Dhanekula Institute of Engineering & Technology, Ganguru, Vijayawada-521139
Department Of Electronics & Communication Engineering
FACULTY PROFILE

Dr. M. Vinod Kumar, M.Tech (IIT KGP) Ph.D (Andhra University)
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Education

- Ph.D, Thesis title: "Cooperative Hybrid FSO/mmW based Backhaul Communication System for Next Generation Wireless Networks" from Andhra University, 2016-20.
- M.Tech with specialization in Telecommunication Systems Engineering, with C.G.P.A-7.91 from IIT Kharagpur, 2011-13.
- B.Tech in Electronics & Communication Engineering with 72.6 %(Distinction) from Vignan's Institute of Information Technology, JNTU Hyderabad, 2003-07.
- Intermediate in M.P.C from Aditya Junior College with 87.9 %, 2001-03.
- S.S.C from N.K.V High School with 78.%, 2001.

Areas of Interest

- Optical Wireless Communications,
- Millimeter Wave Communications
- Cooperative Communications
- Intelligent Reflecting Surface-based Wireless Communications
- Data Science, Machine Learning, Artificial Intelligence.

Teaching Experience

- *Total Experience* – **14Years**
  - (i) Associate Professor, Dhanekula Institute of Engineering & Technology, Vijayawada, Andhra Pradesh
  - (ii) Assistant Professor, Bapatla Engineering College, Bapatla, Andhra Pradesh(2.8Years)
  - (iii) Research Scholar, Andhra University, Visakhapatnam, Andhra Pradesh (3.5 Years)
  - (iv) Assistant Professor, GITAM University, Visakhapatnam Andhra Pradesh (3.8 Years)
  - (v) Godavari Institute of Engineering & Technology, Rajahmundry, Andhra Pradesh (2 Years)
  - (vi) S.S. J College of Engineering, Hyderabad, Telangana, India. (2 Years)

Academic & Administrative Roles Held

- Institute IIPC Coordinator at Dhanekula Institute of Engineering & Technology.

- Institute Criteria 2 Coordinator at Dhanekula Institute of Engineering & Technology.
- Department Training & Placement Coordinatorat Bapatla Engineering College.
- Institute IQAC cell memberat Bapatla Engineering College.
- Department NAAC Criteria 5 In charge at Bapatla Engineering College.

Book Chapters

- M. Vinod Kumar, Bharati B, Laxmi Lavanya Y, and G. Sasibhushana Rao**, "Triple-Hop Hybrid FSO/mmW Based Backhaul Communication System for Wireess Networks Applications of 5G and beyond "**, Multiplexing-Recent Advances and Novel Apllications, IntechOpen, May 2021, DOI: 10.5772/intechopen.104392
- M. Vinod Kumar, Bharati B, Babji Prasad Chapa, and G. Sasibhushana Rao**, "GPS Signal Multipath Error Mitigation Technique"**, Satellites Missions and Technologies for Geosciences, IntechOpen, July 2020, DOI: 10.5772/intechopen.92295

Patents

- Patent on **A Novel Quad-Element MIMO Antenna with Defected Substrate for 5G Sub-6GHz N77/N78 Band**with application number 202341049478 published**on** 01/09/2023by IPR India.
- Patent on **A Unique Compact Triple-band Single-Element Monopole Patch Antenna for 5G Sub-6GHz WirelessApplications**with application number 202341049494 Apublished **on** 01/09/2023 by IPR India.

