

SWAMINATHAN R

CURRENT ADDRESS

Room No. 718, Silicon Building (POD-1A),
Indian Institute of Technology Indore,
Simrol, Indore - 453552, MP, India
Tel : +91-731-6603292, mob: +91-9384528819
Email: swamiramabadran@iiti.ac.in

PERMANENT ADDRESS

B - 10, M.V.M Nagar,
Dindigul - 624001, TN, India
Tel : +91-451-2430280
Email: swaminathan.ramabadran@gmail.com
swamiramabadran@gmail.com
Research Page: **WEBSITE**

EXPERIENCE

Assistant Professor (February 2019 - Present),
Department of Electrical Engineering,
CEO, IITI Advanced Centre for Entrepreneurship (ACE) Foundation,
Indian Institute of Technology (IIT) Indore

Research Fellow (June 2015 - February 2019),
Visiting Faculty (July 2023 to August 2023),
School of Computer Science and Engineering,
Nanyang Technological University (NTU) Singapore

EDUCATION

IIT Kharagpur, India

PhD - Electronics and Electrical Communication Engineering, July 2011 - January 2016
Date of Submission : 13 May 2015 Date of Completion: 14 Jan 2016
C.G.P.A. 9/10 (in course works)

Anna University, Chennai, India

College of Engineering Guindy (CEG) campus
M.E - Communication systems, Aug. 2009 - May 2011
C.G.P.A. 9.78/10, First Class with distinction
University gold medallist in the Department of Electronics and Communication Engineering

SASTRA University, Thanjavur, India

B.Tech - Electronics and Communication Engineering, July 2005 - May 2009
C.G.P.A. 8.8571/10, First Class with distinction

RESEARCH INTERESTS/AREAS

Efficient design of Space-Air-Ground Integrated Networks (SAGIN) for 6G Communication, Vehicular Communications, Unmanned-Aerial-Vehicle (UAV)-assisted Free Space Optics (FSO) Communication, Intelligent Receiver Design using Machine Learning (ML) Techniques, and Intelligent-Reflecting-Surfaces (IRS)-aided FSO and RF Communications for 5G and 6G Wireless Systems

PUBLICATION DETAILS

- Number of Journal papers: 31
- Number of Conference papers: 31
- Number of Book chapters: 1

JOURNAL PUBLICATIONS (Peer Reviewed)

