2ⁿᵈ IEEE International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics

Venue: BNM Institute of Technology, Bengaluru, India

Proceedings of the
2ⁿᵈ International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics (ICIITCEE 2024)

24 – 25 January 2024
Bengaluru, India

Editors in Chief
Dr. Jyoti R Munavalli, Dr. Rekha P
BNM Institute of Technology, Bengaluru, Karnataka, India
Editors
Dr. Yashajyothi M Shirur, Dr. Bindu S, Dr.Venkatesha K
BNM Institute of Technology, Bengaluru, Karnataka, India

Technical inquiries

BNM Institute of Technology, Bengaluru
iitcee.bnmit@gmail.com

2ⁿᵈ International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics (ICIITCEE 2024)

i

2ⁿᵈ IEEE International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics

24-25 January 2024

Venue: BNM Institute of Technology, Bengaluru, India

Vidyayāmruthamashnuthe

Welcome Messages

B.N.M. Institute of Technology

An Autonomous Institution under VTU

Approved by AICTE, Accredited as Grade A Institution by NAAC.
All eligible UG branches – CSE, ECE, EEE, ISE & Mech. Engg. are Accredited
by NBA for academic years 2018-19 to 2024-25 & valid upto 30.06.2025

Vidyayāmruthamashnuthe

50 GOLDEN JUBILEE

Bhageerathi Bai Narayana Rao Maanay
Educational Institutions
1972-2023

Message from Chairman

I am extremely happy that 2ⁿᵈ International Conference IITCEE 2024 is being organized at BNM Institute of Technology on 24ᵗʰ and 25ᵗʰ January 2024. The conference has received a very good response from both, India and abroad. This Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics is going to be succinct and it will bring together eminent personalities, researchers, and thinkers from around the globe. I am sure this conference will provide an experience that will be enriching, invigorating and convergent for knowledge. I hope this conference and the technical expertise that goes with it, will also encourage networking among the attendees, while showcasing the heritage of Bangalore.

I am delighted to congratulate our team for organizing this conference under the distinguished advisory committee comprising of Additional Director Dr. S. Y. Kulkarni, Director Prof. T. J. Ramamurthy, Dean Prof. Eishwar N. Maanay and Principal Dr. Krishnamurthy G.N. IEEE Xplore will be publishing this conference which would motivate and inspire the nascent researchers.

I wish that, the two-day International Conference achieves all the goals that it has set for itself and accomplish its mission in full.

Narayan R Mane

Sri. Narayan Rao R. Maanay

Chairman, GB, BNMIT.

Administrative Office & Campus: 27th cross, 12th Main, Banashankari 2nd Stage, Bengaluru 560070
Ph: +91 80 26711780 / 81 / 82   Email: principal@bnmit.in   www.bnmit.org

Bhageerathi Bai Narayana Rao Maanay Charities

2ⁿᵈ International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics (ICIITCEE 2024)

ii

2ⁿᵈ IEEE International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics

24-25 January 2024

Venue: BNM Institute of Technology, Bengaluru, India

B.N.M. Institute of Technology

An Autonomous Institution under VTU

Approved by AICTE, Accredited as Grade A Institution by NAAC.
All eligible UG branches – CSE, ECE, EEE, ISE & Mech. Engg. are Accredited by NBA for academic years 2018-19 to 2024-25 & valid upto 30.06.2025

Message from Director

I am delighted to extend a warm welcome to each and every guest and participant for the IEEE International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics (IITCEE-2024), which is taking place on 24ᵗʰ and 25ᵗʰ January, 2024, in Bengaluru, India, being hosted by BNM Institute of Technology.

BNM Institute of Technology has developed into one of leading and most prestigious technical and management schools in more than 20 years. BNMIT consistently supports and fosters initiatives that help the scientific community contribute to societal well-being and advance global recognition for our country.

The use of electronic devices has increased dramatically over the years in most disciplines, from emergency medicine to agriculture, in an effort to boost human life expectancy and productivity yield. The conference offers a venue for the researchers working in these fields to present their findings and receive feedback to help them further in their studies. In this regard, the IITCEE-2024 is a fantastic venue where academics and industry professionals, and researchers can exchange findings on a wide range of inventive technology.

I'm excited to see you all at IITCEE-2024 in BNMIT, Bangalore, and to have the most enjoyable, fascinating, and productive Conference together.

Prof. T. J Rama Murthy
Director, BNMIT.

Administrative Office & Campus: 27th cross, 12th Main, Banashankari 2nd Stage, Bengaluru 560070
Ph: +91 80 26711780 / 81 / 82 Email: principal@bnmit.in www.bnmit.org

Bhageerathi Bai Narayana Rao Maanay Charities

2ⁿᵈ International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics (ICIITCEE 2024)

iii

2ⁿᵈ IEEE International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics

24-25 January 2024

Venue: BNM Institute of Technology, Bengaluru, India

B.N.M. Institute of Technology

An Autonomous Institution under VTU

Approved by AICTE, Accredited as Grade A Institution by NAAC.
All eligible UG branches – CSE, ECE, EEE, ISE & Mech. Engg. are Accredited
by NBA for academic years 2018-19 to 2024-25 & valid upto 30.06.2025

Message from Additional Director

Greetings to all the participants of IEEE International Conference on Intelligent and Innovative Technologies

It is with great pleasure and excitement that I extend a warm welcome to all of you attending the IEEE International Conference on Intelligent and Innovative Technologies. This prestigious gathering serves as a platform for brilliant minds from around the world to converge, collaborate, and contribute to the advancement of cutting-edge technologies.

In the rapidly evolving landscape of intelligent and innovative technologies, this conference stands as a beacon of knowledge exchange and intellectual exploration. As we embark on this journey together, let us engage in stimulating discussions, share ground-breaking research, and foster connections that have the potential to shape the future of technology.

The diverse array of presentations, special sessions, and keynote addresses promises to provide valuable insights into the latest developments in Artificial Intelligence, Machine Learning, Robotics, and other transformative fields, it is our collective dedication to innovation that propels us forward and this conference serves as a testament to the unwavering commitment of the global scientific community.

May this event be a source of inspiration, collaboration, and mutual growth. Let us seize the opportunity to forge new partnerships, challenge our perspectives, and contribute to the ever-expanding realm of intelligent and innovative technologies.

Wishing you all a productive and enlightening experience at the IEEE International Conference on Intelligent and Innovative Technologies.

Best Regards,

Dr. S Y Kulkarni
Additional Director, BNMIT

Administrative Office & Campus: 27th cross, 12th Main, Banashankari 2nd Stage, Bengaluru 560070
Ph: +91 80 26711780 / 81 / 82   Email: principal@bnmit.in   www.bnmit.org

Bhageerathi Bai Narayana Rao Maanay Charities

2ⁿᵈ International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics (ICIITCEE 2024)

iv

2ⁿᵈ IEEE International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics

24-25 January 2024

Venue: BNM Institute of Technology, Bengaluru, India

B.N.M. Institute of Technology

An Autonomous Institution under VTU

Approved by AICTE, Accredited as Grade A Institution by NAAC.
All eligible UG branches – CSE, ECE, EEE, ISE & Mech. Engg. are Accredited
by NBA for academic years 2018-19 to 2024-25 & valid upto 30.06.2025

Message from Dean, BNMIT

It is with immense excitement and a deep belief in the power of innovation that I welcome you all to the International Conference on Intelligent and Innovative Technologies in Computing, Electrical, and Electronics (IITCEE) 2024.

Innovation serves as the heartbeat of progress, propelling us towards a future defined by transformative ideas and advancements. This conference, hosted by BNM Institute of Technology, stands as a testament to our commitment to fostering creativity, collaboration, and the exchange of ground-breaking ideas.

I commend the organizing committee for their unwavering dedication in curating a platform that not only showcases diverse research but also facilitates thought-provoking discussions. Our esteemed speakers from both industry and academia promise to elevate the conference, providing valuable insights that will undoubtedly enrich the knowledge of students, faculty members, and researchers.

As we embark on this intellectual journey, I express my heartfelt congratulations on receiving a record number of papers. This achievement reflects the profound impact and relevance of the IITCEE conference in our ever-evolving technological landscape.

To all participants, I encourage you to embrace this opportunity to connect, learn, and contribute to the vibrant era of innovation. May this conference be a resounding success, paving the way for future gatherings that continue to inspire curiosity and drive innovation across diverse engineering domains. Wishing you an enlightening and rewarding experience at IITCEE 2024.

Prof. Eishwar N Maanay
Dean, BNMIT

Administrative Office & Campus: 27th cross, 12th Main, Banashankari 2nd Stage, Bengaluru 560070
Ph: +91 80 26711780 / 81 / 82 Email: principal@bnmit.in www.bnmit.org

Bhageerathi Bai Narayana Rao Maanay Charities

2ⁿᵈ International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics (ICIITCEE 2024)

v

2nd IEEE International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics

24-25 January 2024

Venue: BNM Institute of Technology, Bengaluru, India

Vidyayāmruthamashnuthe

B. N. M. Institute of Technology

An Autonomous Institution under VTU

Approved by AICTE, Accredited as Grade A Institution by NAAC.
All eligible UG branches – CSE, ECE, EEE, ISE & Mech. Engg. are Accredited
by NBA for academic years 2018-19 to 2024-25 & valid upto 30.06.2025

Vidyayāmruthamashnuthe

50 GOLDEN JUBILEE

Bhageerathi Bai Narayana Rao Maanay
Educational Institutions
1972-2023

Message from Principal

I am extremely happy that BNM Institute of Technology is organizing 2nd IEEE **International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics (IITCEE 2024) on 24th and 25th January 2024.**

The 1st IEEE Conference IITCEE 2023 received overwhelming response across the world from researchers, academicians and industry. Totally 222 papers were accepted, presented and published in IEEE Xplore which is Scopus indexed.

This conference addresses a broad spectrum of interdisciplinary topics that enhance technological convergence and barrier-free exploration. I strongly believe that this conference will provide excellent opportunity for exchange of knowledge through interactions and a best platform for networking opportunities.

Innovative solutions get unlocked through interdisciplinary research and collaborations. I am sure this conference brings together academicians, researchers and students to converse the most recent innovative technologies and their applications.

The efforts of organizing committee for this initiative are commendable. I wish this 2nd conference a very grand success.

Dr. Krishnamurthy G N
Principal, BNMIT

Administrative Office & Campus: 27th cross, 12th Main, Banashankari 2nd Stage, Bengaluru 560070
Ph: +91 80 26711780 / 81 / 82   Email: principal@bnmit.in   www.bnmit.org

Bhageerathi Bai Narayana Rao Maanay Charities

2nd International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics (ICIITCEE 2024)

vi

2nd IEEE International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics

24-25 January 2024

Venue: BNM Institute of Technology, Bengaluru, India

B.N.M. Institute of Technology

An Autonomous Institution under VTU

Approved by AICTE, Accredited as Grade A Institution by NAAC.
All eligible UG branches – CSE, ECE, EEE, ISE & Mech. Engg. are Accredited
by NBA for academic years 2018-19 to 2024-25 & valid upto 30.06.2025

Message from Conference General Chair

I am thrilled to extend a warm invitation to all for the upcoming 2nd IEEE **International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics (IITCEE 2024)** on 24th and 25th January 2024.

The inaugural IEEE Conference IITCEE 2023 gathered a significant global response from researchers, academics, and industry professionals. A total of 222 papers were not only accepted but also presented and published in IEEE Xplore and indexed by Scopus.