Publications

- Kumar, Mogadala & Minchula, Vinodh & Kumar, M. & Krishna, M & Gottapu, Sasibhushana. (2023). Performance Analysis of Multi-Hop Hybrid FSO/mm Wave Communication System for Next-Generation Wireless Networks. International Journal of Electrical and Electronics Research. 11. 1050-1056. 10.37391/ijeer.110424. **(SCOPUS Indexed)**.
- Vinod Kumar M, J. Chandra Sekhar rao, **" A Dual-band U-shaped microstrip antenna for 5G mmWave applications"** Springer Recent Advances in Wireless Communications & Emerging Technologies (RAWCET-2022)**(SCOPUS Indexed)**.
- Vinod Kumar M, J. Chandra Sekhar rao**, "Dual Hop Hybrid FSO/RF System for Backhaul of Small Cells in 5G"**AICTE SponsoredInternational Conference OnAdvancement In Electronic SystemsAnd Communication Technologies(ICAESCT 2022).ISBN : 978 - 93 - 5680 - 349 – 7.
- Vinod Kumar M, G Sasibhushana Rao**, "Estimation of FSO Link Availability for Visakhapatnam Coastal Region,"Springer** Microelectronics, Electromagnetics and Telecommunications, ISSN: 1876-1100, vol. 655, pp. 381-389, 2020 **(SCOPUS Indexed)**.
- Vinod Kumar M, G Sasibhushana Rao, **"Wireless Optical based Backhaul Communications for 5G Cellular Systems,"IEEE-**International Conference on Recent Innovations in Electrical, Electronics & Communication Engineering, Jul. 2018, ISBN:978-1-5386-5955-3/18 DOI:10.1109/ICRIEECE44171.2018.9009308**(SCOPUS Indexed)**

- Vinod Kumar M, G Sasibhushana Rao, **"Dual Hop Hybrid FSO/RF based Backhaul Communication System for 5G Networks,"IEEE-**International Conference on Wireless Communications, Signal Processing and Networking, Mar. 2019, ISBN:978-1-5386-9279-0/19 **(SCOPUS Indexed)**
- Vinod Kumar M, G Sasibhushana Rao, **"FSO based 5G Mobile Cellular Systems for Urban Canyons,"Springer** Microelectronics, Electromagnetics and Telecommunications, ISSN: 1876-1100, vol. 521, pp. 395-400, 2018.**(SCOPUS Indexed)**
- Babji prasad Ch, G Sasibhushana Rao, Vinod Kumar M "**Energy Efficient Green Mobile communication in India by 2020,"IEEE** - International Conference on Recent Innovations in Electrical, Electronics & Communication Engineering, Jul 2018, ISBN:978-1-5386-5955-3/18 **(SCOPUS Indexed)DOI:** 10.1109/ICRIEECE44171.2018.9009112
- Babji prasad Ch, G Sasibhushana Rao, Vinod Kumar M, **"Performance Analysis of Massive MIMO network in the downlink Scenario,"IEEE** - International Conference on Wireless Communications, Signal Processing and Networking, Mar 2019, ISBN:978-1-5386-9279-0/19 (**SCOPUS Indexed)**
- Vinod Kumar M, R. Swaminathan, and R.Roy, **Green cooperative communication techniques for intelligent transportation systems,"IEEE** – International Conference on Signal Processing, Computing and Control (ISPCC) Sep. 2013 ISBN:978-1-4673-6190-3(**SCOPUS Indexed)**
- P. Nandini, M. Vinod Kumar, and V.B.S.S.I. Dutt**, "Practical algorithms for a taget tracking of a pulse Doppler MIMO radar,"** A National Conference on Wireless Communications & Sensor Networks, Mar. 2014.
- Vinod Kumar M, Sailaja Vemuri, "**Text Independent Speaker Identification With Distant Microphone Speech ," A** National Conference on Information Technology Enabled Services (NCOITES), Sep. 2010.

Academic Project

- *Post-Graduation (M.Tech)Project*:-

  Green Cooperative Communication Techniques for Intelligent Transportation Systems: The current scenario of transportation Infrastructure reckon on the necessity for developing efficient intelligent transportation systems (ITS) because of the increased population, changes in population density, traffic congestion, etc. In this work, spatial modulation and cooperative diversity techniques-based energy efficient ITS (i.e. Green ITS) is developed and its performance is analyzed with the help of Monte-Carlo simulations.

- *Under Graduation (B.Tech)Project*:-

  Advanced Electronic Voting Machine with Fault Simulation: In the existing Electronic Voting Machine there is a possibility of fault simulation i.e it can be programmed to steal a percentage of

votes in favor of a chosen candidate. The possible solutions to avoid the fault simulation are to use voter-verifiable paper, introducing bio-metric systems otherwise return to the simple paper ballots.