Published

- **Swaminathan R**, M. D. Selvaraj, and R. Roy, “Exact error analysis of MPAM signaling for a cooperative diversity system with correlated links using paired error approach,” *IEEE Communications Letters*, vol. 18, no. 2, pp. 273–276, Feb. 2014.
- M. D. Selvaraj* and **Swaminathan R***, “Performance of hybrid selection and switch-and-stay combining with decode-and-forward relaying,” (* Equal contributions) *IEEE Communications Letters*, vol. 18, no. 12, pp. 2233–2236, Dec. 2014.
- **Swaminathan R**, M. D. Selvaraj, and R. Roy, “On the error and outage performance of decode-and-forward cooperative selection diversity system with correlated links,” *IEEE Transactions on Vehicular Technology*, vol. 64, no. 8, pp. 3578–3593, Aug. 2015.
- **Swaminathan R**, R. Roy, and M. D. Selvaraj, “Performance comparison of selection combining with full CSI and switch-and-examine combining with and without post-selection,” *IEEE Transactions on Vehicular Technology*, vol. 65, no. 5, pp. 3217–3230, May 2016.
- **Swaminathan R**, G. K. Karagiannidis, and R. Roy, “Joint antenna and relay selection strategies for decode-and-forward relay networks,” *IEEE Transactions on Vehicular Technology*, vol. 65, no. 11, pp. 9041–9056, Nov. 2016.
- **Swaminathan R** and R. Roy, “HSSEC strategy for decode-and-forward-relaying systems over Nakagami-m fading channels,” *IET Communications*, vol. 10, no. 18, pp. 2621–2635, Dec. 2016.
- **Swaminathan R**, A. S. Madhukumar, N. W. Teck, and S. C. M. Samson, “Parameter estimation of block and helical scan interleavers in the presence of bit errors,” *Elsevier Digital Signal Processing*, vol. 60, pp. 20–32, Jan. 2017.
- **Swaminathan R**, A. S. Madhukumar, N. W. Teck, and S. C. M. Samson, “Parameter estimation of convolutional and helical Interleavers in a noisy environment,” *IEEE Access*, vol. 5, pp. 6151–6167, 2017.
- **Swaminathan R** and A. S. Madhukumar, “Classification of error correction codes and estimation of interleaver parameters in a robust environment,” *IEEE Transactions on Broadcasting*, vol. 63, no. 3, pp. 463–478, Sept. 2017.
- **Swaminathan R**, A. S. Madhukumar, W. Guohua, and T. S. Kee, “Blind reconstruction of Reed-Solomon encoder and interleavers over noisy environment,” *IEEE Transactions on Broadcasting*, vol. 64, no. 4, pp. 830–845, Dec. 2018.
- **Swaminathan R**, A. S. Madhukumar, W. Guohua, and T. S. Kee, “Blind recognition of LDPC code parameters over erroneous channel conditions,” *IET Signal Processing*, vol. 13, no. 1, pp. 86–95, 2 Feb. 2019.
- S. Sharma, A. S. Madhukumar, and **Swaminathan R**, “Switching-based cooperative decode-and-forward relaying for hybrid FSO/RF networks,” *IEEE/OSA Journal of Optical Communications and Networking (JOCN)*, vol. 11, no. 6, pp. 267–281, June 2019.
- S. Sharma, A. S. Madhukumar, and **Swaminathan R**, “Effect of pointing errors on the performance of hybrid FSO/RF networks,” *IEEE Access*, vol. 7, pp. 131418–131434, 2019.
- **Swaminathan R** and A. S. Madhukumar, “Blind parameter estimation of turbo convolutional codes: noisy and non-synchronized scenario,” *Elsevier Digital Signal Processing*, vol. 95, Article. 102577, Dec. 2019.
- **Swaminathan R**, A. S. Madhukumar, and W. Guohua, “Blind Estimation of code parameters for product codes over noisy channel conditions,” *IEEE Transactions on Aerospace and Electronic Systems*, vol. 56, no. 2, pp. 1460–1473, April 2020.
- S. Sharma, A. S. Madhukumar, and **Swaminathan R**, “Performance optimization for dual-hop hybrid FSO/RF system with selection combining,” *IET Optoelectronics*, vol. 14, no. 6, pp. 422–433, Dec. 2020.
- M. Siddharth, S. Shah, N. Vishwakarma, and **Swaminathan R**, “Performance analysis of adaptive combining based hybrid FSO/RF terrestrial communication,” *IET Communications*, vol. 14, no. 22, pp. 4057–4068, Dec. 2020.

