

Sanjeev Gurugopinath, Ph. D.

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- Adjunct Professor
 - Engineering Director (AI/Software)
 - IEEE Senior Member
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 - Citations (till date): 750+ 📄: <https://sites.google.com/a/pes.edu/sanjeevg> • h-index (till date): 14
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Summary

Education: Ph. D. in signal processing for communications from the Department of ECE, Indian Institute of Science, Bangalore 560012, India. <https://etd.iisc.ac.in/handle/2005/2647>

Thesis title: *Spectrum Sensing Techniques for Cognitive Radio Applications.*

Professional Experience: 18+ years of experience in industrial/academic professional research and prototyping, technical leadership on 100+ teams, and 12+ years of experience in teaching multiple streams. Active research collaborations with Indian and world-wide researchers, and managed multi-site teams. <https://sites.google.com/a/pes.edu/sanjeevg/>

Current Position: 4+ years as Engineering Director (AI/Software) for MMRFIC Tech. Pvt. Ltd.

Academic Experience: Professor, Department of ECE, PES University, Bengaluru, and adjunct Professor at various engineering colleges/Universities in KA and TN.

Patents and Publications: Two patents. Over 120 quality research publications including 30+ top-tier journals and 10 IEEE conference paper awards.

Recognitions: IEEE senior member, INAE summer research fellowship (SRF) mentor, Research coordinator at PES University, Faculty coordinator for Shunya – the math club and Apple developers' group.

Skillset and Work Experience

- **Research:** Signal processing, AI/ML, communications, underwater acoustics and speech technology.
 - **Coding skills:** Extensive experience in MATLAB with working knowledge in Python, C, R and Julia.
 - **Engineering Director (AI/Software) at MMRFIC Tech. India Pvt. Ltd. (May'23 - Till Date)**
 - *Design and development of algorithms* for detection, estimation and tracking of objects in millimeter-wave radars with emphasis on signal processing and machine learning-based approaches.
 - *Developed* a novel multi-stage detector for multiple targets, with a good detection probability.
 - *Design and development* of novel transmit waveforms for joint radar and communications.
 - *Design and development* of space-time array processing algorithms for millimeter wave radars.
 - **Professor at PES University (Jul '15 - Till Date (On sabbatical leave))**
 - Number of PhD theses guided and completed till date: 4
 - *Proposed and delivered* several cutting-edge subjects with strong analysis and hands-on components in signal processing, communications and machine learning streams.
 - *Consistently earned* > 90% feedback score in all subjects taught till date.
 - *Proposed and delivered* several University-level courses which became popular among students. *Established a world-class* research culture, with an average of 10 publications every year.
 - *Formulated research-driven student projects* which resulted in recommendations for Masters', Ph. D. and research positions all around the Globe.
 - Students have won best paper awards and travel grants at high-quality conferences in my supervision.
 - **Visiting Research Scholar, Khalifa University, Abu Dhabi, UAE (Oct '18 - Dec '18):** Worked on a funded project on developing algorithms for machine learning-based solutions for cache-aided edge computing vehicular communication systems. Was offered a generous extension to continue for long.
 - **Various Teaching Positions (Jul '08 - Jun '16):** Standard teaching and research responsibilities across various institutions and Universities. *Introduced* hands-on components in all courses taught. *Introduced* the concept of open-book evaluations. Consistently obtained > 90% feedback score in all subjects taught.
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Selected Talks, Seminars and Webinars in Last Two Years

- *Research paper: Layout, tips and tricks*, Research methodology workshop, CMR University, Bengaluru.
- *Online learning: Theoretical guarantees, convergence results and hands-on demonstrations*, FDP on AI applications to electrical and electronics engineering, Vidyavardhaka College of Engineering, Mysuru.
- *AI-driven design-inspired avenues in signal processing, communications and automation*, FDP on SPARC-AI, RV Institute of Technology and Management, Bengaluru.
- *Integrated communications and sensing: A novel paradigm for 6G communication systems*, FDP on 6G powered non-terrestrial networks, The National Institute of Technology, Mysuru.
- *Intelligent reflecting surfaces and MIMO ambient backscatter communication: From theory to practice*, FDP at Siddaganga Institute of Technology, Tumakuru.
- Organized and delivered a webinar on reflecting intelligent surfaces for 5G and beyond 5G in a topical vertical (TV-6) at the 4th IEEE 5G World Forum, Montreal, Canada.
- Invited webinar on intelligent reflecting surfaces for Hyderabad information theory workshop, in association with IEEE ComSoc, Hyderabad section.
- VTU-INAE-BC invited webinar on intelligent reflecting surfaces.
- Full set of talks can be found at: <https://sites.google.com/a/pes.edu/sanjeevg/news>

Selected Patents and Papers in Last Five Years

- G. Thiagarajan and **S. Gurugopinath**, “An optimal hybrid beamformer in multi-antenna wireless systems,” Filed at the USPTO, Dec. 2021.
- G. Thiagarajan and **S. Gurugopinath**, “A multi-stage detector for millimeter wave radars,” Filed at the IPO, Oct. 2021.
- S. Srikanth and **S. Gurugopinath**, “Driver behavior classification using multimodal images: A regular vine Copula-based approach,” Sig., Im. Vid. Process., Vol. 19, No. 8, pp. 598-606, May 2025.
- A. H. Raghavendra, **S. Gurugopinath** and S. Muhaidat, “Generalized spatial modulation for underwater backscatter communication using acoustic metasurfaces,” Sc. Rep., Vol. 15, No. 14247, Apr. 2025.
- A. K. Kowshik, **S. Gurugopinath** and S. Muhaidat, “Deep learning-based detection for RSMA with orthogonal time frequency space modulation,” IEEE Commun. Lett., Vol. 29, No. 4, pp. 669-673, Apr. 2025.
- S. Srikanth, **S. Gurugopinath** and K. George, “Cubical and spherical directional array-based particle source detection with Poisson statistics,” Sc. Rep., Vol. 15, No. 11637, Apr. 2025.
- A. K. Kowshik, **S. Gurugopinath** and S. Muhaidat, “Analysis and strategies of wireless caching-assisted rate-splitting multiple access,” IEEE Commun. Lett., Vol. 29, No. 3, pp. 418-422, Mar. 2025.
- S. Srikanth, **S. Gurugopinath** and S. Muhaidat, “Copula-driven learning techniques for physical layer authentication using multimodal data,” IEEE Access, Vol. 13, pp. 24091-24107, Feb. 2025.
- Full set of publications are at: <https://sites.google.com/a/pes.edu/sanjeevg/publications>

Other Recognitions

- Member of the executive committee at IEEE communications society (ComSoc) Bangalore chapter.
- Active adviser for Indian national academy of engineers summer junior research fellowship program.
- Best paper award finalist: GLOBECOM 2010, WRAP 2017, GLOBECOM 2018, and DISCOVER 2019.
- Technical program committee (TPC) member and activity for several IEEE conferences including ML for communications at VTC, GLOBECOM, ICC, Interspeech, SPCOM, NCC, and ANTS.
- Reviewer for IEEE transactions on communications (TCOM), vehicular technology (TVT), signal processing (TSP), IEEE selected areas in communications (JSAC) and several other peer-reviewed journals.
- Member of ICASA, member of EURASIP and life member of ACCS.
- Member of board of studies (BoS) at various engineering colleges/Universities in India.
- Doctoral committee member for several research scholars across various Universities in India.
- Faculty in-charge and adviser of IEEE communications society (ComSoc) and IEEE signal processing society (SPS) student branch chapters at the department of ECE, PES University.