Projects Guided

- Post-Graduation (M.Tech):01
- Under Graduation (B.Tech) :15

Professional Achievements

- **Co-Coordinator for ATAL FDP**on "RecentAdvancements in VLSI Design and Fabrication: From Theory to Practice", December 4th - 9th 2023.
- Served as **Technical Program Committee member** and reviewed papers submitted to theInternational Conference on Advances in Computational Intelligence andCommunication (ICACIC 2023), held on 7th & 8th December 2023.
- **Convener** for the **International Conference on Communications Signal Processing & Computing** (ICCSPC 2023) organized by Department of Electronics and Communications Engineering, Bapatla Engineering College, Bapatla, Andhra Pradesh.
- **Resource person** to five days FDP on "**Research and Industry Oriented Pipelines for Constructing ML applications**" organized by SIGNAL PROCESSING RESEARCH GROUP (SPRG), DEPARTMENT OF ECE,KL University in association with IETE Vijayawada Chapter, September 2022.
- **Reviewer** for "**International Conference on Computing, Communication and Power Technology**" (IC3P) 2022**,** organized by Raghu Institute of Technology and Raghu Engineering College in technical collaboration with IEEE Vizag Bay Section, **IEEE Conference record number: 52835.**
- **Reviewer** for **"International Conference on Breakthrough in Heuristics And Reciprocation of Advanced Technologies"** (BHARAT) 2022,organized by GITAM university and sponsored by IEEE Vizag Bay Section, IEEE Conference record number: 53139
- **Resource person** to five days FDP on "Futuristic Directions in Vision Computing and Biomechanics" organized bySignal Processing ResearchGroup (SPRG), KL University in association with IETE Vijayawada Chapter, September 2021.
- **Primary Evaluator**for"Toycathon 2021" organized by Ministry of Education Innovation cell, Govt. of India.
- Invited to participate in "**IBM Faculty Build-a-Thon Certificate Ceremony & Higher Education Event**" August 2022.
- **Coordinator** for the Five-day Online Faculty Development Program on "**Recent Trends in Next Generation Communication Technologies"** conducted by Department of Electronics and Communication Engineering of Bapatla Engineering College, Bapatla, August 2021.
- **Organizing member**for the two days National level online Seminar on **"Quality Improvement Via Accreditationand Ranking"** organized by IQAC Cell Bapatla Engineering College, Bapatla, June 2021.
- **Reviewer** for "International Conference on Micro-Electronics, Electromagneticsand

Telecommunications" (ICMEET) 2015, Springer – Lecture Notes in Electrical Engineering Series, Vol. 372.

Professional Memberships

- Professional Member of IEEE
- Professional Member of IETE
- Professional Member of ISTE
- Professional Member of SDIWC

NPTEL / SWAYAM MOOCS Courses

- Completed 2 months hands-on training program on "**Artificial Intelligence and Machine Learning"**conducted by**ISTE** in **collaboration with BNY Mellon**.
- 12 weeks course on **"Leaning Analytical Tools**" by IIT Bombay.
- 12 weeks course on **"Introduction to Machine Learning"**by IIT Madras.
- 12 weeks course on **"Deep Learning"** by IIT Madras.
- 8 weeks course on **"Data Science for Engineers"** by IIT Madras.
- 4 weeks course on "Python **for Data Science"** by IIT Madras.
- 12 weeks course on **"Applied Optimization for Wireless, Machine Learning, Big Data"** by IIT Kanpur.
- 8 weeks course on **"Evolution of Air Interface towards 5G"**by IIT Kharagpur.
- **"Latex for Students, Engineers, and Scientists"** offered by IIT Bombay.

Industry Certification Courses

- NVIDIA DLI Certificate awarded for completion of **Getting Started with AI on Jetson** Nano
- **Python for Data Science** provided by IBM Developer Skills Network.
- Microsoft Technology Associate for **Introduction to Programming using Python.**
- **Getting started with Enterprise Data Science** by IBM Skills Academy.
- **Improving Healthcare: The Role of Data Analytics and Data Science** by IBM.
- **Improving Healthcare: The Role of Cloud Computing** by IBM.

ATAL Faculty Development Programs

- "**Machine Learning**" organized by **IIIT Dharwad**from**18th -22nd** JAN 2022.