- N. Vishwakarma and **Swaminathan R.**, “Performance analysis of hybrid FSO/RF communication over generalized fading models,” *Elsevier Optics Communications*, vol. 487, Article 126796, May 2021.
- **Swaminathan R.**, S. Sharma, N. Vishwakarma, and A.S. Madhukumar, “HAPS-based relaying for integrated space-air-ground networks with hybrid FSO/RF communication : A performance analysis,” *IEEE Transactions on Aerospace and Electronic System*, vol. 57, no. 3, pp. 1581 - 1599, June 2021.
- S. Shah, M. Siddharth, N. Vishwakarma, **Swaminathan R.**, and A. S. Madhukumar, “Adaptive-combining-based hybrid FSO/RF satellite communication with and without HAPS,” *IEEE Access*, vol. 9, pp. 81492 - 81511, 2021.
- S. Sharma, A. S. Madhukumar, and **Swaminathan R.**, “MIMO hybrid FSO/RF system over generalized fading channels,” *IEEE Transactions on Vehicular Technology*, vol. 70, no. 11, pp. 11565-11581, Nov. 2021.
- N. Vishwakarma and **Swaminathan R.**, “On the capacity performance of hybrid FSO/RF system with adaptive combining over generalized distributions,” *IEEE Photonics Journal*, vol. 14, no. 1, pp. 1-12, Feb. 2022.
- N. Vishwakarma and **Swaminathan R.**, “On the maximal-ratio combining of FSO and RF links over generalized distributions and its applications in hybrid FSO/RF systems,” *Elsevier Optics Communications*, vol. 520, pp. 1-17, Oct. 2022
- G. Kumar, P. Date, R. B. Pachori, **R. Swaminathan** and A. K. Singh, “Wrapped Particle Filtering for Angular Data,” *IEEE Access*, vol. 10, pp. 90287-90298, 2022.
- Deepshikha Singh and **Swaminathan R.**, “Comprehensive performance analysis of hovering UAV-based FSO communication system,” *IEEE Photonics Journal*, vol. 14, no. 5, pp. 1-13, Oct. 2022
- Deepshikha Singh and **Swaminathan R.**, “Comprehensive performance analysis of Hybrid FSO/RF space-air-ground integrated network,” *Elsevier Optics Communications*, vol. 527, pp. 1-14, Jan. 2023
- G. Kumar, Y. Gopal, **Swaminathan R.**, and A. K. Singh, “Fractionally delayed bayesian approximation filtering under non-Gaussian noisy environment,” *IEEE Transactions on Aerospace and Electronic Systems*, DOI: 10.1109/TAES.2023.3266176, April 2023.
- G. Kumar, A. Naik, R. B. Pachori, **Swaminathan R.**, and A. K. Singh, “Improved Gaussian filtering for handling concurrent delayed and missing measurements,” *Asian Journal of Control*, DOI: 10.1002/asjc.3126, May 2023.
- S. Uniyal, N. Vishwakarma and **Swaminathan R.**, “Multihop IRS-assisted free space optics communication with DF relaying: A performance analysis,” *OPTICA (OSA) Applied Optics*, vol. 62, no. 18, pp. 4716-4726, 2023.
- V. Bankey, S. Sharma, **Swaminathan R.**, and A. S. Madhukumar, “Physical layer security of HAPS-based space-air-ground integrated network with hybrid FSO/RF communication,” *IEEE Transactions on Aerospace and Electronic Systems*, vol. 59, no. 4, pp. 4680-4688, Aug. 2023.
- N. Vishwakarma, **Swaminathan R.**, P. D. Diamantoulakis, and G. K. Karagiannidis, “Performance analysis of optical reflecting surface-assisted optical space shift keying-based MIMO-FSO system,” *IEEE Transactions on Communications*, vol. 71, no. 8, pp. 4751-4763, Aug. 2023.

Under Review

- Deepshikha Singh, Swaminathan R, and Anh T Pham, “Multiple HAPS-based space-air-ground network with FSO communication: A performance analysis,” *IEEE Transactions on Aerospace and Electronic Systems*, Under Review
- S. Uniyal, N. Vishwakarma, Swaminathan R, and A. S. Madhukumar, “Intelligent reflecting surfaces assisted hybrid FSO/RF communication with diversity combining: A performance analysis,” *OPTICA (OSA) Applied Optics*, Under Review

