

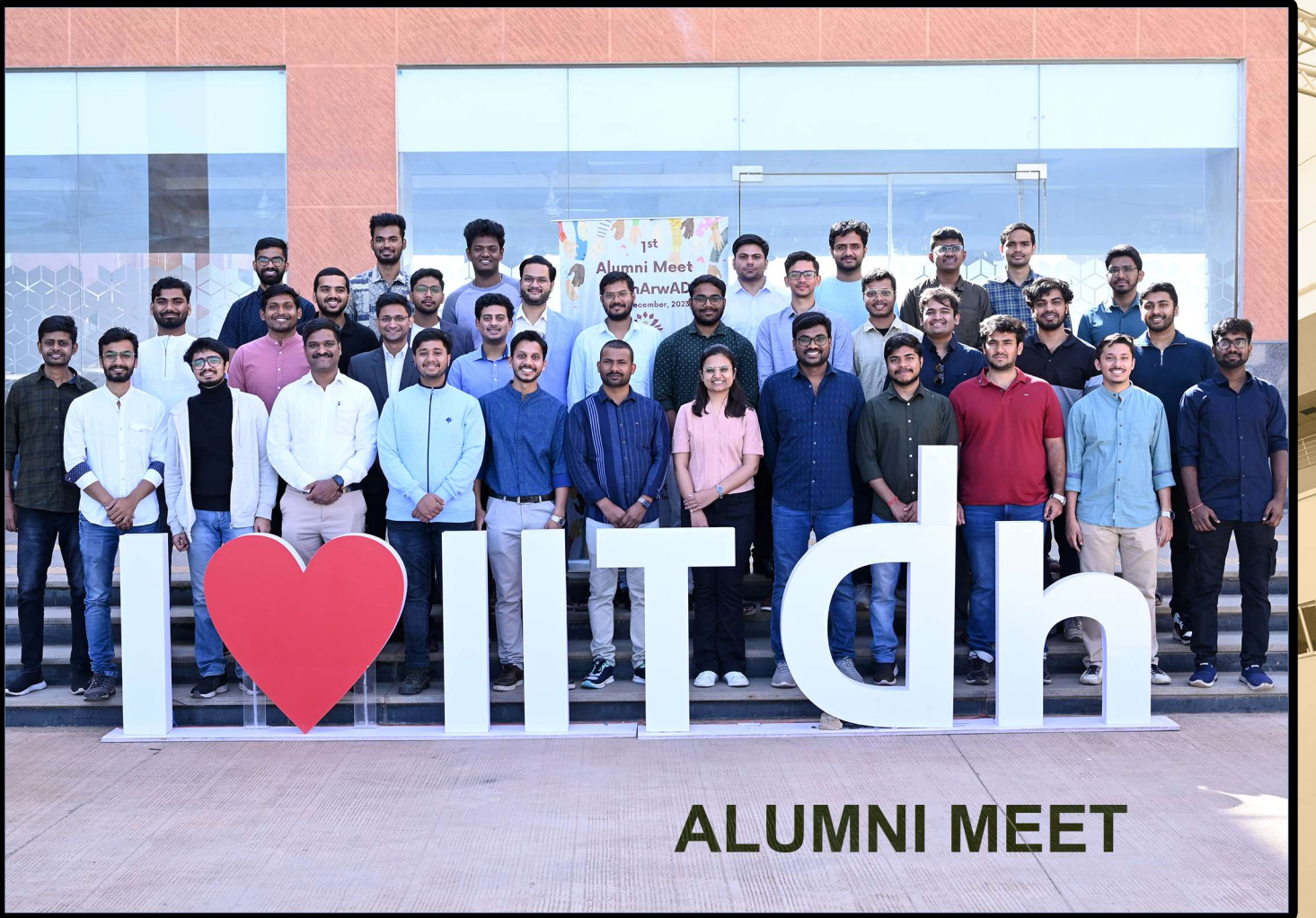


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IIT DHARWAD

# INDIAN INSTITUTE OF TECHNOLOGY DHARWAD NEWSLETTER

JANUARY 2024

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Sambandh





## First Alumni Meet of IIT dhArwAD

Dr. Hiranya Deka, Faculty In Charge, Alumni Association

IIT dhArwAD endeavors to maintain a strong connection with its alumni. To maintain a strong relationship between the institute and its alumni, and to develop a strong network among the alumni, the Indian Institute of Technology dhArwAD Alumni Association (IITdhAA) has been formed. It is an association of all the alumni of IIT dhArwAD. It is a non-profit organization registered as a society under the Govt. of Karnataka. At present, there are approximately 500 members, including the four undergraduate batches that have graduated from the institute and the MS and PhD alums. The objective of the association is to maintain a strong connection of the institute with its alumni, provide professional opportunities through the extended network of the alumni, and to promote research and education.