This event promises to be a gathering of brilliant minds, thought leaders, and innovators in the field, providing a platform for the exchange of groundbreaking ideas and cutting-edge research. The highlights of the conference are *Keynote Speakers, Technical sessions, Paper Presentations and Networking Opportunities.*

The keynote speakers will share insights into the latest trends and future directions. Technical Sessions covers a broad spectrum of topics, including but not limited to artificial intelligence, machine learning, Internet of Things (IoT), robotics, and more. Paper Presentation helps to explore groundbreaking research through by leading researchers and practitioners in the field. Networking Opportunities connect with fellow professionals, researchers, and innovators, fostering collaborations that may lead to new breakthroughs.

Continuing our trend of positive responses, we have received an impressive 500+ papers for the upcoming event. These submissions have undergone thorough review by researchers, academicians, and industry experts. Notably, over 200+ papers have been accepted and registered, and they are scheduled for presentation during this conference. Don't miss this opportunity to be part of a transformative event that will shape the future of intelligent and smart technology. We look forward to your active participation in making this conference a resounding success.

Dr. Yasha Jyothi M Shirur
Prof. and Head, Dept. of ECE
BNMIT, Bengaluru

Administrative Office & Campus: 27th cross, 12th Main, Banashankari 2nd Stage, Bengaluru 560070
Ph: +91 80 26711780 / 81 / 82   Email: principal@bnmit.in   www.bnmit.org

Bhageerathi Bai Narayana Rao Maanay Charities

2nd International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics (ICIITCEE 2024)

vii

2ⁿᵈ IEEE International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics

24-25 January 2024

Venue: BNM Institute of Technology, Bengaluru, India

B.N.M. Institute of Technology

An Autonomous Institution under VTU

Approved by AICTE, Accredited as Grade A Institution by NAAC.
All eligible UG branches – CSE, ECE, EEE, ISE & Mech. Engg. are Accredited
by NBA for academic years 2018-19 to 2024-25 & valid upto 30.06.2025

Message From Conference Organizing Team

| Organizing Chair | Technical Program Chair | Publication Chair |

On behalf of the Organizing Committee, we are happy to Welcome Chief Guest, Keynote Speakers, Authors, Reviewers and Session Chairs to the 2ⁿᵈ IEEE International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics (ICIITCEE-2024) organized by BNM Institute of Technology, Bengaluru, India on 24ᵗʰ and 25ᵗʰ of January 2024.

ICIITCEE 2023 had received an overwhelming response with 222 papers published in IEEE Xplore and indexed in Scopus. This year also we have received profuse response from researchers all over the world. This year department of Electronics and Communication Engineering along with Electrical Engineering takes an opportunity to organize the International Conference and we whole heartedly thank our management for encouraging and supporting us. Organizing such conferences provides rich experience, enhances leadership qualities and networking with the outside world.

We are happy to welcome the researchers across the world to this conference. We are looking forward to meet and interact with you all in the conference.

Dr. Jyoti R Munavalli
Organizing Chair
ICIITCEE -2024

Dr. Bindu S
Technical Program Chair
ICIITCEE - 2024

Dr. Rekha P
Publication Chair
ICIITCEE - 2024

Bhageerathi Bai Narayana Rao Maanay Charities

2ⁿᵈ International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics (ICIITCEE 2024)

viii

2ⁿᵈ IEEE International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics

Venue: BNM Institute of Technology, Bengaluru, India

24-25 January 2024

Chief Patron

Sri Narayan Rao R. Maanay, Chairman, Governing Body, BNM Institute of Technology, Bengaluru, India

Chief Mentor

Dr. S. Sadagopan, Former director, IIIT, Bangalore, Advisor, BNM Institute of Technology, Bengaluru, India

Patrons

Dr. S. Vidyashankar, Vice Chancellor, Belagavi, India.
Sri. Ashok R. Maanay, Joint-Secretary, BNMEI, Bengaluru, India.
Prof. T. J. Rama Murthy, Director, BNM Institute of Technology, Bengaluru, India.
Dr. S. Y. Kulkarni, Additional Director, BNM Institute of Technology, Bengaluru, India.
Prof. Eishwar N. Maanay, Dean, BNM Institute of Technology, Bengaluru, India.
Dr. Krishnamurthy G. N., Principal, BNM Institute of Technology, Bengaluru, India.

General Chair (s)

Dr. Yasha Jyothi M Shirur, Prof. & Head, ECE, BNM Institute of Technology, Bengaluru, India
Dr. Venkatesha K, Prof. & Head, EEE, BNM Institute of Technology, Bengaluru, India

Organizing Chair

Dr. Jyoti R Munavalli, Professor, BNM Institute of Technology, Bengaluru, India

Technical Program Chair (s)

Dr. Bindu S, Professor, BNM Institute of Technology, Bengaluru, India
Sri. Anindya Saha, Chair, IEEE ComSoc, Bangalore
Dr. Raghavendra Prasad S.G., SAC Co-Chair, IEEE Bangalore Section, Bengaluru, India.
Dr. Priya R. Sankpal, Associate Professor, BNM Institute of Technology, Bengaluru, India.
Dr. Keerti Kulkarni, Associate Professor, BNM Institute of Technology, Bengaluru, India.
Dr. Shubha Rao K., Associate Professor, BNM Institute of Technology, Bengaluru, India.
Prof. Sumathi A., Associate Professor, BNM Institute of Technology, Bengaluru, India.

Steering Committee Chair (s)

Dr. S. Y. Kulkarni, Additional Director, BNM Institute of Technology, Bengaluru, India
Prof. Debabrata Das, Ex Chair, IEEE Bangalore Section, Director, IIIT-Bangalore, Bengaluru, India

2ⁿᵈ International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics (ICIITCEE 2024)

ix

2ⁿᵈ IEEE International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics

Venue: BNM Institute of Technology, Bengaluru, India

24-25 January 2024

Vidyayāmruthamashnuthe

Financial Chair (s)

Dr. Subodh kumar Panda, Professor, BNM Institute of Technology, Bengaluru, India.
Dr. Manjunath Asuti, Associate Professor, BNM Institute of Technology, Bengaluru, India.

Publication Chair (s)

Dr. Rekha P, Professor, BNM Institute of Technology, Bengaluru, India.
Dr. Abhishek Appaji, Treasurer, IEEE Bangalore Section, Professor, BMS CE, Bengaluru, India
Dr. Bhuvana Suganthi D, Associate Professor, BNM Institute of Technology, Bengaluru, India.
Dr. Sudalai Shunmugam S, Associate Professor, BNMIT, Bengaluru, India
Dr. Ashwini S. Savanth, Associate Professor, BNM Institute of Technology, Bengaluru, India.
Dr. Madhu S., Associate Professor, BNM Institute of Technology, Bengaluru, India.
Dr. Vrunda, Associate Professor, BNM Institute of Technology, Bengaluru, India
Dr. Priyashree S. Associate Professor, BNM Institute of Technology, Bengaluru, India

Information Chair (s)

Dr. Chaitra N, Associate Professor, BNM Institute of Technology, Bengaluru, India.
Dr. N. Shesha Prasad, Professor, BNM Institute of Technology, Bengaluru, India.

Organizing Committee

Dr. Chayadevi M.L., Prof. & HoD, CSE, BNM Institute of Technology, Bengaluru, India.
Dr. S. Srividhya, HoD, ISE, BNM Institute of Technology, Bengaluru, India.
Dr. B. S. Anil Kumar, Prof. & HoD, Mech. Engg, BNM Institute of Technology, Bengaluru, India.
Dr. Sheeba, Prof. & HoD, AIML, BNM Institute of Technology, Bengaluru, India.
Dr. Vijayashree L., Head Innovations, BNM Institute of Technology, Bengaluru, India.
Dr. Saritha Chakrasali, Head, T & P, Professor, ISE, BNM Institute of Technology, Bengaluru, India
Prof. S. L. Satheesh Kumar, Head, Teaching Learning Centre, BNM Institute of Technology, Bengaluru, India.
Dr. A. Kumar, Associate Professor, BNM Institute of Technology, Bengaluru, India.
Dr. Rashmi S Bhaskar, Associate Professor, BNM Institute of Technology, Bengaluru, India.
Dr. Sujaya B. L., Associate Professor, BNM Institute of Technology, Bengaluru, India.
Prof. Priyadarshini K Desai, Assistant Professor, BNM Institute of Technology, Bengaluru, India.

2ⁿᵈ International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics (ICIITCEE 2024)

x

2ⁿᵈ IEEE International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics

Venue: BNM Institute of Technology, Bengaluru, India

24-25 January 2024

Technical Program Committee

Technical Program Chair (s)

Dr. Bindu S, Professor, BNM Institute of Technology, Bengaluru, India
Sri. Anindya Saha, Chair, IEEE ComSoc, Bangalore
Dr. Raghavendra Prasad S.G., SAC Co-Chair, IEEE Bangalore Section, Bengaluru, India.
Dr. Priya R. Sankpal, Associate Professor, BNMIT, Bengaluru, India.
Dr. Keerti Kulkarni, Associate Professor, BNMIT, Bengaluru, India.
Dr. Shubha Rao K., Associate Professor, BNMIT, Bengaluru, India.
Prof. Sumathi A., Associate Professor, BNMIT, Bengaluru, India.

Members

AnilKumar Suthar, New L J Institute of Engineering and Technology

Anindita Das, Assam Down Town University

Anitha Julian, Saveetha Engineering College

Anitha Peram, SJBIT

Anooja Ali, REVA University

Anuradha Yenkikar, Vishwakarma Institute of Information Technology, Pune

Anwar Basha H, REVA University

Asha N, Acharya Institute of Technology

Ashish Kumar, Ajay Kumar Garg Engineering College

Ashish Sheikh, Cisco Systems

Bhanu Sharma, Chitkara University

Chandrika M, Dayananda Sagar College of Engineering

Deepali Gupta, Chitkara University

Dileep Bolla, Nitte Meenakshi Institute of Technology

Dimple Nagpal, Chitkara University

Emilin Kangappadan, Christ College of Engineering

Gopirajan PV, SRM Institute of Science and Technology

Govinda K, VIT University

Gurjinder Kaur, Chitkara University, Punjab

Hariharasitaraman S, VIT Bhopal University

Ishu Sharma, Chitkara University

Jalaja G, BDSCET

2ⁿᵈ International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics (ICIITCEE 2024)

xi

2nd IEEE International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics

Venue: BNM Institute of Technology, Bengaluru, India

24-25 January 2024

Jasmine K S, R.V. College of Engineering

Jayaram Reddy Avulapalli, Vellore Institute of Technology

Jenitta J, AMC Engineering College

Kannadhasan Suriyan, Study World College of Engineering

Kavitha S, Nitte Meenakshi Institute of Technology

Leema Nelson, Chitkara University

Malini S, AMC Engineering College

Manjula Rao, NITTE (Deemed to be University), NMAM Institute of Technology Nitte

Manjunath Kounte, REVA University, Bengaluru

Mithra Venkatesan, D.Y.Patil Institute of Technology Pimpri, Pune

Mudita Uppal, Chitkara University,Punjab

Naga Pushpa, Acharya institute of Technology

Nagaraju P, RV College of Engineering

Nagarathna R, DSATM

Neelam Dahiya, Chitkara University

Nilesh Ingale, G.H.Raisoni Institute of Engineering and Business Management Jalgaon