CONFERENCE PUBLICATIONS (Peer Reviewed)/BOOK CHAPTER

- **R. Swaminathan** and T. Laxmikandan, “Study of physical layer simulation of Wimax systems,” *in proc. 2011 National conference on recent trends in communication, computation and signal processing (RTCSP)*, Amrita University Coimbatore, pp. 126-130.
- **Swaminathan R.**, M. D. Selvaraj, and R. Roy, “Performance analysis of double correlated selection combining for cooperative diversity systems,” *in proc. 2013 IEEE National conference on communications (NCC)*, IIT Delhi, New Delhi, pp. 1-5.
- **Swaminathan R.**, M. D. Selvaraj, and R. Roy, “Error Analysis of NC-BFSK for cooperative diversity with correlated links,” *in proc. 2013 Fourth nordic workshop on system and network optimization for wireless (SNOW)*, Yllas, Finland.
- **Swaminathan R.**, R. Roy, and M. D. Selvaraj, “Performance analysis of triple correlated selection combining for cooperative diversity systems,” *in proc. 2013 IEEE International conference on communications (ICC)*, Budapest, Hungary, pp. 5483-5388.
- M. Vinod Kumar, **Swaminathan R.**, and R. Roy, “Green cooperative communication techniques for intelligent transportation systems,” *in proc. 2013 IEEE International conference on signal processing, computing, and control (ISPC)*, Wagnaghat, India, pp. 1-5.
- **Swaminathan R.** and A. S. Madhukumar, “Joint recognition of error correcting codes and interleaver parameters in a robust environment,” *in proc. 2016 IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC)*, Valencia, Spain, pp. 1-6.
- **Swaminathan R.**, A. S. Madhukumar, W. Guohua, and T. S. Kee, “Parameter identification of Reed-Solomon codes over noisy environment,” *in proc. 2017 IEEE Vehicular Technology Conference (VTC) Fall*, Toronto, Canada, pp. 1-5.
- S. Sharma, A. S. Madhukumar, **Swaminathan R.**, and C. J. Sheng “Performance analysis of hybrid FSO/RF transmission for DF relaying system,” *in proc. 2017 IEEE Global Communication Conference (GLOBECOM) Workshops*, Singapore, pp. 1-6.
- S. Sharma, A. S. Madhukumar, and **Swaminathan R.**, “Switching-based hybrid FSO/RF transmission for DF relaying system,” *in proc. 2018 IEEE Wireless Communications and Networking Conference (WCNC)*, Barcelona, Spain, pp. 1-6.
- **Swaminathan R.**, A. S. Madhukumar, W. Guohua, and T. S. Kee, “Joint reconstruction of Reed-Solomon encoder and convolutional interleaver in a noisy environment,” *in proc. 2018 IEEE International Symposium on Information Theory and its Applications (ISITA)*, Singapore, pp. 715 - 719.
- **Swaminathan R.** and A. S. Madhukumar, “Code parameter estimation from noisy data: TPC,” *in proc. 2018 ISITA*, Singapore, pp. 491.
- S. Sharma, A. S. Madhukumar, and **Swaminathan R.**, “Capacity analysis for hybrid FSO/RF networks,” *in proc. 2018 ISITA*, Singapore, pp. 501.
- S. Sharma, J. Tan, A. S. Madhukumar, and **Swaminathan R.**, “Switching-based transmit antenna/aperture selection in a MISO hybrid FSO/RF system,” *in proc. 2018 IEEE GLOBECOM*, Abu Dhabi, UAE, pp. 1-6.
- S. Sharma, A. S. Madhukumar, and **Swaminathan R.**, “Asymptotic analysis of switching-based hybrid FSO/RF system with DF-relaying,” *in proc. 2019 IEEE Asia-Pacific Conference on Communications*, Ho Chi Minh city, Vietnam, pp. 425-430.
- M. Siddharth, S. Suyash, and **Swaminathan R.**, “Outage analysis of adaptive combining scheme for hybrid FSO/RF communication,” *in proc. 2020 IEEE NCC*, IIT Kharagpur, India, pp. 1-6
- S. Sharma, A. S. Madhukumar, and **Swaminathan R.**, “Performance of dual-hop hybrid FSO/RF system with pointing errors optimization,” *in proc. 2020 IEEE VTC Spring*, Antwerp, Belgium, pp. 1-5.
- **Swaminathan R.**, S. Sharma, and A. S. Madhukumar, “Performance analysis of HAPS-based relaying for hybrid FSO/RF downlink satellite communication,” *in proc. 2020 IEEE VTC Spring*, Antwerp, Belgium, pp. 1-5.