*Inauguration of the Alumni Meet 2023*

IIT dhArwAD Alumni Association held the first Alumni Meet on 29-31 December 2023 at the newly inaugurated permanent campus of IIT dhArwAD. Our director, Prof. Venkappayya R. dEsAi inaugurated the event on 29 December 2023. Prof. Ravindra D Gudi, Dean of Alumni and Corporate Relations, IIT Bombay, addressed the inauguration event as chief guest. Nearly 50 alumni from different parts of the country physically attended the event. The event created a dynamic platform for fostering knowledge exchange, promoting collaboration, and propelling the frontiers of research. The annual general meeting of the association was held during the event. The association decided to open alumni chapters in the major cities of India, such as Bengaluru, Hyderabad, Mumbai, Delhi, etc. A focused group meeting was held on pivotal fronts like innovations and start-ups, sustainable development, self-sustainable energy, and many more. The alumni plan to exchange ideas with the current students on various fronts. It was also decided to start an alumni lecture series for the benefit of the current students/alumni.

The interaction between the alumni and the institute facilitated necessary feedback to improve the academic curriculum as per the needs of the day. A tree plantation program was arranged in IIT dhArwAD campus. The exciting aspect of the plantation drive was - 27 plants linked to 27 nakshatras were planted in the IIT dhArwAD campus. TATA Motors dhArwAD plant [a platinum rated plant by IGBC (Indian Green Building Council)] gave a presentation on their net zero water and energy facilities at their manufacturing plant near IIT dhArwAD. The event concluded with a cultural program with enthusiastic participation from the students and alumni along with local artists from dhArwAD region.



*Tree plantation during the alumni meet*



*A group photo during the Alumni Meet*



# Empowering Education: The Hubballi-dhArwAD Success Story of Transformative Mathematics Tool Implementation in Government Kannada Medium Schools

Prof. Vijeth J Kotagi; Department of Computer Science and Engineering, IIT dhArwAD

The educational content translation into Indian languages to bring a world-class learning experience to every Indian classroom is a dream joint initiative of IIT dhArwAD and Aveti Learning (<https://avetilearning.com/>). Both organizations are currently working on several joint projects for educational content translation into Indian languages, using the latest speech technologies and artificial intelligence-based approaches.

One of the major initiatives under this joint effort is the work towards, "Improving the Math Competency through digital learning tools," is a groundbreaking project sits at the heart of this initiative. These projects are supported by MeitY under Bhashini, TIH, IIT Bombay (<https://tih.iitb.ac.in/>), and McAfee (<https://www.mcafee.com/>).

Led by Dr. Vijeth J. Kotagi and Prof. S. R. Mahadeva Prasanna of IIT dhArwAD, alongside Mr. Sibabrata Choudhury and Mr. Biswajit Nayak from Aveti, this project aims to revolutionize mathematics education in government Kannada medium schools across HubbaLLi-dhArwAD.

Our journey began with a profound understanding of the challenges faced by students and teachers, particularly those in Class X. Through extensive consultations with educators, administrators, and local experts, we identified the specific needs and pain points within the government school system. This collaborative approach laid the foundation for a tailored solution designed to make a meaningful impact.



After meticulous research, we selected a dynamic mathematics tool designed by Aveti Learning Pvt. Ltd. to cater to the unique requirements of government school students in the HubbaLLi-dhArwAD region. The Aveti E-learning program provides supplemental digital educational resources in regional languages, including e-learning content and interactive assessments, all aligned with the syllabus mandated by the local school board. More than just a digital resource, this tool was crafted to complement traditional teaching methods and provide a holistic learning experience. It is also well-tested, with over 100 schools already using it in the state of Odisha.

The implementation phase was a testament to collaboration and dedication. Teachers became the focal point of our efforts. Comprehensive training sessions were conducted to ensure their seamless integration of the mathematics tool into their classrooms. Our goal was not to replace the teacher, but to augment their effectiveness by turning them into facilitators of an interactive and engaging learning environment. For the pilot program, we considered 20 schools in the HubbaLLi-dhArwAD region and plan to extend it to over 50 schools in the next academic year (2024-25). Initially hesitant about incorporating technology into their classrooms, teachers are quickly becoming advocates of the mathematics tool. It wasn't just a tool; it was a companion that made teaching more impactful and rewarding. Professional development programs ensured that teachers stayed abreast of the latest features, fostering a culture of continuous improvement.

The success of our pilot program in the HubbaLLi-dhArwAD region is largely attributed to the Government officials and policy makers who allowed us to implement it in various schools. A heartfelt expression of gratitude is owed to the Block Education Officer (BEO) of HubbaLLi city Shri. Channappagoudar, and the Block Resource Coordinator (BRC) of HubbaLLi City Shri. M S Shivallimath for their unwavering support. Their visionary leadership, dedication to educational excellence, and proactive approach have been the guiding forces that propelled the implementation of the maths tool in government schools. The BEO's strategic vision and the BRC's hands-on involvement created a collaborative environment that allowed this endeavour to flourish. A special note of gratitude goes to Shri. Biswajit Nayak, the visionary founder of Aveti, and Sibabrata Choudhury, COO, Aveti. Their commitment to education and innovative solutions has been the driving force behind the success of this transformative initiative. Biswajit's passion for leveraging technology to empower students and teachers has left an indelible mark on the educational landscape. His leadership and dedication have not only made the implementation of the mathematics tool possible, but also set a precedent for impactful corporate contributions to education.