Parag Jyoti Das, Assam Down Town University

Poornima Patil, Visvesvaraya Technological University, Belagavi

Prabu U, Velagapudi Ramakrishna Siddhartha Engineering College

Pradnya Patil, K J Somaiya Institute Technology, Mumbai

Premkumar M, Dayananda Sagar College of Engineering

Rajendra Prasad P, Ramaiah Institute of Technology

Rama Satish KV, RNS Institute of Technology

Rashmi Deshpande, AMC Engineering College

Ravi Gatti, Dayananda Sagar Academy of Technology & Management Bengaluru

Revathi Vaithiyanathan, Dayananda Sagar University

Roopashree S, RV Institute of Technology and Management

Sai Kiran Pasupuleti, Prasad V Potluri Siddhartha Institute of Technology

Sandeep Ushkewar, SVKM's Institute of Technology, Dhule

Sandhya Sharma, Chitkara University

Sarvendra Singh, Netaji Shubhash University of Technology

Savitha Pandurangi, DSCE

Sendhil kumar KS, VIT University

2nd International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics (ICIITCEE 2024)

xii

Shahina Mohammad, Dayananda Sagar University

Shakunthala B S, Kalpataru Institute of Technology, Tiptur

Shalini Agarwal, Amity Uttar Pradesh

Shalini Shravan, RV Institute of Technology and Management

Shiva Shankari Maruthai, Care College of Engineering

Somashekar K, SJB Institute of Technology

Sonal Patil, G H Raisoni Institute of Business Management

Sonam Mittal, Chitkara University

Sunil K N, Sri Venkateshwara College of Engineering

Sunitha K, RNS Institute of Technology

Suprith PG, REVA University

Swapandeep Kaur, Chitkara University

Swetha Rani, AMCEC

Tushar Jaware, R C Patel Institute of Technology, Shirpur

Vasudeva G, Dayananda Sagar Academy of Technology and Management

Vatsala Anand, Chitkara University

Venkatesan B, Paavai Engineering College

Vijaya Madhavi M, Garden City University

Vishnu Madhanmohan, Christ College of Engineering, Thrissur

Viswanath Hesaraghatta, CHRIST (Deemed to be University)

2nd International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics (ICIITCEE 2024)

xiii

2ⁿᵈ IEEE International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics

Venue: BNM Institute of Technology, Bengaluru, India

24-25 January 2024

Advisory Board/Committee

Dr. Aloknath De, Chair-IEEE Bangalore Section, Adjunct Professor, IISC and IIT-J, Former CVP & CTO-Samsung, Bengaluru.

Dr. P. Deepa Shenoy, Former Chair, IEEE Bangalore section. Professor, Department of Computer Science & Engineering. UVCE, Bengaluru.

Dr. Parameshachari B D, Professor, Dept. of ECE, NMIT, Bengaluru SAC, Co-Chair, IEEE Bangalore Section.

Dr. Omid Ansari, Penn State University, USA.

Sri. Srikanth Korse, R & D Engineer, Fraunhofer IIS, RWTH Aachen University, Germany.

Sri. Vikas Vijaya Kumar, R & D Engineer, Tape-out Specialist, Stein bei Nürnberg, Bavaria, Germany.

Dr. Neelabh Kashyap, Principal Data Scientist, KONE, Finland, Sri. Ramesh Chinta, Principal Member-Technical Staff, AT&T, USA.

Sri. Samuel Tensingh, University of Sydney, Australia.

Dr. Shyam Vasudeva Rao, Founder & Director, Renalyx Health Systems, Forus & Rx DHP, Bengaluru.

Sri. Balakrishna Islavath, Deputy Director/Scientist, Centre for Electromagnetics, Chennai, R & D Laboratory, MeitY, GoI.

Sri. Bhanuprakash, CoreEL Technologies, Bengaluru.

Sri. Subramanya, SLN Technologies, Bengaluru.

Prof. Dr. T. Srinivas, ECE, IISc, Bengaluru.

Dr. Rajkumar Rajashekhar, Professor, Vellore University, Vellore

Dr. Shivananda Koteshwar, Transformation Specialist, Synopsys, Bengaluru.

Dr. Manjunath N. K., Pro Vice-Chancellor & Director Research, SVYASA-Deemed to be University, Bengaluru.

Dr. Usha Manjunath, Director, Institute of Health Management and Research (IHMR), Bengaluru.

Dr. Bharath kumar Hegde, Founder & CEO, Autoyos Pvt. Ltd., Bengaluru.

Sri. Mohith Prabhu, Senior Team Lead, Mathworks, Bengaluru.

Sri. Mukund Dixit, Senior Project Engineer, Honeywell Technology Solutions, Bengaluru.

Dr. P. A. Vijaya, Former Professor. & HoD, ECE, BNM Institute of Technology, Bengaluru, India

2ⁿᵈ International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics (ICIITCEE 2024)

xiv

Keynotes

Dr. Abhay Jere
Vice –Chairman, All India Council for Technical Education, New Delhi

Biography

Dr. Abhay Jere is currently the **Vice-chairman, All India Council for Technical Education**, New Delhi and also holds additional charge of 'Chief Innovation Officer, Ministry of Education's Innovation Cell (MIC). Before joining AICTE as Vice Chairman', Dr. Jere served in Ministry of Education as it's **first** Chief Innovation Officer. Previously, Dr. Jere also worked as Chief Scientist- Life Sciences and R&D Head for Persistent Systems Ltd. He is the brain and driving force behind annual initiative 'Smart India Hackathon' which has now evolved as '**World's Biggest Hackathon and largest Open Innovation Model'.** His efforts have established Hackathon culture in India. Prime Minister Shri Narendra Modi has personally applauded these initiatives and now, Dr. Jere even organizes international hackathons for India like Singapore-India Hackathon, Africa-India Hackathon, etc.

Dr. Jere is instrumental in conceptualizing first-of-it's kind 'Atal Innovation Ranking framework (ARIIA)' for ranking all education institutions in India on their innovation achievements. To guide education institutions for establishing innovation ecosystem, Dr. Jere conceptualized 'Institution's Innovation Councils (IIC)'. Currently, IIC has been established in more than 7100+ institutions involving 50+ lakh students and faculty and professionals. IIC has now emerged as biggest network of Innovation councils in the world. Dr. Jere designed '**National Innovation and Startup Policy for Faculty and Students'** to help enable students and faculty of higher education institutions to work on their innovation, startup and enterprise. Dr. Jere has conceptualized training program to convert 25,000 college faculty & school teachers from across India into '**Innovation Ambassadors'**. Dr. Jere is committed to popularize need of innovation and entrepreneurship amongst Indians, hence he routinely writes columns in renowned English and vernacular newspaper and magazines.

Recently, to systematically foster the culture of innovation at school level, Dr. Jere has designed 'School Innovation Council' program to promote creativity within student population. Currently, SIC has been established in 2800+ schools across the country.

Dr. Jere is also a very active scientist in field of biology and bioinformatics having worked in the US, Japan, Europe. He has worked in cutting edge areas such as vaccines, personalized medicine and personalized genomic. Dr. Jere completed his Ph.D from National AIDS Research Institute (NARI), Pune. Dr. Jere received multiple awards like Digital Thought Leadership Award by World Assessment Council, Boston USA, Distinguished Alumni Award by ICT, Mumbai and Dr. Shyama Prasad Mookerjee Award.

2nd International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics (ICIITCEE 2024)

xv

2ⁿᵈ IEEE International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics

Venue: BNM Institute of Technology, Bengaluru, India

24-25 January 2024

Dr. Navakanta Bhat
Professor, *Indian Institute of Science, Bangalore, India,*

Biography

Dr. Navakanta Bhat is a professor of electrical and communications engineering at the Indian Institute of Science, Bangalore. Prof. Bhat chairs the Centre for Nano Science and Engineering at IISc. His research focus is nanoscale transistor devices and on novel materials for creating new robust, inexpensive and low-power sensor devices and systems. Before joining IISc, he worked as a device engineer at Motorola in Austin, Texas.

Dr. Bhat received a Ph.D. in Electrical Engineering from Stanford University in 1996, an M. Tech. in Microelectronics from IIT Bombay and a B. E. in Electronics and Communications from Sri Jayachamarajendra College of Engineering, University of Mysore, India.

Among his many awards are Dr. Abdul Kalam Technology Innovation National Fellowship (2018), Prof. Rustum Choksi Award (2017), Confederation of Indian Industry Industrial Innovation Award (2017), Fellow of Indian National Academy of Engineering, Swarnajayanti Fellowship (2005), Professor Satish Dhavan Award (2005).

He is author or co-author of more than 250 publications in top technical journals and conferences, 24 patents, and 3 product deliveries to ISRO and Department of Atomic Energy. Prof. Bhat is the founder and promoter of a start-up, PathShodh Healthcare Pvt Ltd., which has developed a revolutionary multi-analyte point-of-care diagnostic device for diabetes and associated complications.

2ⁿᵈ International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics (ICIITCEE 2024)

xvi

2ⁿᵈ IEEE International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics

24-25 January 2024

Venue: BNM Institute of Technology, Bengaluru, India

Dr. Sunil Kumar Vuppala
Director, Ericsson R&D, Bangalore

Biography

Dr. Sunil is working as the Director – Data Science at Ericsson. He has 20 years of industrial and research experience in Machine learning, Deep learning, Analytics, Internet of Things, and Automation. He is an inventor of 40+ patents (6 US granted, and 35+ published), published 30+ papers, and delivered 100+ guest lectures. He is a senior member of ACM, IEEE, and a fellow of IETE and IEI. He is one of the Top 10 data scientists in India for 2019, 40 under 40 data scientists in India for 2019, recipient of Zinnov Technical Role Model in Emerging Technology award 2020, IEEE TEMS Engineering Manager of the Year 2020, and ACM distinguished speaker and IETE - Biman Behari Sen Memorial Award for 2021. He is an alumnus of IIT Roorkee, IIIT Bangalore, IIM Ahmedabad and NLSIU, Bangalore.

2ⁿᵈ International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics (ICIITCEE 2024)

xvii

2ⁿᵈ IEEE International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics

Venue: BNM Institute of Technology, Bengaluru, India

24-25 January 2024

Technical programme

Keynote   Innovative technologies and its impact on gig economy
Abhay Jere

Session 1	Computer Science and Engineering
Date/Time	Wednesday, January 24, 2024 / 11:45 - 01:15 Hrs
Session Chair	Dr. R. Rajkumar VIT, Vellore and Dr Chayadevi M L, HoD, CSE, BNMIT
Venue	A215

iitcee2024-200   Revolutionizing Healthcare: Screening system to identify Diseases using Machine learning approach
Sangeetha V, Vaneeta M, Sinthuja M, Ishwariya Pani

iitcee2024- 144   Enhancing Image Fidelity through Denoising and Style GAN Techniques with Serial and Parallel Computation
Mallegowda M, Sini Anna Alex , Purva Rajodiya , samruddha S , Anita Kanavalli

iitcee2024-343   RSA Cryptosystem with parallel thread execution using dual Public Keys
Dr.Sangeetha V, Aisiri Kowli Satish, Bharathi Shankar

iitcee2024-341   Heuristic Methods for Fetal Contour Segmentation
Natarajan Sriraam, Mohammed Sinad, Seshadhri Suresh, Suresh Sudharshan

iitcee2024-236   Image-based distance estimation of a target from a camera using ColorChecker chart
Vedavyasa Kamath, Ciji Pearl Kurian, Shailesh K. R, Suprabha Padiyar U., Mangalam Sontakke

iitcee2024-411   Improving Manpower Allocation at Primary Healthcare Facilities: Development and Validation of a Machine Learning Quadratic Model to Strengthen Public Health Service Availability
Mr. Sachin S Bhat, Mr. Vinay R Srihari, Akash Prabhune, Aishwarya, Mallawaram, Ananya Biswas Bidrohi

iitcee2024-354   Convolutional Neural Network-based image tamper detection with Error Level Analysis
Manjunatha S, Swetha M D, Rashmi S, Ananda Kumar Subramanian, Mallikarjuna Swamy