- S. Sharma, A. S. Madhukumar, and **Swaminathan R**, “Performance of hybrid FSO/RF system with transmit aperture selection,” *in proc. 2020 IEEE ICC Workshops*, Dublin, Ireland, pp. 1-6.
- S. Sharma, A. S. Madhukumar, and **Swaminathan R**, “Space shift keying-based hybrid FSO/RF system,” *in proc. 2020 IEEE VTC Fall*, Victoria, Canada, pp. 1-5.
- N. Vishwakarma and **Swaminathan R**, “On the performance of hybrid FSO/RF system over generalized fading channels,” *in proc. 2020 IEEE International Conference on Advanced Networks and Telecommunication Systems (ANTS)*, IIIT Delhi, pp. 1-6
- N. Vishwakarma and **Swaminathan R**, “Capacity analysis of adaptive combining for hybrid FSO/RF satellite communication system,” *in proc. 2021 IEEE NCC*, IIT Roorkee & Kanpur, India, pp. 1–6.
- Deepshikha Singh and **Swaminathan R**, “On the performance of UAV-based FSO communication system,” *in proc. 2021 IEEE ANTS*, IDBRT Hyderabad, pp. 1-6.
- K. S. G. Kiran and **Swaminathan R**, “Performance analysis of DF-relaying-based cooperative NOMA System with partial relay selection,” *in proc. 2022 IEEE International Conference on Communication Systems and Networks (COMSNETS)*, Bengaluru, pp. 574-580.
- A. Dinesh and **Swaminathan R**, “Codeword length estimation of LDPC codes with limited data,” *in proc. 2022 IEEE COMSNETS*, Bengaluru, pp. 270-274.
- K. S. G. Kiran and **Swaminathan R**, “Performance analysis of SWIPT-enabled cooperative NOMA system with partial relay selection,” *in proc. 2022 IEEE NCC*, IIT Bombay, pp. 1-6.
- A. Dinesh and **Swaminathan R**, “Blind reconstruction of BCH encoder over erroneous channel conditions,” *in proc. 2022 IEEE NCC*, IIT Bombay, pp. 1-6.
- S. Sharma, N. Vishwakarma, and **Swaminathan R**, “Performance analysis of IRS-assisted hybrid FSO/RF communication system,” *in proc. 2022 IEEE NCC*, IIT Bombay, pp. 1-6.
- G. Kumar, **Swaminathan R**, and A. K. Singh, “High-degree cubature quadrature Kalman filter with fractional delayed measurement,” *in proc. 2022 IEEE INDICON*, Cochin, pp. 1-5.
- Deepshikha Singh, Cheguri Reddy, and **Swaminathan R**, “Hovering UAV-Based FSO Communications with DF Relaying: A Performance Analysis,” *in proc. 2023 IEEE NCC*, IIT Guwahati, pp. 1-6.
- S. Uniyal, N. Vishwakarma, S. Sharma, and **Swaminathan R**, “Intelligent reflecting surfaces-aided mixed FSO/RF communication system,” *in proc. 2023 IEEE WCNC*, Glasgow, Scotland, pp. 1-6.
- N. Vishwakarma and **Swaminathan R**, “Performance analysis of multiple optical reflecting surfaces assisted FSO communication,” *in proc. 2023 IEEE WCNC*, Glasgow, Scotland, pp. 1-6.
- G. Kumar G, V. K. Mishra, **Swaminathan R**, and A. K. Singh, “Parameter identification of coulomb oscillator from noisy sensor data,” *Communication and Control for Robotic Systems*, vol. 229, pp. 327–338, 2022, Springer, Singapore (Book Chapter)

PARTICULARS OF RESEARCH GRANTS

- **Project Title:** High-Altitude Platform Station based Hybrid FSO/RF Communication for Future Satellite Communication Systems
Principal Investigator: Dr. Swaminathan R
Scheme: Start-up Research Grant (SRG)
Duration: 30 Months
Funding Agency: Science and Engineering Research Board (SERB)
Budget: Rs. 13,94,396, **Status:** Completed
- **Project Title:** Statistical Modelling and Analysis of Reconfigurable-Intelligent-Surfaces-Assisted Hybrid FSO/RF System
Principal Investigator: Dr. Swaminathan R
Scheme: Mathematical Research Impact-Centric Support (MATRICS)
Duration: 36 Months

