

CONTACT

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OBJECTIVE

Motivated researcher with a passion for innovation in Signal Processing, Wireless Communication, Artificial Intelligence, and Robotics. Committed to pushing the boundaries of technology to solve complex challenges and drive advancements in these fields, leveraging a strong academic foundation and hands-on experience to contribute meaningfully to cutting-edge Research & Development projects.

EDUCATION

Master of Science (by Research) in Electrical Engineering August 2021-
Specialization: Signal Processing and Communication Networks
Department of Electrical Engineering,
Indian Institute of Technology, Kanpur, Uttar Pradesh, India
Key Courses: Wireless Communication, Random Variables and Random Processes,
Convex Optimization, Linear Algebra, DSP, Machine Learning, 5G, MIMO
CGPA: 8.01/10.0

Bachelor of Technology (Hons) in Electronics and Communication Engineering
TKM College of Engineering Kollam (Kerala state Govt. aided), 2015-19
APJ Abdul Kalam Technological University, Kerala, India
CGPA: 8.73/10.0

Higher Secondary (XII): 93.8% , Secondary (X): 95% (CGPA 10.0/10.0)
CBSE, Kendriya Vidyalaya Pattom, 2013-15
Thiruvananthapuram, Kerala, India

EXPERIENCE

Teaching Assistant Aug 2022 - Mar 2023
ESC 201, EE Dept, IIT Kanpur

- TA for the course ESC 201, Introduction to Electronics.
- Correction, grading and maintaining marks of quizzes.

Teacher Oct 2020 - Jul 2021
(Self employed)

- Taught and helped students of high school (Math and Physics) and Engineering (Electronics, Communication) during the COVID-19 Pandemic.

Software Engineer T1 (Firmware) Jun 2019 - Sep 2020
Tismo Technology, Bengaluru, Karnataka

- Work experience in developing projects in wireless communication domain and Internet of Things (IoT).
- Experience working in C and java ME.
- Experience working with UART, SPI, I2C (Board bring-up).
- Exposure to Zigbee, BLE, LoRa technologies.
- Attended Microchip Masters Conference, Bengaluru 2019, representing the firm.

Research Intern Jul 2018
DSP Lab, National Institute of Technology, Calicut, Kerala

- Worked on implementing improved PCA methods for detecting principal moving objects from video sequences.
- Worked under the guidance of Dr. Sudhish N George.

Intern Jul 2017
Airports Authority of India

- Received training on Area, Approach, and Air Traffic Control during landing and take off of airplanes.
- Conducted a comprehensive examination of various machines employed in air communication and compiled an extensive report summarizing my findings.

CORPORATE PROJECTS

LoRa sensor monitor 2020

- Developed a Proof Of Concept Application for evaluating LoRa technology where LoRa communication with available sensor data is demonstrated in all 3 classes and firmware over the air update is tested.

Smart street light control using 3G and Zigbee 2019

- Worked on the firmware development (Java ME) of a street light controller which has features designed to maintain energy efficiency.

Internet sharing for Smart street light control using Zigbee 2019

- As part of a team, got a chance to work on a proprietary technology that enables many street light controllers to exchange information via Zigbee with one main controller (switchable) which has 3G internet connectivity so that the internet connectivity is now virtually shared among all the controller devices.

ACADEMIC PROJECTS

A study on the effects of Inter Symbol Interference (ISI) in Molecular Communication systems 2023

- Master of Science by Research Thesis
- Molecular Communication aims to make communication possible in areas where wireless communication fails, for example: inside the human body.
- My work tries to analyze the effect of ISI in different scenarios in Molecular Communication.

- Simulations for studying Bit Error Rate, Signal to Noise Ratio, Signal to (Interference+Noise) Ratio for multiple antenna fading systems.
- Plotting and analyzing the capacities of diverse channels (AWGN, fading) in SISO to MIMO cases.
- Uplink Spectral Efficiency for line of sight and non-line of sight Massive MIMO channels for multi-cell systems.
- Language: Python, MATLAB
- Codes at: Github Repo

An inexpensive Unmanned Aquatic Vehicle for Underwater Human Detection 2019

- 8th semester B.Tech final year project
- Developed a low-cost working model of an underwater vehicle that is capable of performing object detection underwater while working autonomously.
- **Published a paper with the same title in American Institute of Physics Conference Proceedings, Volume 2222, Issue 1, article id 040015(2020).**

Advanced Vertical-Farming Assisting Setup (AVAS)

2017

- 5th semester research project
- Project to show the idea of automation on Vertical Farming for a better yield.
- Fuzzy performance analysis, and comparison of growth attributes, of subject plants with the ideal set, and automation using microcontroller, humidity, temperature sensors, and servo motors, and studied the response.

Bluetooth Enabled Assist Device (BEAD)

2016

- 4th semester summer project
- Devised a prototype model for assisting indoor navigation for visually challenged people.
- Used the then-latest BLE beacons for indoor mapping and developed an application to trigger the handheld device for direction advice.
- Paper was accepted in IEEE TENSYP 2018, Sydney, Australia but could not participate.