- "**Precision HealthCare Technology**" organized by SSN College of Engineering from 28th June to 2nd July 2021.
- "**Outcome Based Education (OBE) and NBA Accreditation Process**" organized by Government Polytechnic Pen from 20th -24th SEP 2021.
- "**5G Technology**" organized by BMS College of Engineering, from 23rd -27th AUG 2021.
- "**AI- Machine Learning &Optimization**"organized by **IIIT Allahabad**from 1st -5th FEB 2021.
- "**Capacity Building through Academic and Research Writing**" organized by**IIT Tirupati**from10th - 14th SEP 2021.
- "**Towards 5G Communications & Beyond with IOT, Machine Learning**" organized by GOA College of Engineering from 23rd to 27thNOV 2020.
- "**Smart Cities**" organizedby Lendi Institute of Technology from 7th -11th DEC 2020.

Short Term Training Programs

- SERB-SSR Sponsored 2-Days Online Skill Development Programon "6G Wireless Communication" organized by IIT Dharwad from 15th -16th DEC 2022.
- "**5G Wireless Communication Technology**" organized by **IEEE India Council** from 28th – 30th JUL 2022.
- **"Statistical Modelling and Analysis of Advanced Wireless Communication Systems"**organized by **IIT Indore** from 17th – 23rdMAR 2022.
- **"Python Programming for 5G Communications**" organized by MLR Institute of Technologyfrom 14th -22nd FEB 2022.
- **"IOT – 5 G AND BEYOND WITH DEEP LEARNING: DEMONSTRATIONS AND HANDS- ON TRAINING"**organized byMAHINDRA UNIVERSITY from7th – 11th JUL 2021.
- "**Effective and Efficient Online Teaching in the Age of Corona, A Hands-on Workshop** ", organized by Teaching Learning Center (ICT) **IIT Bombay**May 2020.
- "**Massive MIMO, Cooperative Communication and Cognitive Radio for 5G**" organized by Dept. of Electrical Engineering**, IIT Kanpur** at Andhra University from 6th-11thJAN2020.
- "**5G and Beyond Wireless Technologies: Modelling and Simulation Using MATLAB**" organized by **IIT Indore** from 24th – 26th DEC. 2020.
- "**Millimeter Wave Frequencies**" organized by Gudlavalleru Engineering College from 16th - 21stNoV.2020.
- **"Research Avenues in Machine Learning Approaches for Pattern Recognition"**organized by MGIT Hyderabad from 24th – 29th AUG. 2020(one week).
- **"5G Multi-User MIMO and massive MIMO systems".** organized by Dept. of Electrical Engineering**, IIT Kanpur** at MSRIT Bengaluru from 14th- 16th Jun. 2017
- **Characterizing and Modelling Wireless Channels",**organized by **NIT Rourkela** from 6th - 10th Jun. 2017.
- **"Basic Electronics",** organized by **IIT Bombay** during 28th June to 8th July 2011(Two-weeks).
- **"MICROWAVE & RADAR ENGINEERING",** organized by **NIT Warangal** during 15th – 27th June 2009 (Two-weeks).

