DEPT. OF EECE

GITAM
(DEEMED TO BE UNIVERSITY)
NAAC A++ ACCREDITED

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VISION

Create an environment to develop professional, scientific, and innovation skills in Electrical and Electronics Engineering to meet global demands and societal needs.

MISSION

- To understand the fundamental concepts through laboratory or field techniques of Electrical and Electronics Engineering.
- To prepare students for employment in multi-disciplinary areas.
- To enable students to pursue advanced degrees in multi-disciplinary programs or related professional schools.

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EDITORIAL BOARD

HOD, EECE

Dr. Pankaj Kandhway
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RESEARCH

1. Ugarakhod, R., Tripathi, S., & George, K. (2023). Event-Triggered Multiple-Model Identifier for a Class of Nonlinear Systems. Journal of Control, Automation and Electrical Systems, 34(5), 971-984.
2. Ismail, K. B. M., Kumar, M. A., Jayavel, R., Arivanandhan, M., & Ismail, M. A. M. (2023). Enhanced electrochemical performance of the MoS 2/Bi 2 S 3 nanocomposite-based electrode material prepared by a hydrothermal method for supercapacitor applications. RSC advances, 13(35), 24272-24285.
3. Narayanaswamy, A., & Muniyappa, R. (2023). Underdetermined direction of arrival estimation for multiple input and multiple outputs sparse channel based on Bayesian learning framework, Indones. Indonesian Journal of Electrical Engineering and Computer Science, 31(1), 170-179.
4. Chakraborty, A., Saxena, R. S., Verma, A., Juyal, A., Gupta, S., Singh, I. & Mandal, D. (2023). Multi-pattern synthesis in fourth-dimensional antenna arrays using BGM-based quasi-Newton memetic optimization method. International Journal of Microwave and Wireless Technologies, 1-11.
5. Tiwari, S., Vyas, A. K., Dixit, Y., Sudhir Bale, A., & Dixit, A. (2024). Refractive index sensing of human blood using patterned photonic crystal containing defects. International Journal of Modern Physics B, 38(20), 2450261.
6. Kumar, M. A., Jayavel, R., Mahalingam, S., Kim, J., & Atchudan, R. (2023). Detection of interleukin-6 protein using graphene Field-Effect transistor. Biosensors, 13(9), 834.
7. Ananda, M. H., Ankaiah, B., Oommen, S., Kumar, M., & Rao, K. L. (2023). An Improved Fuzzy Logic Control Algorithm of Photovoltaic MPPT Incremental Conductance Methodology. In 2023 World Conference on Communication & Computing (WCONF) (pp. 1-6). IEEE.
8. Venkatachalam, D., Jagadeesan, V., Ismail, K. B. M., Arun Kumar, M., Mahalingam, S., & Kim, J. (2023). Compact flexible planar antennas for biomedical applications: insight into materials and systems design. Bioengineering, 10(10), 1137.
9. Venkata Ramanamurthy, G., Umamahesh, M., Jaswanth, S., Chaithanya, S., Vatti, C. S., Natarajan, H., & Anumakonda, V. (2023). Biosynthesis and study of antibacterial copper-based nanoparticles. Inorganic and Nano-Metal Chemistry, 1-10.

BOOK CHAPTERS

1. Classification of Melanoma Skin Cancer Based on Transformer Deep Learning Model by Nagarjuna Telagam, Nehru Kandasamy.
2. Multiple Lung Disease Prediction Using X-Ray Images Based on Deep Convolutional Neural Networks by Nagarjuna Telagam, Nehru Kandasamy, Kumar Raja, Tharuni Gelli, D. Ajitha.
3. Analysis of Machine Learning and Deep Learning in Health Informatics, and Their Application by Nagarjuna Telagam, D. Ajitha, Nehru Kandasamy, Ben Othman Soufiene.
4. Face Mask Detection and Temperature Scanning for the COVID-19 Surveillance System Based on Deep Learning Models by Nagarjuna Telagam, D. Ajitha, Nehru Kandasamy, Ben Othman Soufiene.
5. Fiber Optic Communication: Evolution, Technology, Recent Developments, and Future Trends by Dr. Dankan V Gowda,M. Nagabushanam, Sridhara S. Boraiah, Ramesha Muniyappa.
6. Difficulties of Fiber Optic Setup and Maintenance in a Developing Nation by Dr. D ankan V Gowda, M. Nagabushanam, Sridhara S. Boraiah, Ramesha Muniyappa.

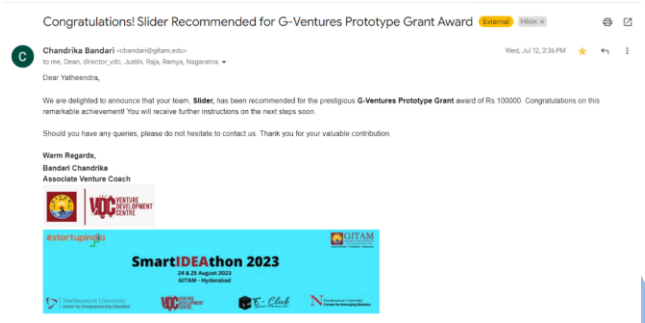
ARTICLE

10. Karan, B., & Kumar, A. (2024). Hilbert Domain Analysis of Wavelet Packets for Emotional Speech Classification. Circuits, Systems, and Signal Processing, 43(4), 2224-2250