- Funding Agency:** Science and Engineering Research Board (SERB)
Budget: Rs. 6,60,000, **Status:** Ongoing from Feb. 2022
- **Project Title:** Modelling, Analysis, and Design of Aerial-Platform-based Free Space Optics Communication for 6G Networks
Principal Investigator: Dr. Swaminathan R
Co-Principal Investigator: Dr. Saptarshi Ghosh
Scheme: Core Research Grant (CRG)
Duration: 36 Months
Funding Agency: Science and Engineering Research Board (SERB)
Budget: Rs. 35,64,260, **Status:** Ongoing from Jan 2023
 - **Project Title:** Blind Reconstruction of Channel Encoder and Interleaver for Future Generation Communication Systems
Principal Investigator: Dr. Swaminathan R
Co-Principal Investigator: Dr. Puneet Gupta
Scheme: Extramural Research (EMR) II
Duration: 36 Months
Funding Agency: Council of Scientific and Industrial Research (CSIR)
Budget: Rs. 18,70,199 **Status:** Recommended
 - **Project Title:** Development of Landslide Early Warning and Real-time Monitoring, Uttarakhand
Principal Investigator: Dr. Neelima Satyam
Co-Principal Investigator(s): Dr. Swaminathan R and Dr. Aruna Tiwari
Funding Agency: Department of Science and Technology (DST), Natural Resources Data Management System (NRDMS) Division
Duration: 36 Months
Budget: Rs. 60,00,000, **Status:** Ongoing from June 2020
 - **Project Title:** 3-D Printed Metamaterial Based EM Designs for Stealth Applications
Principal Investigator: Dr. Saptarshi Ghosh
Co-Principal Investigator(s): Dr. Swaminathan R
Funding Agency: Defense Research and Development Organization (DRDO)
Duration: 36 Months
Budget: Rs. 30,66,000, **Status:** Ongoing from Sept. 2022
 - **Consultancy Project Title:** Opinion on Functionality of Telecommunication towers and Telecommunication Equipment installed on Telecom Tower
Consultants: Dr. Swaminathan R and Prof. Vimal Bhatia
Funding Agency: Bharti Airtel Limited - Madhya Pradesh
Duration: 2 Months
Budget: Rs. 1,47,500, **Status:** Completed
 - **Consultancy Project Title:** Development of Massive Open Online Course (MOOC) on Optical Wireless Communications: Fundamentals and Potential Applications with a vision for 5G and Beyond
Consultant: Dr. Swaminathan R
Funding Agency: Danish Management A/S (consulting firm for India - European Union standardization project)
Budget: 3600 EUR, **Status:** Completed

PARTICULARS OF CONTINUING EDUCATION PROGRAMMES

- **Title:** Online Short-Term Course (STC) on 5G and Beyond Wireless Technologies: Modelling and Simulations using MATLAB
Funding Agency: TEQIP III
Dates: Dec. 24 to 26, 2020, **Role:** Course Coordinator and Instructor
Budget: Rs. 6,00,000, **No. of Participants:** 80
- **Title:** Online STC on Statistical Modelling and Analysis of Advanced Wireless Communication Systems
Funding Agency: AICTE-QIP scheme

Dates: March 17 to 23, 2022, **Role:** Course Coordinator and Instructor
Budget: Rs. 93,000, **No. of Participants:** 92

- **Title:** High-end Workshop on Vehicular Communications for Next-Generation Intelligent Transportation Systems
Funding Agency: SERB KARYASHALA Scheme
Dates: July 13 to 19, 2022, **Role:** Course Coordinator and Instructor
Budget: Rs. 5,00,000, **No. of Participants:** 23
- **Title:** Faculty Development Program (FDP) on Entrepreneurship and Leadership Management
Funding Agency: ATAL Academy
Dates: Aug 1 to 12, 2022, **Role:** Course Coordinator and Instructor
Budget: Rs. 3,00,000, **No. of Participants:** 50
- **Title:** Startup Bootcamp
Funding Agency: MP Startup Centre
Duration: January to March 2023, **Role:** Coordinator and Instructor
Budget: Rs. 4,00,000, **No. of Participants:** 529
- **Title:** Online FDP on Foundation for Entrepreneurship
Duration: June 12 to 24, 2023, **Role:** Course Coordinator and Instructor
No. of Participants: 52

TEACHING EXPERIENCE

- **Teaching at IIT Indore:** 1) Vehicular Communications (Spring 2022, 2023), 2) Basic Electrical and Electronics Engineering (Autumn 2021), 3) Digital Signal Processing (Spring 2019, 2020, 2021), 4) Wireless Communications (Spring 2020, 2021, 2022, 2023), 5) Probability and Random Processes (Autumn 2019, 2020, 2021, 2022, 2023), 6) Mathematical Methods in Signal Processing (Autumn 2020), 7) Error Correcting Codes (Autumn 2022, 2023), 8) Basic Electrical and Electronics Engineering Lab (Autumn 2019, Spring 2021, 2023, Summer 2023)