2ⁿᵈ International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics (ICIITCEE 2024)

xviii

2nd IEEE International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics

Venue: BNM Institute of Technology, Bengaluru, India

24-25 January 2024

Session 2	Computer Science and Engineering, SS10
Date/Time	Wednesday, January 24, 2024 / 11:45 - 01:15 Hrs
Session Chair	Dr. Vijayakumar P VIT, Chennai Dr. Bindu S Prof., ECE, BNMIT
Venue	M309

iitcee2024-192   Kannada Text Summarization
Krutika Badiger, Sakshi Sonagaj, Sindurani Giraddi, B.M.Reshmi

iitcee2024- 298   Interactive Agriculture relying on Artificial Intelligence and Convolution Neural Network
Nandhini J, Mohanapriya D, Kalaiarasi G, Lakshmipriya N, Arunprasath M.M

iitcee2024-244   A Survey on the Usage of Numerous ML Models for Agriculture
Jyothi A P , Spandana A P

iitcee2024-363   Optimizing Medication Access in Public Healthcare Centers: A Machine Learning Stochastic Model for Inventory Management and Demand Forecasting in Primary Health Services
Sachin S Bhat, Vinay R Srihari, Akash Prabhune, Subodh S Satheesh, Ananya Biswas Bidrohi

iitcee2024-362   Enhancing Accessibility to Primary Healthcare Centres through the Development and Validation of a Machine Learning-based Gravity Model: Strengthening Public Health Coverage
Akash Prabhune, Vinay R Srihari, Ananya Biswas Bidrohi, Ashitha Reddy, Aishwarya Mallawaram

iitcee2024-357   Application of Scrum framework and Low Code No Code platform for development and implementation of In-patient electronic visitor management system to optimize hospital operations
Kalaivani S, Arun Senthilkumar, Akash Prabhune, Mathan Babu Durairaj, Sachin S Bhat

iitcee2024-32   Digital twin based PID control modeling, design, and development for FPGA implementation
Palak Jain, Sanketh Bhat, Venkatarao Ryali

2nd International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics (ICIITCEE 2024)

xix

2ⁿᵈ IEEE International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics

Venue: BNM Institute of Technology, Bengaluru, India

24-25 January 2024

Session 3	Computer Science and Engineering
Date/Time	Wednesday, January 24, 2024 / 11:45 - 01:15 Hrs
Session Chair	Dr. V. Ganesan, Bharath Institute of Higher Education and Research, Chennai Dr. Anitha N, Professor, CSE, BNMIT
Venue	N401

iitcee2024-78
Email Protection in the Digital Age: Evaluating Symmetric Cryptographic Algorithms
Sangeetha V, Komal S Rokhade, Vijayalakshmi N B

iitcee2024- 129
Predicting Genetic Disorders: A Link Mining Approach
Madhura Sen, Dr. Rajkumar Rajasekaran, Dr. A JayaRam Reddy, Dr. Govinda K

iitcee2024-103
Fostering Inclusive Communication: A Tool Integrating Machine Translation, NLP, and Audio-to-Sign-Language Conversion for the Deaf
Madhura Sen, R Rajkumar

iitcee2024-359
Integrated Traffic Control System For Emergency Vehicles
Sarala T, Sunitha S V, Ashwini S Savanth

iitcee2024-276
Optimizing User Satisfaction and Streamlining Operations in Online Retail Using CNN Algorithm
Rayavel P, Sendhil Kumar K S, Sarah Rachel S, Sushmitha K, Akalya P

iitcee2024-330
Detection of Image Forgery using Error Level Analysis
Chandana S, Nagarathna C R, Amrutha A, Jayasri A

iitcee2024-365
End to End Model to Reduce the Inference, Jamming, and to Increase the Trust from the Compromised Secondary Nodes in Cognitive Radio Networks
Dr. Shashank Dhananjay, Dr. Narendra M, Dr. Sunitha R

2ⁿᵈ International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics (ICIITCEE 2024)

xx

2nd IEEE International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics

Venue: BNM Institute of Technology, Bengaluru, India

24-25 January 2024

Session 4	Computer Science and Engineering, SS1, SS8
Date/Time	Wednesday, January 24, 2024 / 11:45 - 01:15 Hrs
Session Chair	Dr. Kolla Bhanu Prakash, K L Deemed to be University Dr. Sujaya B L Assoc. Prof., ECE, BNMIT
Venue	N402

iitcee2024-33 — Artificial Intelligence and Vedic Scripture in Digital Agriculture for Global Economy
Sachin Sharma, Muskan Tomar, Ranu Tyagi

iitcee2024- 36 — Detection and Prevention of Poisoning Targets with ARP Cache using Scapy
D.Ruban Thomas, Prabhu.V, W.Nancy, G.Sowmiya, Adhithya T P, Dr. Vijayakumar Peroumal

iitcee2024-37 — Varicose Veins Disease Detection and Automated Treatment using Body Area Network
Vishnu Vardhan Rao G, Prabhu.V, KS Revanth Sai Rathnam, V Lokanadham, C Vignesh, Dr.Vijayakumar Peroumal

iitcee2024-158 — A Comprehensive Survey and Adaptive Fuzzy Median Filtering based Breast Cancer Detection and Segmentation Techniques
Srinivas B , Sriram M, Ganesan V

iitcee2024-164 — Time and Accuracy based impact analysis of Poisoning Attack on Support Vector Machine algorithm
Ponsuresh M, T.Dhiliphan Rajkumar

iitcee2024-53 — Inter-vehicular Communication Using Split Ring Resonator
Ashok S, Palanivel S, Prasanth P, Prianka R R, Prabhu V, Dr. Vijayakumar Peroumal

iitcee2024-118 — Data-Driven Insights: A Genetic Algorithm Feature Optimization Approach to Heart Disease Prediction
Deepali Yewale, S.P. Vijayaragavan

2nd International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics (ICIITCEE 2024)

xxi

2ⁿᵈ IEEE International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics

24-25 January 2024

Venue: BNM Institute of Technology, Bengaluru, India

Vidyayāmruthamashnuthe

Session 5	Electrical & Electronics
Date/Time	Wednesday, January 24, 2024 / 11:45 - 01:15 Hrs
Session Chair	Dr. Sumathi HoD, EEE, RNSIT Dr. Venkatesha K HoD, EEE, BNMIT
Venue	N403

iitcee2024-220   Improved Grey Wolf Optimization Abetting Fuzzy Logic Controllers Used for Load Frequency Control in Two-Area Interlinked Reheat Thermal Power Plants applying Governor Dead Band and Generation Rate Constraint Non-Linearity
Shasya Shukla, Shyama Kant Jha

iitcee2024-216   Study of Multilevel Inverter with SHE-PWM Inverter Using POS Algorithm
Shaik. Shakeera, Dr. K. Rachananjali

iitcee2024-242   State space modelling and seamless transition between Islanded and Grid-connected operation modes
Harendra Pal Sing, Ankush Sharma, Sourav Bose, Anurag Kumar Swami

iitcee2024-125   Corporate Feed Antenna Array for mmWave Application
Amith B R, Aniket S Kadam, Priyadarshini K Desai

iitcee2024-355   A Double-band Antenna of Microstrip Feature with Dual Rectangular Step-slots for Application in Wireless Systems
S K Dash, B K Behera, J R Panda, S N Mishra

iitcee2024-392   Harnessing Photovoltaic Cell Potential: A Thorough Investigation of TiO2 Anti-Reflective Coatings and Silver Nanoparticles, Revealing Intriguing Findings Using Photovoltaic QCRF-FDTD Simulator Simulations
Manikandan S, Radhika Baskar, Sathish G

iitcee2024-148   Power Quality Challenges in Integrated Distribution Generation and Scope of Intelligent Control Techniques.
Tushar Birje, Nalini Karchi, D. B. Kulkarni, Nihal Karchi

2ⁿᵈ International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics (ICIITCEE 2024)

xxii

2ⁿᵈ IEEE International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics

24-25 January 2024

Venue: BNM Institute of Technology, Bengaluru, India

Session 6	Computer Science and Engineering
Date/Time	Wednesday, January 24, 2024 / 02:00 - 03:30 Hrs
Session Chair	Dr. Jagannath M VIT, Chennai Dr. Sheba Selvam HoD, AIML, BNMIT
Venue	A215

iitcee2024-308   Forecasting of Long Term Renal Disease using Machine Learning
Karthik V, Dr.K.Rajakumari

iitcee2024-99   AI and ML in Retail: IoT Sensors and Augmented Reality for Competitive Strategies using IoT and Linear Regression
Ramakrishnan Raman

iitcee2024-180   Automated Bird Detection Using Snapshot Ensemble Of Deep Learning Models
Fazeelath Jahan Shaik, Ganesan V

iitcee2024-184   Hobby Based Learning for Automata theory and computability
Pallavi N, Darshna A Naik, Manjula L, Keerthi P

iitcee2024-117   Serial vs parallel execution of Principal Component Analysis using Singular Value Decomposition
Mallegowda M, Tanupriya R, Vishnupriya C, Anita Kanavalli

iitcee2024-266   Utilizing a Hybrid CNN-LSTM Model for Automated Severity Classification of Rice Panicle Blast Disease
Vinay Kukreja, Vikrant Sharma, Rishabh Sharma

iitcee2024-268   Harnessing the Power of Deep Learning for Corn Rust Disease Severity Classification
Arshleen Kaur, Vinay Kukreja, Lisa Gopal, Garima Verma, Rishabh Sharma

2ⁿᵈ International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics (ICIITCEE 2024)

xxiii

Session 7	Computer Science and Engineering, SS7
Date/Time	Wednesday, January 24, 2024 / 02:00 - 03:30 Hrs
Session Chair	Dr. E. Sathiyamoorthy VIT, Vellore Dr. S Srividya HoD, ISE, BNMIT
Venue	M309

iitcee2024-259   Machine Learning for Gravitas-Based Disease Prediction: CNN vs. Random Forest
Deepak Banerjee, Vinay Kukreja, Dibyahash Bordoloi, Siddhant Thapliyal

iitcee2024-271   Evaluating Boosting Algorithms for Academic Performance Prediction in E-Learning Environments
N S Koti Mani Kumar Tirumanadham, Thaiyalnayaki S, SriRam M

iitcee2024-165   Brain-Computer Interface Research Survey
Sheshank Mahipal, Satyam Aggarwal, Pritika Goel

iitcee2024-267   Next-Gen Hybrid Deep Learning for Accurate Pepper Leaf Mosaic Virus Classification
Arshleen Kaur, Vinay Kukreja, Lisa Gopal, Garima Verma, Rishabh Sharma

iitcee2024-182   Exploring the Role of AI in Web Design and Development: A Voyage through Automated Code Generation
Veera Harish Muthazhagu, Surendiran B

iitcee2024-185   Revolutionizing Transportation Infrastructure and Communication Technology through Blockchain and 5G Simulation
Pallavi.N, Darshana A Naik, Soumya C S, Jayanth Mahadesh, Joseph A Braganza, Prakhar Singh

iitcee2024-457   Elevating Online Retail: An In-Depth Look at the Implementation of React JS in Advanced E-commerce
Chandradeep Bhatt, Divyanshu Tiwari, Deepika Dua, Shefali Gupta, Teekam Singh