Autonomous Maze Solver

2015

- First year BTech project
- Implemented a modified version of the Pledge Algorithm to make a robot that solves the given maze.
- Maze consisted of styrofoam walls and the robot relied on ultrasonic sensors to detect walls.
- Demonstrated it in tech fests of NIT Calicut and my college.

**TECHNOLOGY
SKILLS**

Languages: C, C++, Java ME, Python, Web (HTML, CSS, JS), Verilog, VHDL
Hardware: Worked with boards from STM32, NXP, AVR, NRF
Protocols: UART, I2C, SPI, Zigbee, BACnet, BLE, LoRaWAN
IDE: STM CubeIDE, IAR Workbench, MCU Expresso, Atollic True Studio, Microsoft Visual Studio Code, IntelliJ IDEA
Miscellaneous: JTAG, SWD, Redmine, Mantis, Node-RED, Jira, LaTeX

COMMUNITY SERVICE	<i>Mathematics Teacher</i> Prayaas, IIT Kanpur	2023
	<ul style="list-style-type: none"> • I teach Mathematics to 11th-grade students 	
	<i>PG Core Team Member</i> Institute Counselling Service, IIT Kanpur	2022
	<ul style="list-style-type: none"> • Part of a team of Counselors and Mental health professionals to help students overcome stress and other difficulties during their time in the institute. Organized workshops and lectures on Mental health. • Organized Orientation (Welcoming/Freshers) for 1500+ PG students • Web development head for the team website 	
	<i>Student member</i> National Service Scheme, TKM CE (during B.Tech)	2018
	<ul style="list-style-type: none"> • Made power banks, and emergency lights and took part in making kits for providing to families affected by the 2018 Kerala floods. 	
LEADERSHIP SERVICE	<i>Student nominee to Institute Senate, IITK</i>	2022
	<ul style="list-style-type: none"> • I was one of the six special invitees to the Academic Senate at IIT Kanpur, which serves as the highest governing body responsible for overseeing institutional policies and decision-making. In this role, I played a key part in formulating proposals on behalf of the student community and served as their representative within the Senate. 	
	<i>Student nominee to Scholarships and Prizes Committee, IITK</i>	2022
	<ul style="list-style-type: none"> • I was entrusted as a student panel member in the Senate Scholarships and Prizes Committee where I managed and helped in the overall conduct of interviews for selection of students for various awards instituted by the college. 	
	<i>Vice President, Public Relations, Toastmasters Club IITK</i>	2022
	<ul style="list-style-type: none"> • I served as the inaugural Vice President of the Toastmasters Club at IIT Kanpur, where my responsibilities encompassed enhancing the club's visibility and bolstering its reputation among the college community. Additionally, I garnered recognition as the standout speaker and role-taker in numerous meetings. 	
	<i>Secretary, Photography Club IITK</i>	2022
	<ul style="list-style-type: none"> • I served as the sole secretary for the entire postgraduate student body, which consisted of approximately 3,000+ individuals. My responsibilities included organizing events and workshops for the campus community. 	
	<i>Co-founder, Space it lab, TKM CE (during B.Tech)</i>	2019
	<ul style="list-style-type: none"> • I was the co-founder of Space it Lab, a college initiative to open a technical laboratory for developing student-initiated projects; aimed at preparing and elevating students to the industrial requirements. {Newspaper report} 	
	<i>Co-founder, Automation & Robotics Club TKM CE</i>	2018
	<i>Student member and volunteer, IEEE, ISTE, IETE</i>	2017
	<i>School Captain, School Vice Captain,</i> <i>School Council Member for multiple tenures, (Kendriya Vidyalaya Pattom)</i>	2015
	<ul style="list-style-type: none"> • In school, I served in leadership positions in different roles like sports captain, prefect, and house captain for a record 7 times in primary and higher secondary. • While at IITK, I also had the opportunity to contribute to various short-term committees related to college matters, details of which were not explicitly outlined earlier. 	

EXTRA-CURRICULAR ACTIVITIES

- Athletics: Frequent participant in 5K running and 50K cycling events.
- Quiz enthusiastic: 1st in Inter-KV All Kerala Quiz Competition (2014), and other quiz competitions.
- Trained (since 2007) Mridangam player (Carnatic Music) and have played in school, college and office events. Also played Ukulele, Keyboard, Tabla, and Cajón for different events.
- Loves Bike Ride, Photography, Acting & Theatre, Art & Music, and Amateur Astronomy.

AWARDS & RECOGNITION

- Holder of General Grade Amateur Radio License (Call sign: VU2LWH) issued by Wireless Planning and Coordination Wing, Ministry of Communications, Govt. of India.
- Secured O[S] grade (Scored above 90%) in all mathematical subjects in the undergraduate curriculum.
- Secured (Hons.) from APJ Abdul Kalam Technological University for completing additional Master's level coursework credits within B.Tech course span.
- Google Science Fair Regional Finalist, Asia Pacific:
2 times consecutive during 2012 and 2013, for presenting one among the top 30 projects worldwide in the age category 14-16.
- Certificate of Merit and Cash Award from KV Sangathan for excellence in AISSE (Xth standard board examination) (2013).
- Proficiency Test Scores (2021):
IELTS: Band 7, GRE: 310 (Quants: 162),
Gate All India Ranks: 579 (Instrumentation Engg),
1935 (Electronics and Communication Engg.).