PHD GUIDANCE

- **Name:** Narendra Vishwakarma (July 2019 - June 2023)
Admission Category: Teaching Assistant (TA) till Dec 2020, Fellowship Awardee (FA) from Dec. 2020
Funding: Prime Minister's Research Fellow (PMRF) Scheme
Topic: Performance Analysis of Hybrid FSO/RF System over Generalized Fading Channels
Status: Thesis Submitted
- **Name:** Deepshikha Singh (Aug. 2020 - Current)
Admission Category: FA (JRF) till May 2022, TA from June 2022
Funding (Till May 2022): Science and Engineering Research Board (SRG Project)
Topic: Modelling and Analysis of Hovering Aerial-Platform-based Optical Wireless Communication
Status: Ongoing
- **Name:** Nayim Ahamed (Jan 2023 - Current)
Admission Category: FA
Funding: Visvesvaraya PhD scheme of MeitY
Topic: Joint Modulation and Code Classification Techniques for Future Generation Communication Systems
Status: Ongoing
- **Name:** Prashant Sharma (May 2023 - Current)
Admission Category: FA
Funding: SERB-CRG
Topic: Design and Development of Aerial-Platform-based Free Space Optics Communication for 6G Networks
Status: Ongoing

- **Name:** Guddu Kumar (July 2019 - May 2023)
Admission Category: TA
Topic: Wrapped Particle Filtering for Angular Data
Main Supervisor: Dr. Abhinoy Kumar Singh
Status: Completed
- **Name:** Manojkumar Kokare (July 2022 - Current)
Admission Category: TA
Topic: Modelling, Analysis, and Optimization of Intelligent-Reflecting-Surfaces Assisted Energy Harvesting Systems for Vehicular Communications
Main Supervisor: Dr. Sumit Gautam
Status: Ongoing

M.TECH THESIS SUPERVISED

- **Name:** Rohit Lilhare (2020-2021)
Thesis Title: Study and Analysis of Power Optimization Techniques for High Speed Cache Memory Architecture
Highlights: (a) Thesis work was done as a part of internship at Qualcomm, (b) Jointly supervised with Mr. Abhishek Sakharwade (Qualcomm)
- **Name:** Nikita Golait (2020-2021)
Thesis Title: LE AUDIO : The Next Generation of Bluetooth Audio
Highlights: (a) Thesis work was done as a part of internship at NXP Semiconductor, (b) Jointly supervised with Mr. MaheshKumar Nahar (NXP Semiconductor)
- **Name:** Kalla Satya Ganapathi Kiran (2020-2021)
Thesis Title: Performance Analysis of SWIPT-Enabled Cooperative NOMA Networks for 5G and Beyond Wireless Communications
Highlights: 2 IEEE Conference Publications (IEEE NCC 2022 and IEEE COMSNETS 2022)
- **Name:** Marrapu Aravind (2021-2022)
Thesis Title: HAPS-based Integrated Space Air Ground Networks with Hybrid FSO/RF Communication
- **Name:** Sandesh Sharma (2021-2022)
Thesis Title: Intelligent Reflecting Surfaces Assisted FSO and RF Systems for 5G and Beyond Wireless Communications
Highlights: 2 IEEE Conference Publications (IEEE NCC 2022 and IEEE WCNC 2023)
- **Name:** B. Naveen (2022-2023)
Thesis Title: Automatic Code and Interleaver Classification Technique for Future Generation Communication Systems
- **Name:** Smriti Uniyal (2022-2023)
Thesis Title: Performance Analysis of IRS-assisted FSO/RF/THz Systems for 6G Wireless Communications
Highlights: 1 OSA (OPTICA) Applied Optics Journal Publication and 1 IEEE Conference Publication (IEEE WCNC 2023)

ADMINISTRATION RESPONSIBILITIES

- Professor-In-Charge, Centre for Entrepreneurship Education and Development (CEED), since July 2022.
- CEO, IITI Advanced Centre for Entrepreneurship (ACE) Foundation, since July 2022.
- Head, Center of Innovation, Incubation, Entrepreneurship, and Industry Relations (CIEIR), IIT Indore, from September 2020 to July 2022.
- Department Post-Graduate Committee (DPGC) Convener, Department of Electrical Engineering (EE), since November 2020
- Program Coordinator, M.Tech Communication and Signal Processing (CSP) program, Department of EE, from April 2019 to April 2022
- Convener, Department Safety and Security Committee, since January 2020