2ⁿᵈ International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics (ICIITCEE 2024)

xxiv

2ⁿᵈ IEEE International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics

Venue: BNM Institute of Technology, Bengaluru, India

24-25 January 2024

Session 8	Computer Science and Engineering
Date/Time	Wednesday, January 24, 2024 / 02:00 - 03:30 Hrs
Session Chair	Dr. N Sriraam, Head-R&D, Ramaiah Institute of Technology, Bangalore Dr. Rekha P Prof., ECE, BNMIT
Venue	N401

iitcee2024-301   Accurate Prediction of Bacterial Infections using Deep Learning-Based Approaches: A Recent Study and Progress
Jasdeep Singh, Gobindgarh, Ashish Oberoi, Yogesh Kumar

iitcee2024-305   Diagnosis Of Human Heart Ailment Using Gridsearchcv
Babby E, Dr.K.Rajakumari

iitcee2024-360   Blockchain-Aided Privacy Preserving Framework for Federated Learning
Chitresha Jain, Payal Chaudhari

iitcee2024-181   Breast Cancer Assessment Using a Hybrid ANN-CNN Approach
Y. Venkat Vivek, K. Umamaheswari, T. Venkata Sai Sriharika, R. Nikesh, G. Rupesh

iitcee2024-293   Classification of Online News Articles Using Optimized Deep Learning Models
Priyanshu Malaviya, Hardeep Patel, Priyansh Sanghavi, Yogesh Kumar

iitcee2024-294   Enhancing Diabetic Retinopathy Image Classification Using CNN, ResNet, and GoogLeNet Models With Z-Score Normalization And GLCM Feature Extraction
S.Balaji, B. Karthik, D. Gokulakrishnan

iitcee2024-243   Cervical Cancer Classification: Optimizing Accuracy, Precision, and Recall using SMOTE Preprocessing and t-SNE Feature Extraction
B. Hemalatha, B. Karthik, C.V. Krishna Reddy, D. Gokulakrishnan

2ⁿᵈ International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics (ICIITCEE 2024)

xxv

2ⁿᵈ IEEE International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics

Venue: BNM Institute of Technology, Bengaluru, India

24-25 January 2024

Session 9	Computer Science and Engineering
Date/Time	Wednesday, January 24, 2024 / 02:00 - 03:30 Hrs
Session Chair	Dr. Rashmi Deshpande Assoc. Prof., AMCEC Dr. S. Geetha Prof., CSE, BNMIT
Venue	N402

iitcee2024-264   Deep Insights into Mango Scab: An AI-Powered Approach for Detection and Classification
Arshleen Kaur, Vinay Kukreja, Deepak Singh Rana

iitcee2024-186   Analysis of Network Attacks in Cyber Security using Deep Learning
Varshini P, Pavithra K, Anu P

iitcee2024-156   A Systematic Investigation on Different Scene Text Detection and Recognition Method using Deep Learning Techniques
Sridhar Gujjeti, Sriram M, Ganesan V

iitcee2024-287   Machine Learning-Based Approaches for Early Prediction of Depression
Khushi Shah, Urmi Patel, Yogesh Kumar

iitcee2024-247   Detecting And Diagnosing Brain Tumor MRI Image
Gudapuri Sudheer, Ganesan V

iitcee2024-206   Designing a Secure Large Scale E-Voting System Leveraging Sharding Blockchain with Interoperability Protocol and Consensus Mechanism
Alka Maurya, Rajendra Kumar Dwivedi

iitcee2024-174   Fire Monitoring and Prevention System Based on the Severity of Fire Using NodeMCU and Cloud
Madan Lal Saini, Ratish Kumar, Dayal Chandra Sati, Tanushree Bharti

iitcee2024-454   Unveiling the Dynamics of Online Culinary Convenience: A Systematic Exploration
Chandradeep Bhatt, Anurag Bisht, Mukesh Kumar, Shefali Gupta, Teekam Singh, Sanjay Sharma

2ⁿᵈ International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics (ICIITCEE 2024)

xxvi

2nd IEEE International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics

Venue: BNM Institute of Technology, Bengaluru, India

24-25 January 2024

Session 10	Computer Science and Engineering
Date/Time	Wednesday, January 24, 2024 / 02:00 - 03:30 Hrs
Session Chair	Dr. B. Karthik, Bharath Institute of Higher Education and Research, Chennai Dr. Bhuvana Suganthi D, Assoc. Prof., ECE, BNMIT
Venue	N403

iitcee2024-193 Person Identification using Periocular Region
Evangeline D, Parkavi A, Rutuja Bhutaki, Sanjana Jhawar, Nithya Bharadwaj P, Malladi Sri Pujitha

iitcee2024-286 Review on Augmented Reality in Civil Engineering Education and Application
R. Sivapriyan, Lavan Raj, Tamil Selvi, Ganesh Raj

iitcee2024-59 A study to identify significant predictors of Employee Satisfaction of Private Security Personnel of Enterprises through Hierarchical Multiple Regression Analysis
Arunava Mookherjee, Krishna Roy

iitcee2024-93 IoT Based Inverter for Autonomous Electric Vehicle Drive using CIPOS IPM
Chandan A S, Dr. Ashwini S Savanth, Dr. P. A. Vijaya

iitcee2024-172 Development and Application of a novel Improved Hybrid Multi Objective Black Widow Optimization Algorithm for optimization of a utility network connected hybrid system in view of Cost of Electrical Energy, Dependability, impact on atmosphere
Joy bandopadhyay, Provas Kumar Roy

iitcee2024-137 Comparative Study of Stock Prices: The Co-Movements of Sectoral Models of Index Market in India
Manas Ranjan Patnaik, Shuddhasatta Chowdhury, Niladri Mukherjee, Anil Jadhav

iitcee2024-331 A Deep Learning Approach for Digitization of Invoices
Sarvesh Siras, Saurabh Kshirsagar, Vandana Inamdar

iitcee2024-448 Enhancing Dynamic Abstract Generation for Code Summarization using CODE-OAN Models and DBWTFF Frames
Chandradeep Bhatt, Manish Sharma, Sanjay Sharma, Shefali Gupta, Teekam Singh, Mukesh Kumar

2nd International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics (ICIITCEE 2024)

xxvii

Session 11	Computer Science and Engineering, SS2
Date/Time	Wednesday, January 24, 2024 / 03:45 - 05:15 Hrs
Session Chair	Dr. Abhishek Appaji Prof., BMSCE, Treasurer, IEEE, Bangalore Section Dr. Ashwini Savanth Assoc. Prof., ECE, BNMIT
Venue	A215

iitcee2024-56 Internet Enabled, State of the Art E-Voting Eco System
Leo Pauline S, Prabhu.V, Sathish Kumar J, Jayavel R, Dr. Vijayakumar Perumal

iitcee2024-309 An enhanced mutual authentication scheme for healthcare systems using Elgamal and ECC
Muthukumar Manickam, Ganesh Gopal Devarajan

iitcee2024-83 Clinical Text Classification Using Sequential Forward Selection
Rajkumar Rajasekaran, Veer Sanghavi, Rashi Solanki, Jolly Masih

iitcee2024-140 Sentiment Analysis and Authenticity Assessment of Hotel Reviews
Pavan Kalyan, Jyo_ Bagde, Manthan Walvatkar, Dr. Anil Jadhav

iitcee2024-167 Enhancing Driver Safety: Real-Time Drowsiness Detection through Eye Aspect Ratio and CNN-Based Eye State Analysis
Rajkumar Rajasekaran, Narayanamoorthi M, Rashi Solanki, Veer Sanghavi, Yilmaas S

iitcee2024-284 Evaluation of Virtual Reality Experiential Dimensions using Sentiment Analysis
Rina Daline T, Joby Thomas

iitcee2024-263 Exploring Novel Anticancer Peptides: Evolutionary Prediction of Potential tRNA-Encoded Peptides for Targeted Therapies
Pallavi M Shanthappa , Nidheesh Melethadathil

2ⁿᵈ International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics (ICIITCEE 2024)

xxviii

Session 12	Computer Science and Engineering, SS4
Date/Time	Wednesday, January 24, 2024 / 03:45 - 05:15 Hrs
Session Chair	Dr. Bharatkumar Hegde CEO & Founder, Autoyos Dr. Priya Sankpal Assoc. Prof., ECE, BNMIT
Venue	M309

iitcee2024-119 — Comparative Study on Serial and Parallel Implementation of Face Detection
Dr. Mallegowda M, Theertha K, Varsha S D, Dr. Anita Kanavalli

iitcee2024-194 — Analysis of Leaf Disease Detection in the Solanaceae family plants using Machine Learning Algorithms.
Anitha P, Abhishek Kuthkunja, Aditya, Anvitha

iitcee2024-198 — Using Artificial Immune System to improve Account Takeover Fraud Detection
Rohan Gupta, Peshal Ghanghas, Ridi Kumar, Arshiya Gupta

iitcee2024-208 — Artificial Intelligence Techniques to Reduce Thermal Pollution
Siddharth Goswami, Sachin Sharma, Priya Kohli

iitcee2024-86 — Navigation of a Novel Wheelchair Designed for Multi-level Surfaces
Hari Krishnan R, Aadhithya K, Navneeth Krishna A, Bhamidipati S D K S S Srinivas, Badri Narayanan R

iitcee2024-261 — Elevating Crop Protection: Vision Transformer Models for Brassica Black Rot Detection
Vinay Kukreja, Vikrant Sharma, Rishabh Sharma

iitcee2024-300 — IntegraSec: Securing IoT with an Integrated Lightweight Privacy-Aware Publish-Subscribe Framework
Rashmi H Chamarajappa, Guruprakash C Dyamanna

iitcee2024-288 — Machine Learning-Based Approaches for the Prognosis and Prediction of Multiple Diseases
Priya Bhardwaj, Yogesh Kumar, Shakti Mishra

2nd International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics (ICIITCEE 2024)

xxix

2ⁿᵈ IEEE International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics

24-25 January 2024

Venue: BNM Institute of Technology, Bengaluru, India

Vidyayāmruthamashnuthe

Session 13	Electronics & Communication
Date/Time	Wednesday, January 24, 2024 / 03:45 - 05:15 Hrs
Session Chair	Dr. Rashmi Deshpande, Assoc. Prof., AMCEC Dr. Vrunda Kusunur, Assoc. Prof., ECE, BNMIT
Venue	N401

iitcee2024-94   Rfid-Attendance System with Notification Using IFTTT Platform
Venkat Krishnan PM, Nischith A N, Mr.Sudarshan

iitcee2024-340   Autonomous Vehicle Lane Change Maneuver: A Comprehensive Analysis
Sayandip Paul , Hemanth Kumar C, Arunkumar Bongale

iitcee2024-374   Road Feature extraction using CNN and GRU in edge-enabled vehicular cloud networks
Dr. Satya Sandeep K, T. Anusha, A.Saranya, Sk. Arsha, S. Manasa

iitcee2024-345   Efficiency Evaluation of Scalable Multiply and Accumulate Architectures in DSP: A Comparative Study of LUT Based and LUT-Less Based Approaches
M. Bharathi, Yasha Jyothi M Shirur

iitcee2024-291   Soil Moisture Monitoring and Seed Sowing Robot with ThingSpeak Integration
Jenitta J Swetha Rani L Akash.S Ashutosh Mallick Bhumika V

iitcee2024-307   Ensemble Learning Methodologies for Electrocardiogram Analysis: A Comparative Study
Basak Ersoz Yildirim, Murat Taskiran, K. Nur Bekiroglu

iitcee2024-280   Live temperature monitoring system using MQTT
Kriuthika Thimmaraj, Sowmiyashri Jayaraman Sasikala