Details of Workshops / Refresher Courses/ FDPs Attended

- participated in a Three-Day Online Faculty Development Program on "**Data Science and Its Applications**" organized by the Department of Cyber Security and Data Science,Bapatla Engineering College, during 7th - 9thAugust 2023.
- Participated in the NITTTR Chandigarh &AICTE recognized FDP on **Antenna Design Techniques and Tools**conducted by ECE department Dhanekula Institute of Engineering & Technology from 11/09/2023 to 15/09/2023.
- Completed the 5 days FDP on **Building Advanced Data Analytics Applications** with Cloud under Next Gen Employability Program from 20/11/2023 to 24/11/2023.
- Participated in one week FDP program on **"Enhancing Faculty Expertise: Communication and Signal / Image Processing** "organized by department of ECE, Aditya College of Engineering & Technology during 10th – 15th July 2023.
- Participated in the course "**Machine Learning using Python**" organized by NIELIT Calicut from 18th to 22nd September 2023.
- Participated in theNITTTR Chandigarh & AICTE Recognized FDP on "**Open Source Tools for Research**conducted by "CSE department Dhanekula Institute of Engineering & Technology from 15/05/2023 to 19/05/2023.
- Participated in the course "**Python** for Beginners" organized by NIELIT Calicut from 10th to 14th August 2023.
- **"Python for Data Science"**organized by NPTEL-AICTE from July-August 2022.
- **" Deep Learning"** organized by NPTEL-AICTE from July- April 2022.
- **" Data Science for Engineers"** organized by NPTEL-AICTE from July-September 2022.
- **"ICT Tools for Teaching and Learning Pedagogy"** organized by GMR Institute of Technology and Sri Sairam Institute of Technology from 23rd – 27th AUG 2022.
- **"Designing and Modelling of IOT, AI & ML"**organized by**AICTE, ATAL Academy, ARM Education and STM Electronics** from1st to 5th AUG 2022.
- "**DISRUPTIVE WIRELESS COMMUNICATION PARADIGMS: THE ROAD TOWARDS 6G**"organized by **IIIT Guwahati**from 5th -7th FEB 2021.
- "**TensorFlow2.3 on Deep learning Models – from Coder'sviewpoint**"organized by KL University, 1st -5th JUN 2021.
- "**Future Wireless Technologies**" organized byAjay Kumar Garg Engineering College, 15th -20th NOV 2021.
- "**Recent Advances in Antennas for Wireless Communications"**organized byBapatlaEngineeringCollege from 27th -31st JUL 2021.
- "**Advances in Wireless Communications**" organized by **NIT Andhra Pradesh**, 12th – 16th OCT 2020.
- Matlab Projects on "**Massive MIMO, Cooperative Communication and Cognitive Radio for 5G**" organized by Dept. of Electrical Engineering**, IIT Kanpur** at Andhra University" on 10th JAN 2020.

- HyWIT 2017: Hyderabad Workshops on **"Information Theory"** held at **IIIT-Hyderabad**on 9th , 16th ,17th , and 23th SEP 2017.
- **NPTEL workshop** organized by **IIT Madras** at GITAM University on 15th Feb. 2016.
- **"Latest Technology & Trends (4G, NFV, IOT, SDN, Network Management)",** organized by **TCS** at GITAM University on 26th-27th Aug. 2015.
- **"Advanced Computing using MATLAB",** organized by**Math works India pvt. Ltd**at GITAM University on 25th-27thFeb. 2015.
- Two-day faculty Orientation Programme on **"Basics of Pedagogy"** organized by GIT, GITAM University under TEQIP-II S.C. 1.2 during 21st -22nd Feb.2014.
- Tutorial **"Systematic Derivation of well-known Analog Circuits",** during IEEE PRIMEASIA 2013 held on 19th Dec. 2013 at GITAM University
- Two-days refresher course on **"ELECTRONIC DEVICES AND CIRCUITS",** organized by RRS College of Engineering and Technology during 16th – 17th Sep 2008.

Conferences Attended

- Springer 13thInternational Conference on Computer Communication and Informatics, organizedby Sri Shakthi Institute of Engineering and Technology in association with IEEE, held from 23rd- 25th January 2023.
- International Conference onRecent Advances in Wireless Communication and Emerging Technologies (RAWCET 2022), organized by KL University in association with IETE & IEEE Student chapter, IEEE CoSmSoc, held from 18th- 19th November 2022.
- International Conference Conference onAdvancement in Electronic SystemsAnd Communication Technologies(ICAESCT 2022) organized by ANITS, Visakhaptnam, held from 4th -5th November 2022.
- Springer 5thInternational Conference on Micro-Electronics, Electromagnetics and Telecommunications" (ICMEET) organized by RAGHU Institute of Technology during 6th -7th DEC 2019.
- IEEE International Conference on Wireless Communications, Signal Processing and Networking (WISPNET)organized by SSN College of Engineering, Chennai during 21st – 23rd MAR 2019.
- International Conference on Recent Innovations in Electrical, Electronics & Communication Engineering (ICRIEECE)organized by Kalinga Institute of Industrial Technology (KIIT), Bhubaneswar during 27th – 28th AUG 2018.
- Springer 5thInternational Conference on Micro-Electronics, Electromagnetics and Telecommunications" (ICMEET-2k18) organized by Gayatri Vidya Parishad College of Engineering, Visakhapatnam during 3rd -4th FEB 2018.
- National Conference on Information Technology Enabled Service (NCOITES-2010)organized by Adikavi NannayaUniversity, Rajahmundry during 22nd – 23rd OCT 2010.