Abstract: This work investigates the significance of Hilbert domain characterization of wavelet packets in classifying different emotion of speech signal. The goal of this paper is to create a new emotional speech database and introduce a new

feature extraction approach that can recognize various emotions. The proposed feature, wavelet cepstral coefficients (WCC) are based on Hilbert spectrum analysis of the wavelet packet of the speech signal. The speaker-independent machine learning models are developed using multiclass support vector machine (SVM) and *k*-nearest neighbourhood (KNN) classifier. The approach is tested with newly developed Telugu Indian database and the EMOVO (Italian emotional speech) database. Our proposed wavelet features achieve a peak accuracy of 73.5%, further boosted by NCA feature selection by 3–5%, resulting in an improved unweighted average recall (UAR) of 78% for database 1 and 87.50% for database 2, employing optimal wavelet features in conjunction with SVM classification. The proposed features outperformed the baseline Mel-frequency cepstral coefficients (MFCC) feature. The performance of newly formulated features is better than other existing methodologies tested with different language databases.

ACHIEVEMENTS & ACTIVITIES



- Mr. Sabbu Sashidhar, Ms. Mallempooti Manideepa, Mr. Andugulapti Sai Venkata Sesha Giri Rao, and Mr. Devasani Yatheendra Nath Reddy as a team participated in the GITAM Prototype Fund held on 6 July 2023 and won a prototype Fund of INR 1,00,000/-.

- Mr Sabbu Sashid har, Ms Mallempooti Manideepa, Mr Andugulapti Sai Venkata Sesha Giri Rao, and Mr Devasani Yatheendra Nath Reddy as a team participated in the Smart India Hackathon (Internal) held on 14 September 2023. They were Selected in the Top 15 Teams of Hardware for the National Level.

- Guest Lecture- 'Advanced CMOS Designing using Multisim Live Simulator' from 04th - 08th December 2023 at Chandigarh University, Gharuan, Mohali, organized by NITTTR Chandigarh (online mode) by Dr. M Arun Kumar.

- ATAL FDP, "Challenges and Advances in VLSI Design for Signal Processing and AI/ML Applications" was organized by Dr Koshy George & Dr M Arun Kumar from 18/12/23 to 23/12/23.

- ATAL FDP, "Machine Learning Approaches towards 5G/6G Mobile Networks", was organized by Dr.Sunita Panda and Dr.Ramesha M from 06/11/2023 to 11/11/2023.

- C programming was organized by Skillbout under the mentorship of Manjula R from 06/10/23 for 12 days.

- The embedded system was attended by Manjula R, Mr Venkata Kranti, Dr Avishek Chakraborty, Mr Venkata Phanidhar Sugani, and Dr Jeevan K M.

- Dr. Arun Kumar M successfully completed the NPTEL Online certification of the " System Design through Verilog" course. This certification reflects his commitment to advancing his expertise in digital system design, specifically through Verilog HDL, a crucial skill in the field of electronics and communication engineering.

- Dr Kamalanathan completed the NPTEL Online certification of the course “Introduction to Wireless and Cellular Communications” successfully.
- Dr Manmohan Sharma successfully completed the NPTEL Online certification of the “Introductory Course in Real Analysis” course.
- Makerspace was established at GITAM Bengaluru and was inaugurated on 4th August 2023 by honourable Pro Vice-Chancellor Dr KNS Acharya. Establishing the Ecosystem Element Makerspace at GITAM is a testament to our commitment to fostering innovation and cultivating a culture of hands-on product development within the GITAM Community.

MESSAGES

Dear Readers,

As a professor of the Electrical, Electronics, and Communication Engineering Department at GITAM (Deemed to be University) Bengaluru campus, I am thrilled to share insights into our vibrant community and impactful work here. Our department is dedicated to advancing knowledge and innovation across critical areas such as power systems, electronics, telecommunications, and emerging fields like artificial intelligence and renewable energy. At GITAM, we emphasize academic excellence, hands-on learning, and real-world problem-solving. We foster an environment where students are encouraged to participate in cutting-edge research projects, internships, and collaborative industry initiatives that extend beyond the classroom. Our faculty, recognized for their research and teaching excellence, is crucial in mentoring and guiding students towards successful careers.

Dr Koshy George, Professor, EECE

Message from a Student:

I'm proud to be part of the Electronics and Communication Engineering (ECE) department at Gitam, specializing in AI and ML. The department offers excellent education with a blend of strong theoretical grounding and hands-on experience. Our state-of-the-art labs, advanced equipment, and updated curriculum ensure we're always aligned with the latest industry trends. The supportive faculty and modern infrastructure create an environment that fosters innovation, making us well-prepared for future challenges in technology.

Aditya L, 2nd Year, ECE

Message from the Editorial Board

We are delighted to bring you Volume 3 and Issue 3 of our department’s newsletter. This publication is a testament to the dedication and creativity within our Electrical, Electronics, and Communication Engineering community. Through these pages, we aim to share inspiring stories, highlight pioneering research, and celebrate the achievements that define our department. This issue features articles and updates on innovative projects, recent events, and notable contributions from our faculty and students. We hope this newsletter not only informs but also inspires you. Your engagement, feedback, and support are invaluable to us, and we look forward to staying connected as we continue to push the boundaries of knowledge and innovation.