2ⁿᵈ International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics (ICIITCEE 2024)

xxx

2ⁿᵈ IEEE International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics

24-25 January 2024

Venue: BNM Institute of Technology, Bengaluru, India

Session 14	Computer Science and Engineering, SS1
Date/Time	Wednesday, January 24, 2024 / 03:45 - 05:15 Hrs
Session Chair	Dr. Dileep Reddy Bolla, Assoc. Prof., NMIT Dr. Smitha Gayatri, Assoc. Prof., BNMIT
Venue	N402

iitcee2024-481	A Smart Electronic Wheelchair Design Using Artificial Intelligence and Intelligent Sensors Association *R Balamurugan, D.Kanchana, B.Anni Princy, Jaisudha J, P.Malathi, Glory E*	
iitcee2024-375	Evaluation and comparison of Novel YOLO v5 Algorithm in Identifying Land Cover Area of Geographical Regions over Single Shot Detector algorithm accuracy *K.Aravind, S Pradeep Kumar*	
iitcee2024-75	Sentiment Analysis for Products Review based on NLP using Lexicon-Based Approach and Roberta. *Bobby Kumar, Dr. Sheetal Veena S Badiger, Anitha DSouza Jacintha*	
iitcee2024-398	Enhanced Malware Detection Using Convolutional Neural Network With Robust Ensemble Algorithm- "LIGHTGBM" *Dr. Satya Sandeep kanumalli, Neha Dalavayi, Varsha Veernapu, Poojitha Kota, Ratna Priya Katari*	
iitcee2024-422	Comparative Analysis of Time Series Forecasting Methods in Workforce Planning Using Predictive Analytics *Brijesh Singh, Rupali Khaire , Sashikala V*	
iitcee2024-480	Implementing Various Systems with DevOps to Make Successful Decisions based on Intelligent Learning Strategy *T. Pandiyavathi, B. Sivakumar*	
iitcee2024-432	Neural Networks-Based Predictive Models for Self-Healing in Cloud Computing Environments *D.Sujatha, Dr Michael Raj.TF, G.Ramesh, Moorthy Agoramoorthy, Ahamed Ali S*	

2ⁿᵈ International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics (ICIITCEE 2024)

xxxi

2ⁿᵈ IEEE International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics

Venue: BNM Institute of Technology, Bengaluru, India

24-25 January 2024

Session 15	Computer Science and Engineering
Date/Time	Wednesday, January 24, 2024 / 03:45 - 05:15 Hrs
Session Chair	Dr. Jagannath M, VIT, Chennai Dr. Sunitha, Assoc. Prof., ECE, BNMIT
Venue	N403

iitcee2024-418   Exploring the Implications of IoT Integration in Urban Infrastructures for Sustainable Smart Cities
Priti Sharma, J Bamin, S.Vijayalakshmi, Vijayalakshmi.N, A.Meenambika, Vijendra Pratap Singh

iitcee2024-479   A Comprehensive Evaluation of Deep Learning based Melanoma Detection and Classification Scheme
T. Ramesh, L.Vigneash, Samraj S, S. Preena Jacinth Shalom, Maheshwari B, S. Kamatchi

iitcee2024-491   Optimizing Agricultural Productivity: A Data-Driven Ensemble Model for Crop Recommendation Based on Site-Specific Characteristics and Weather Conditions in India
Sandeep Kumar S, Vaikunta Pai, Ashwin Shenoy M, Santhosh S

iitcee2024-409   Optimizing City Transit: IoT and Gradient Boosting Algorithms for Accurate Bus Arrival Predictions
Dr. S. Shanthi , B. Maruthu Kannan, Giriprasad. S, R. Babuji, Dr. S. Sivakumar, N. Malathi

iitcee2024-405   Real-time Estimation of Heart Rate from Facial Video
Jyothi A P, SVV. Sai Madhu Sudhan Reddy, Praneeth. P, Nagoor Hamed

iitcee2024-459   Portable Fingerprint Based Attendance System with Raspberry-pi
Sanchit Negi, Rahul Chauhan, Siddhartha Tomar, Swati Devliyal, Shefali Gupta

iitcee2024-478   A Smart and Systematic Vehicle Headlight Operations Controlling System based on Light Dependent Resistor
J.Sumithra, Sumalatha A, Vanitha A, B.Sivadharshini, V.Samuthira Pandi, S. Ravi

iitcee2024-452   Paving the Way to Safety: An Automated Traffic Management System with Challan Generation
Chandradeep Bhatt, Dev Arora, Pashupati Bhatt, Teekam Singh, Sheifali Gupta

2ⁿᵈ International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics (ICIITCEE 2024)

xxxii

2ⁿᵈ IEEE International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics

Venue: BNM Institute of Technology, Bengaluru, India

24-25 January 2024

Keynote1   Sensor Scaling for Smart Nanoelectronic Systems
Dr. Navakanta Bhat

Keynote2   How can you contribute to AI Revolution?
Dr. Sunil Kumar Vuppala

Session 16	Electrical and Electronics
Date/Time	Thursday, January 25, 2024 / 11:15 - 12:45 Hrs
Session Chair	Dr. Manju Devi, HoD, ECE, Oxford College of Engineering Dr. S Sudalai Shunmugam, Assoc. Prof., EEE, BNMIT
Venue	A215

iitcee2024-127   Dual Active Bridge Converters – A Comparative Analysis using MATLAB Simulink for Photovoltaic Applications
Ms. Kruthi Jayaram, Dr. Vidya H A

iitcee2024-342   Design and Simulation of Solar Powered Electric Cart for University Campus
Chethan.K, Vinesh.S, Shanmukha.G.K, Kiran.D.B, Dr.Sharmila.N

iitcee2024-106   Design and Optimization of a Low-Power Comparator for a 10-Bit Successive Approximation Register (SAR) Analog-to-Digital Converter (ADC) for General-Purpose Applications
Tejas M P, Dr. Venkateshappa

iitcee2024-130   Implementation of a 32-bit MAC unit in ASIC flow using Vedic Multiplier and CSA
Abhi A Bharadwaj, Manu K, Dhanush Upadhya R, Prabhavathi P, Lakshmi Bhaskar, Daksh Pankaj Patel

iitcee2024-325   A composite approach for a Multi-Layer Perceptron Implementation of Digital Predistortion in Power Amplifiers
Aruna R, Pushpamala, Keerti Kulkarni

iitcee2024-326   Demand Side Management in Power Grids through Particle Swarm Optimization Algorithm
Shaleena Manafuddin, Mabel Ebenezer, Bisharathu Beevi

iitcee2024-435   High Frequency Transient Behavior of Oil Filled Instrument Transformer against Transients Generated During Switching Of High Voltage Disconnector
K Urukundu, K A Aravind, Pradeep M Nirgude, C Pallavi

2ⁿᵈ International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics (ICIITCEE 2024)

xxxiii

2ⁿᵈ IEEE International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics

24-25 January 2024

Venue: BNM Institute of Technology, Bengaluru, India

Vidyayāmruthamashnuthe

Session 17	Electronics & Communication
Date/Time	Thursday, January 25, 2024 / 11:15 - 12:45 Hrs
Session Chair	Dr. Manjunath Kounte, HoD, ECE, Reva University Dr. Yasha Jyothi M Shirur, HoD, ECE, BNMIT
Venue	M309

iitcee2024-92   Development of PIN Diode Based Commandable Ku-band Attenuator Network For TT&C Downlinks of Geo Imaging Satellites
Kosuru Sai Malleswar, Supratik Bose, Suman R.Valke, Khan Afzaal, Sirshendu Das, Himani B.S., Rahul Sharma, Karam Ilahi Khan, Senthil Kumar V., Ramalakshmi N.

iitcee2024-188   Battery Consumption Optimization in Electric Vehicles using Gyroscope Sensor
Srikar M, Suhaas S Sastry, Sampreeth S, Priya R Sankpal

iitcee2024-105   Voice Controlled Smart Home For Disabled
Supriya N, Surya S, Kiran K N

iitcee2024-353   Assessment of Breathing Variations to Recognize Respiratory Disorders
Purnima B R, N Sriraam, Shashank C, M Mohith, Gagan M, Sri Krishna L, T D Senthilkumar

iitcee2024-295   Electrode engineering of Nano-pillar Based CdS/CdTe Solar cell
Shyam Krishnan N, Dinesh Kumar

iitcee2024-447   Smart motion Detection and Location tracking system for enhanced security applications using LoRa
Rajashekhar V, Rohith J E, Priya R Sankpal

2ⁿᵈ International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics (ICIITCEE 2024)

xxxiv

2ⁿᵈ IEEE International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics

24-25 January 2024

Venue: BNM Institute of Technology, Bengaluru, India

Vidyayāmruthamashnuthe

Session 18	Electronics & Communication
Date/Time	Thursday, January 25, 2024 / 11:15 - 12:45 Hrs
Session Chair	Dr. Ashwini, Assoc. Prof., PES University Dr. Jyoti R Munavalli, Prof., ECE, BNMIT
Venue	N401

iitcee2024-444   Design & Development of an Automated Wheelchair for differently abled person using Keypad & Bluetooth Technology
Venkatesha K, Dr Sudalai Shunmugam Sundaram, Dr. Kumar A, Vijayashree L

iitcee2024-42   Bowling action recognition using computer vision
Tejas S Koundinya, Subhash B S, Dhruv Shindhe S, S N Omkar

iitcee2024-372   Nanomaterial-Based Antenna study for mmWave Applications
Priyadarshini K Desai, Bindu S

iitcee2024-275   Design and Analysis of Optimized Clear Channel Assessment for Data Transmission in IEEE 802.15.4 based Networks
Manjunath G. Asuti, Venkatesh Bhandage, Nirmalkumar S. Benni

iitcee2024-58   Smart Waste Seggregation System
Dr. Bhuvana Suganthi D, Priyanka. S, Varsha A, Karnika S

iitcee2024-415   Speech Modeling with Linear Auto Regressive and Nonlinear Hammerstein Models
Dr. Chaitra N, Vyasaraj T, Murali Mohan D

2ⁿᵈ International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics (ICIITCEE 2024)

xxxv

2nd IEEE International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics

Venue: BNM Institute of Technology, Bengaluru, India

24-25 January 2024

Vidyayāmruthamashnuthe

Session 19	Computer Science and Engineering
Date/Time	Thursday, January 25, 2024 / 11:15 - 12:45 Hrs
Session Chair	Dr. R. Rajkumar, VIT, Vellore Dr. Rashmi Bhaskar, Assoc. Prof., ECE, BNMIT
Venue	N402

iitcee2024-477 Experimental Evaluation of Systematic Animal Classification System using Advanced Deep Learning Principle
S.Mary Diana, R.Porselvi, B.Geetha, B.Vanitha, K. Muthukannan, S. Ravi

iitcee2024-489 Enhancing Road Safety through Innovative Traffic Sign Detection and Recognition with YOLOv5
Soumya Ashwath, Chidananda T, Ashwin Shenoy M, Santhosh S, Supreetha D R

iitcee2024-378 Identification of Cognitive Deterioration in Elderly Patients using Visual Geometric Group 19 and Compare the Accuracy with CNN
Mahimaa.K, P.V. Pramila

iitcee2024-417 Digital Watermarking Techniques for Secure Image Distribution
Radhika Baskar, Rajat Kumar Dwibedi, T.Rajesh kumar, Vijayalakshmi.N, Rajesh Kanna R, Gosu Nageswara Reddy

iitcee2024-420 Exploring Convolution Neural Networks for Image Classification in Medical Imaging
Vishwa Priya V, Padmini Chattu, K. Sivasankari, Dnyaneshwar Tukaram Pisa, Bantupalli Renuka Sai, D.Suganthi

iitcee2024-387 Enhancement of Accuracy in Facial Age Identification using Comparing the Ensemble Support Vector Machine Algorithm to the Linear Regression Algorithm
Jagadheesh Silla, S. Dinakar raj

iitcee2024-389 Comparison of Digital Image Watermarking using Hybrid DWT-DCT Algorithm with Fuzzy-Based Algorithm for Improving PSNR
B.Harshavardhansai, Sheela D

