Symposium)
- IEEE Globecom 2012 (Cognitive Radio and Networks Symposium)
- IEEE Globecom 2011 (Cognitive Radio and Networks Symposium)
- IEEE ICC 2011 (Cognitive Radio and Networks Symposium)

Reviewer Journal

- IEEE Journal on Selected Areas in Communications (Special Issue on Non-Orthogonal Multiple Access for 5G Systems)
- IEEE Journal on Selected Areas in Communications (Cognitive Radio Series)
- IEEE Journal on Selected Areas in Communications (Special Issue on Spectrum and Energy Efficient Design of Wireless Communication Networks)
- IEEE Access
- IEEE Transactions on Wireless Communications
- IEEE Transactions on Communications
- IEEE Transactions on Vehicular Technology
- IEEE Communication Letters
- IEEE Signal Processing Letters
- IEEE Journal on Selected Topics in Signal Processing
- IEEE Wireless Communication Letters
- EURASIP Journal on Wireless Communications and Networking
- EURASIP Journal on Advances in Signal Processing
- Springer Wireless Networks
- Wiley Journal on Security and Communication Networks.

Reviewer Conference

IEEE CrownCom 2009, IEEE AusCTW 2010, IEEE WCNC 2010, IEEE CrownCom 2010, IEEE ICC 2011, VTC2012, IEEE ICC 2013, IEEE ICC 2016, IEEE Globecom 2017, IEEE ICC 2018, IEEE WCNC 2018, IEEE ICC 2020, IEEE Globecom 2020, IEEE Globecom 2021, IEEE ICC 2021, IEEE ICC 2022, IEEE ICC 2023, IEEE VCC 2023, IEEE ICC GCSC 2024, IEEE VCC 2024, IEEE ICC GCSC 2025, IEEE VCC 2025 etc.

REFERENCES

Available on request.