- Member Secretary, EE Department meetings, since October 2019
- Member, Institute Sports Committee, from January 2020 to June 2021
- Member, Institute Committee for Center for Innovation and Entrepreneurship (CIE), from January 2020 to September 2021
- Member, Institute Safety and Security Committee, from February 2020 to December 2021
- TEQIP Co-coordinator - TEQIP III program since February 2020
- Placement Faculty Coordinator, Department of EE, from June 2019 to January 2020
- Member, Institute PMRF Committee, since July 2020
- Internal Member, Research and Development Advisory Committee, since September 2021
- Committee Member, Entrepreneurship Education and Accelerator Program in Ujjain Satellite Campus, since October 2022
- Member, Institute project on "Capacity Building for Human Resource Development in UAS" funded by MeitY, since Oct 2022.

AWARDS/RECOGNITION/ACHIEVEMENTS

- Elevated to IEEE Senior Member Grade, since May 2023
- Honored as Exemplary Reviewer for IEEE Communication Letters, 2021, by IEEE Communications Society
- University Gold medal winner in M.E communication systems degree programme Anna University.
- Performance was assessed as "Exceeds Expectations" by NTU for the performance review period from 1 July 2017 to 30 June 2018.
- Performance was assessed as "Far Exceeds Expectations" by NTU for the performance review period from 1 July 2016 to 30 June 2017.
- Performance was assessed as "Exceeds Expectations" by NTU for the performance review period from 1 July 2015 to 30 June 2016.
- Recipient of COMSNETS 2015 travel grant award for presenting research proposal at IEEE International conference on communication systems and networks (COMSNETS 2015) held in Bangalore.
- Recipient of Microsoft student travel grant award for presenting research paper at IEEE International Conference on Communications (ICC) (ICC-2013) held in Budapest.
- MHRD doctoral fellowship, Govt. of India (July 2011 - May 2015).
- Qualified Graduate Aptitude Test in Engineering (GATE) 2010.
- Recipient of Deans merit list scholarship for securing within top 10% ranks in SASTRA university examinations held during academic year 2007 - 2008.
- Received merit certificates from SASTRA university for having secured second mark in Digital electronics and Analog modulation system semester papers.

PROFESSIONAL SERVICE

- **Reviewer** for IEEE Transactions on Wireless Communications, IEEE Transactions on Communications, IEEE Transactions on Signal Processing, IEEE Transactions on Vehicular Technology, IEEE Access, IEEE Transactions on Aerospace and Electronic Systems, IEEE Communication letters, IEEE Wireless Communications Letters, IEEE Signal Processing Letters, IET Communications, IET Optoelectronics, Elsevier Digital Signal Processing, Elsevier Physical Communication, Wiley transactions on emerging telecommunications technologies, Springer Circuits, Systems & Signal Processing.

- **Reviewer** for IEEE Signal Processing and Communications (SPCOM) conference 2014 and 2020, IEEE Wireless Communications and Networking conference (WCNC) 2015 and 2016, IEEE International Conference on Communications (ICC) 2016, IEEE International Symposium on Information Theory and its Applications (ISITA)-2018, IEEE International Conference on Advanced Networks and Telecommunications Systems (ANTS) 2018, 2019, 2021.
- **Technical Programme Committee (TPC) member** for IEEE National Conference on Communications (NCC) 2016, 2018, 2019, 2020, 2021, 2023, IEEE European Conference on Networks and Communications (EUCNC) & 6G Summit 2021, 2022, 2023, IEEE International Conference on Advances in Computing, Communications and Informatics (ICACCI) 2017 and 2018, IEEE SPCOM 2022, IEEE ANTS 2022, 2023.
- **Organizing Committee Member** for IEEE NCC 2022
- **Session Chair** for IEEE VTC 2017 organized by IEEE Vehicular Technology Society.
- **Advisory member** of Technology Innovation and Incubation Centre (TIIC) at Atal Bihari Vajpayee-Indian Institute of Information Technology and Management (ABV-IIITM), Gwalior Advisory Board from November 07, 2022 to October 31, 2023.

PERSONAL INFORMATION

Nationality: Indian

Date of Birth: 19 June 1988

Marital status : Married

Languages: Tamil, English, and Hindi