2nd International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics (ICIITCEE 2024)

xxxvi

2nd IEEE International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics

Venue: BNM Institute of Technology, Bengaluru, India

24-25 January 2024

Session 20	Computer Science and Engineering
Date/Time	Thursday, January 25, 2024 / 11:15 - 12:45 Hrs
Session Chair	Dr. A. Robert Singh, SRM, Chennai Dr. Madhu, Assoc.Prof., EEE, BNMIT
Venue	N403

iitcee2024-460   Boosting Approach For Sonic Log Prediction Using Wavelet Transform
Lisa Gopal, Preeti Chaudhary, Aditya Verma, Ayushi Jain, Swastik Bhat, Sheifali Gupta

iitcee2024-424   Employee Engagement Prediction: A Comparative Study of Support Vector Machines and Neural Networks
Shalini S, Venkatesh

iitcee2024-412   Gan Generated Fake Human Face Image Detection
Swati Shilaskar, Mayur Talewar, Soham Tak, Sidhesh Goud

iitcee2024-421   Real-Time Object Detection on Edge Devices Using Mobile Neural Networks
Jose Reena K, Charul Nigam, G. Kirubasri, S.Jayachitra, Anurag Aeron, D.Suganthi

iitcee2024-431   Automatic Smart Irrigation System
Poornima G C, Rakshitha B, Siddhanth Kashyap, Vyasaraj T

iitcee2024-390   Improving Disease Detection in Tomato Leaves Using Visual Geometry Group 19 Compared to the Artificial Neural Network Algorithm
Jothika G, Rashmita Khilar

iitcee2024-496   Intrusion Detection System to detect impersonation attacks in IoT networks
Chaitra M, Manjula H S

2nd International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics (ICIITCEE 2024)

xxxvii

2nd IEEE International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics

Venue: BNM Institute of Technology, Bengaluru, India

24-25 January 2024

Session 21	Computer Science and Engineering
Date/Time	Thursday, January 25, 2024 / 11:15 - 12:45 Hrs
Session Chair	Dr.E.Sathiyamoorthy, VIT, Vellore Dr.Keerthi Kulkarni, Assoc.Prof. ECE, BNMIT
Venue	N502

iitcee2024-123   Relation between the amount of Sarcasm and the Ratings of English TV shows
Chinmay Dani, Aryan Gholap, Apoorav Sharma, Dr. Anil Jadhav

iitcee2024-54   Design of Robotic Arm with Three Degree of Freedom (DOF) operated by Bluetooth enabled smartphones
Sharmila P, Sushmitha Singh D, AfroseAafrin M, Ponsheeba M, Dr. VijayakumarPeroumal

iitcee2024-104   Image Colorization System: An Implementation using the Caffe Deep Learning Framework
Ashay H N, Ambili P S, Anooja Ali, Anjali Surendran

iitcee2024-312   Applying machine learning algorithms to investigate cervical cancer
Apurvanand Sahay, Gokul Gopakumar, Gokulan S, Subham D, Amrita Thakur

iitcee2024-455   Implementation of Internet of things in building smart cities
Atharva Rana, Rahul Chauhan, Vivek Singh Sajwan, Swati Devliyal, Shefali Gupta

iitcee2024-462   Neuroscience of virtual reality
Krishna Sharma, Himanshu Singh Aswal, Rahul Chauhan, Ruchira Rawat, Rupesh Gupta

iitcee2024-465   A comparitive study of MTCNN, Viola-Jones, SSD and YOLO face detection algorithms
Sumit Tariyal, Rahul Chauhan, Yogesh Bijalwan, Ruchira Rawat, Rupesh Gupta

2nd International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics (ICIITCEE 2024)

xxxviii

2nd IEEE International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics

Venue: BNM Institute of Technology, Bengaluru, India

24-25 January 2024

Session 22	Computer Science and Engineering, SS1
Date/Time	Thursday, January 25, 2024 / 11:15 - 12:45 Hrs
Session Chair	Dr. V. Ganesan, Bharath Institute of Higher Education and Research, Chennai Dr. N. Sheshaprasad, Prof., ECE, BNMIT
Venue	Concept Hall- S Block

iitcee2024-497 Restaurant Feasibility Study and Behavioural based Restaurant Recommendation
Chaitra M, Prakruthi M K

iitcee2024-382 Intelligent Pathological Voice Detection Based on Social Media Application using Conditional Random Field Contrasted and Support Vector Machine Calculation
A.J Yuktha Mukhey, K. Logu

iitcee2024-318 Explorative Analysis of Factors Influencing Relapse In Alcohol Dependent Patients And Their Sobriety Period Prediction Using Machine Learning Techniques
Adarsh k Sidnal, P G Sunitha Hiremath, Sayam Jain

iitcee2024-383 Improving the Efficiency of Image Captured via PGC and Stereo Vision using Novel VJ Algorithm in Comparison with Local Binary Pattern Histogram Algorithm
Harshitha Ramisetty, N P G Bhavani

iitcee2024-426 Secure Multi-Party Computation for Collaborative Data Analysis in Network Security
Tamilselvi P, V.Lathika, S.Jayachitra, S Arunkumar, M. Balasubramani, V Kalaichelvi

iitcee2024-423 Fraud Detection in Financial Transactions: A Machine Learning Approach vs. Rule-Based Systems
Arshiya Khanum, Chaitra K S, Brijesh Singh, C Gomathi

iitcee2024-427 Investigating the Effectiveness of Recurrent Neural Networks for Network Anomaly Detection
S.Joshua Kumaresan, C.Senthilkumar , Dinokumar Kongkham, Beenarani B B, P.Nirmala

2nd International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics (ICIITCEE 2024)

xxxix

2ⁿᵈ IEEE International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics

24-25 January 2024

Venue: BNM Institute of Technology, Bengaluru, India

Session 23	Computer Science and Engineering
Date/Time	Thursday, January 25, 2024 / 01:30 - 03:00 Hrs
Session Chair	Dr. Sangeetha V, Ramaiah Institute of Technology Dr. Chaitra N, Assoc. Prof., BNMIT
Venue	A215

iitcee2024-149   Efficiency Comparison of Parallel and Serial Computation Techniques for Multi-Regional Weather Data Aggregation
Mallegowda M, Vikas Hajjarge, Vinayak Vittal Divate, Krishna Mohan, Anita Kanavalli

iitcee2024-367   A Comprehensive Study on Technological Advancements in Treatment and Prognosis of the Acute Myeloid Leukemia(AML)
Anaswara Venunadh, Shyam P Joy

iitcee2024-450   Efficient Real-Time Face Recognition-Based Attendance System with Deep Learning Algorithms
Kritagya Painuly, Yukti Bisht, Himadri Vaidya, Akanksha Kapruwan, Rupesh Gupta

iitcee2024-453   GANs and Augmented Reality in Virtual Clothing Try-On
Achintya Mishra, Shubhanshu Kaintura, Yogesh Singh Yadav, Vishal Joshi, Himadri Vaidya, Akanksha Kapruwan

iitcee2024-384   Denoising Disease using the Medical Image using SYMLET over RBIOR
M Narendra, V. Rajmohan

iitcee2024-379   Prediction of Brain Tumor Severity with Magnetic Resonance Imaging using Ridge Regression over Recurrent Neural Network
D.Mohamed Bilal, S.Tamilselvan

iitcee2024-403   A novel method for design and development of hybrid land and water buoyancy trash collecting robot
Suresh Muthusamy, Sarathkumar Duraisamy, Meenakumari Ramachandran, Jamunadevi Karthikeyan, James Israel David, Harish Kumar Settu, Ajith Rathinasamy

2ⁿᵈ International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics (ICIITCEE 2024)

xl

2ⁿᵈ IEEE International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics

Venue: BNM Institute of Technology, Bengaluru, India

24-25 January 2024

Vidyayāmruthamashnuthe

Session 24	Computer Science and Engineering, SS8
Date/Time	Thursday, January 25, 2024 / 01:30 - 03:00 Hrs
Session Chair	Dr Vijayakumar P, VIT, Chennai Dr. Subodh kumar Panda, Prof., ECE, BNMIT
Venue	M309

iitcee2024-428	Harnessing Quantum Systems for Simulating Complex Physical Phenomena *C.Senthilkumar,Dinokumar Kongkham, Beenarani B B, P.Nirmala, S.Joshua Kumaresan*
iitcee2024-429	A Secure Data Encryption Mechanism in Cloud Using Elliptic Curve Cryptography *I. Sudha, Cecil Donald, S. Navya, G. Nithya, Manivannan Balamurugan, S.Saravanan*
iitcee2024-439	Illuminating the Dark: Gaining Insights and Managing Risks with Dark Analytics *Pranav Ravindranathan, P Ashok, Sandeep Prabhu*
iitcee2024-467	Climate Change: The Impact and Exploring the Path Forward *Harshita Joshi, Nokshi, Rahul Chauhan, Ruchira Rawat, Rupesh Gupta*
iitcee2024-368	Modelling and Experimental Generation of 500 nanoseconds virtual front time current impulse *Jithin Pauly P, Bandi Venkata Nagachandra, Prabhakar C., G Pandian*
iitcee2024-95	Modelling of Ultra-Lift Luo Converter Using PI Controller for Stand Alone Application *A. Vishnu Kumar, Dr. V. Jayalakshmi*
iitcee2024-96	Solar Powered Quazi-Z-Source Network Fed DC–DC Converter for Stand Alone Applications *Vishnu Kumar, Dr. V. Jayalakshmi*

2ⁿᵈ International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics (ICIITCEE 2024)

xli

2nd IEEE International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics

Venue: BNM Institute of Technology, Bengaluru, India

24-25 January 2024

Session 25	Electrical and Electronics
Date/Time	Thursday, January 25, 2024 / 01:30 - 03:00 Hrs
Session Chair	Dr. Kalpana, Prof., ECE, Bangalore Institute Technology Dr. Shubha Rao K, Assoc. Prof., EEE, BNMIT
Venue	N401

iitcee2024-385 Evaluation of Novel 16-Bit Vedic Multiplier using Carry Look Ahead Adder for High Speed and Low Area in Comparison with Carry Select Adder
D Surya Teja, P Jagadeesh

iitcee2024-373 Adaptive Bit-Loading and Channel Estimation with IMN For Plain Line and Line with Bridge Taps in Broadband PLC
Dr. Smitha Gayathri. D, Dr. K.R. Usha Rani, Dr. Yasha Jyothi Shirur

iitcee2024-484 WPT: A Smart Magnetic Resonance Technology based Wireless Power Transfer System Design for Charging Mobile Phones
M Tamilselvi, C Ramesh Babu Durai, Senthilkumar B, B.Latha, V.Samuthira Pandi, J. Lakshmi Priya

iitcee2024-485 Voltage control in a ZETA Converter compared with a DC-DC converter by varying duty cycle
Manish K, S Jaana Rubavathy, Gomathi S

iitcee2024-475 Electrical Power Plants Decision Making by Utilizing IFS Weighted Averaging Operator
Annu Dagar, Amit Mittal, Akhilesh Singh, Shailendra Giri, Sachit Rathee

iitcee2024-391 The Nanoscale Technology and Photovoltaics Convergence: A Detailed Analysis of the Quantum Leap Achieved by Silver Nanoparticle Incorporation into SiO2 Non- -reflective Coatings for Solar Cell Efficiency Enhancement
Manikandan S, Radhika Baskar, Sathish G

iitcee2024-438 Bundling Brilliance: Maximizing Telecom Operator Profits through Handset Leasing
Tanvi Hazarika, P Ashok, Sandeep Prabhu

2nd International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics (ICIITCEE 2024)

xlii

2nd IEEE International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics

Venue: BNM Institute of Technology, Bengaluru, India

24-25 January 2024

Session 26	Electrical and Electronics
Date/Time	Thursday, January 25, 2024 / 01:30 - 03:00 Hrs
Session Chair	Dr. Uma Reddy HoD, AIML, New Horizon College of Engg Dr. Priya Shree, Prof, EEE, BNMIT
Venue	N402

iitcee2024-430   Analysis of PV Grid Connected Bidirectional Battery
Abhishek Deore, Sandeep Ushkewar, Abbas Saifee, Vishal Moyal, Sudhir, S.P Deshmukh

iitcee2024-482   Implementation of an Effective Methodology to Avoid DDoS Attacks using Cybersecurity Norms
R Balamurugan, B.Anni Princy, D.Kanchana, M.Murugesan, Josphin Selsia A, M Dinesh

iitcee2024-79   Prediction of Global Horizontal Irradiance based on eXplainable Artificial Intelligence
Chaitanya Ganvir, D.Dinesh, Rahul Gupta, SK Jha, Praveen Kumar Raghuvanshi

iitcee2024-433   Predictive Analysis of 50 KW Solar Photovoltaic System using PVsyst,
Shweta Baviskar, Gaurav B. Patil, Rahul Beld

iitcee2024-419   LiDAR-Equipped Speed Bump Alert System: Pioneering Safety Innovation
Ravi. G, Cherina Williams Paul K, Dena Dinesh M M

iitcee2024-304   AgriAid: An Intelligent Farmer Companion Using Deep Learning Approach
Ilakiyaselvan N, Aarthi Dhandapani, Khadar Nawas K, Abhinov Bhattacharya

iitcee2024-91   System For Sign Language To Speech Conversion
Sparsha U, Priyanka M, Mukthashree S, Kiran K N

2nd International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics (ICIITCEE 2024)

xliii

Session 27	Computer Science and Engineering
Date/Time	Thursday, January 25, 2024 / 01:30 - 03:00 Hrs
Session Chair	Dr. Vaneeta M, Ramaiah Institute of Technology Dr. Manjunath G. Asuti, Assoc.Prof. ECE, BNMIT
Venue	N403

iitcee2024-183   Cloud-Driven Machine Learning with AWS: A Comprehensive Review of Services
Manya K Ravindranathan, D. Sendil Vadivu, Dr. Narendran Rajagopalan

iitcee2024-434   A Multiclass Semi-Supervised Deep Convolutional Generative Adversarial Network for Music Genre Classification Using Mel-Frequency Cepstral Coefficients
Ashutosh Satapathy, Neelima Duda, Jaswanthi Machcha, Kokila Thottempudi

iitcee2024-303   Image-Based Cognitive States Identification through Deep Learning
Kundan Rao S, Siddarth Ambannavar, G.R. Sinha

iitcee2024-48   Speech Recognition based Vending Machine using Hidden Markov Model
Keerthana B, Prabhu.V, Yogarani S, Jayasri S, Dr. Vijayakumar Peroumal

iitcee2024-131   Identification of Age, Plumage, and Sex of Bird Species Using Pre-Trained Deep Convolutional Neural Network
Saranya S, Sourik Banerjee , Richa Gupta, Arun Pandian J , Thanga Mariappan L

iitcee2024-257   CNN and Random Forest-Based Tomato Disease Urgency Prediction: A Vital Tool for Agriculture
Deepak Banerjee, Vinay Kukreja, Prateek Srivastava, Siddhant Thapliyal

iitcee2024-258   Synergizing CNN and Random Forest for Enhanced Damping Off Disease Classification in Tomatoes
Deepak Banerjee, Vinay Kukreja, Dibyahash Bordoloi, Ankur Choudhary

2nd International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics (ICIITCEE 2024)

xliv

2ⁿᵈ IEEE International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics

Venue: BNM Institute of Technology, Bengaluru, India

24-25 January 2024

Session 28	Computer Science and Engineering
Date/Time	Thursday, January 25, 2024 / 01:30 - 03:00 Hrs
Session Chair	Dr. B. Karthik Bharath Institute of Higher Education and Research, Chennai Dr. Divyashree Prof., AIML, BNMIT
Venue	N502

iitcee2024-132	Customer Review Analysis of Indian Multiplex Chain Services *Akshita Trivedi, Sourima Mondal, Sulakshana Sarah Mathew, Dr. Anil Jadhav*	
iitcee2024-451	Deep Learning-Based Object Detection System for Crowd Monitoring in High-Security Areas *Himadri Vaidya, Hitesh Kandpal*	
iitcee2024-191	Multi-View Human Action Recognition Using Adaptive Optimization Algorithm with Skeleton Based Graph Neural Networks *Srilakshmi. N, Radha. N*	
iitcee2024-207	Deep Learning for Cyberthreats: Performance Analysis and Application of Malware Classification in Edge Computing *Akhil M R, Adithya Krishna V Sharma, Abhijith Nadig, Pavan A, Ashray Shetty, Sumathi A*	
iitcee2024-260	Smart Detection of Rose Rust using CNN-Random Forest Fusion *Deepak Banerjee, Vinay Kukreja, Deepak Singh Rana, Ashish Garg*	
iitcee2024-347	Mastering Commercial Market Predictions: A Stacked Ensemble Approach with Credit Scoring Models *R. Ramesh, M.Jeyakarthic*	
iitcee2024-352	Attribute Selection Model using Meta Classifiers for Pneumonia Diagnosis System *Harshavardhan Reddy G, Dr. S.P. Vijayaragava, Karthik B, Kalaiselvi B, Vijayan T*	

2ⁿᵈ International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics (ICIITCEE 2024)

xlv

2ⁿᵈ IEEE International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics

Venue: BNM Institute of Technology, Bengaluru, India

24-25 January 2024

Session 29	Computer Science and Engineering
Date/Time	Thursday, January 25, 2024 / 01:30 - 03:00 Hrs
Session Chair	Dr. Sunil Kumar K N, HoD, CSE, SVCE Dr. Raghavendra C. K. Prof., CSE, BNMIT
Venue	Concept Hall- S Block

iitcee2024-469   Cryptographic Algorithms for IoT Devices
Md Mokarram Alam, Anamika Arora, Aditya Bhatt, Aditya Bhatt, Shefali Gupta

iitcee2024-472   A modified Conventional neural network for detecting and classifying Leukemia
Utkarsh Nautiyal, Ashish Bhatt, Rahul Chauhan, Ruchira Rawat, Rupesh Gupta

iitcee2024-473   Structered Deep Visual Models For Robot Manipulation
Chirag Danu, Rahul Chauhan, Chandradeep Bhatt, Swati Devliyal, Shefali Gupta

iitcee2024-135   Using Machine Learning Models for Predicting Loan Status and Computation of Interest Rate
Rahil Kouser, Hiba Suman T.P, Sruthi A, Dr. Anil Jadhav

iitcee2024-70   Animated Algorithm Visualizer For Graph Based Algorithms And Recursive Programs Using Machine Learning
Geetha S

iitcee2024-238   Analysing various algorithms applied to Alzheimer's disease dataset to help the Future Generation
Athinarayanan S , Shajeena J, Navaz K, Vishwa Priya V, Tamilselvi P, Robinson M Joel

iitcee2024-493   Classification of Images Related to Kidney Cancer using Hybrid Deep Learning
V Asha, S P Sreeja, Arpana Prasad, Gautam V Kathari, Karthik A S, Kathyayini

2ⁿᵈ International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics (ICIITCEE 2024)

xlvi

Institutional Sign In

All

Q

ADVANCED SEARCH

A study to identify significant predictors of Employee Satisfaction of Private Security Personnel of Enterprises through Hierarchical Multiple Regression Analysis

Publisher: IEEE   Cite This   PDF

Arunava Mookherjee ; Krishna Roy   **All Authors**

68
Full
Text Views

Ⓡ

Alerts

Manage Content Alerts

Add to Citation Alerts

Abstract

Document Sections

I. Introduction

II. LITERATURE REVIEW

III. OBJECTIVES

IV. METHODOLOGY

V. FINDINGS AND ANALYSIS

Show Full Outline ▾

Authors

Figures

References

Keywords

Metrics

More Like This

Downl
PDF

Abstract:
In the private security industry, there is supposedly a lack of employee satisfaction. The study's goals were to determine the features that impact employee satisfaction ... **View more**

˅ **Metadata**
Abstract:
In the private security industry, there is supposedly a lack of employee satisfaction. The study's goals were to determine the features that impact employee satisfaction of these private security personnel who are usually outsourced personnel hired from the security agencies. The survey instrument was adapted from the Minnesota Satisfaction Questionnaire. Around 50 variables were considered for the study initially. A survey of a random sample of 526 security personnel was conducted serving the enterprises in the Industrial belt of Asansol Durgapur region of South Bengal. A close exploration of the responses revealed that only 14 variables actually impact the satisfaction levels of the security personnel. Exploratory factor analysis further helped us to identify five basic component factors. The significance of each factor was deduced using Hierarchical Multiple regression analysis. The theory based on Two Factors, often known as the motivation-hygiene theory of Herzberg, served as the study's main framework. This study identified five factors impacting employee satisfaction, three motivators - Growth Prospect, Recognition, and the task and two hygiene factors – Peer Group Relations and Managerial Efficiency which further validated the theory in the current situation of study.

Published in: 2024 International Conference on Intelligent and Innovative Technologies in Computing, Electrical and

Arunava Mookherjee
Faculty of Management Studies, Dr. B. C Roy Engineering College, Durgapur, India

Krishna Roy
Department of Management Studies, National Institute of Technology, Durgapur, India

≣ **Contents**

I. Introduction

In the entire world, the largest private security market is in India. In recent years, the industry has experienced rapid growth. It has developed into a market leader in terms of the need for private security staff, not just in the commercial sector but also in residential households and apartment buildings. This sector makes a major contribution to jobs, the economy, and financial stability (https://timesofindia.indiatimes.com/blogs/voices/need-for-the-indian-private-security-industry-to-evolve-to-make-its-personnel-meet-international-standards/). In the case of such a vital sector, ensuring employee satisfaction among these security professionals becomes essential to ensure the smooth running of the security organization and to provide satisfactory security to customer organizations. For security professionals to have greater job satisfaction, businesses should think about upgrading the environment in which they work (Noreen & Dominic, 2017). There are significant motivations to conduct more thorough research on private security guards, given current employment patterns in this sector and the industry's rapidly increasing workforce. Numerous statistics demonstrate that private security personnel are now employed in comparable or occasionally greater numbers than official police officers throughout the world (Nalla & Pae,2016). The responsibilities of private security agents are closely tied to those of maintaining law and order and preventing crime. Considering that the private security industry is a significant part of contemporary social dominance, learning more about security personnel's job satisfaction will help advance knowledge in this area (Stenning, P. C.,2000).

Authors   ⌃

Arunava Mookherjee
Faculty of Management Studies, Dr. B. C Roy Engineering College, Durgapur, India

Krishna Roy
Department of Management Studies, National Institute of Technology, Durgapur, India

Figures   ⌄

References   ⌄

Keywords   ⌄

Metrics   ⌄

Footnotes   ⌄