Finally, our success story is not just about numbers; it's about the tangible impact on individuals and communities. Our pilot program in government schools became beacons of educational excellence, proving that with the right tools and a collaborative spirit, we can bridge educational gaps and create a more equitable learning environment for all. We extend our sincere thanks for their indispensable contributions to the success of this groundbreaking initiative. It is through their leadership that the positive impact of the math tool has been able to reach every corner of the education system, creating a legacy for the future of learning in our region.



# Awards And Achivements



**Prof. Ramesh Nayaka**, Civil and Infrastructure Engineering Department

1. Won the Sustainathon 2023 global Sustainability Challenge on the topic "Innovative Infrastructure Solutions". It was organised by Desphande Foundation and associated with University of Manchester, UK.
2. Invited as a Keynote Speaker for 3rd National Conference on Sustainable Materials and Smart Practices, organised by Dept. of Civil Engineering, Bannari Amman Institute of Technology, Erode, Tamilnadu on October 19, 2023.
3. Invited as a Chief Guest for National Conference on Recent Advancements in Civil Engineering Research - 2023, Dept. of Civil Engineering, MEA Engineering College Perithalmanna, Kerala, October 18, 2023.
4. Succesfully secured a grant to organize Karyashala under accelerate vigyan program, SERB, Govt. of India.



**Prof. Abhijit Kshirsagar** and **Prof. Satish Naik** from the department of Electrical, Elelctronics and Communication Engineering jointly organized a workshop cum training program on High-performance FPGA based digital controllers for power plectronics.



**IIT dhArwAD** was conferred with Ultra-Tech Award 2023, for being one of the outstanding concrete structures in North KarnATaka under public buildings category on 17th November 2023.

**Prof Gopal Sharan Parashari** from Humanities, Economics, Arts and Rural Technology Department delivered an invited lecture titled "Contest in Evolutionary Setting" in Winter School on 'Games in Evolutionary Dynamics' hosted by Department of Mathematics, Shiv Nadar Institute of Eminence (Deemed to be University), December 18- 23, 2023.



**Prof. Gayathri Ananthanarayanan** from Department of Computer Science and Engineering presented a paper on Evaluating the cost effectiveness of Heterogeneous Edge Platforms for Neural network workloads at the Eighth ACM/IEEE Symposium on Edge Computing held in Wilmington Delaware, USA from Dec 6 to 9.







**Prof V R dEsAi** participated in a thought leader session on Clean River with Perspective of Think Tanks & Social Organizations Perspective in River Health: Assessment and Restoration (RHAR 2023) conference at IIT BHU during 12-14 October 2023.

**Prof. Veekesh Kumar** from Department of Mathematics secured funding from prestigious National Board for Higher Mathematics for his research proposal titled "Fractional Parts of Powers of Real Algebraic Numbers and Related Problems".



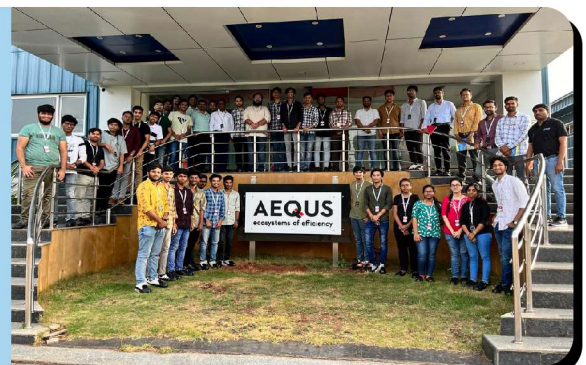
**Prof. Hiranya Deka**, Department of Mechanical, Materials and Aerospace Engineering

1. Delivered a talk at the 76th Annual Meeting Meeting of the American Physical Society - Division of Fluid Dynamics (APS-DFD) held on 19-21 November 2023 at Washington DC, USA.
2. Hiranya Deka has received a Indo-French collaborative research project from the Indo-French Center for Promotion of Advanced Research. The title of the project is "Inertial Coalescence in Liquid-Liquid Extraction for Clean Energy Production".



**Prof V R dEsAi, Director** and **Prof K V Jayakumar** participated in the 8th India Water Impact Summit (IWIS) and 1st Climate Investments and Technology Impact Summit (CITIS) organised by the National Mission for Clean Ganga (NMCG), Jalshakti Ministry and Ganga during 22-24 November, 2023.

**Prof. Satya Priya Gupta** from Department of Mechanical, Materials and Aerospace Engineering organized an Industrial Visit for the 2nd Year UG students as a part of Manufacturing Process and Metrology instructional lab where student had an opportunity to visit Aequs Private Limited in Belgaum, 4 November 2023.





**Prof. Satyapriya Gupta**, Department of Mechanical, Materials and Aerospace Engineering, availed an opportunity of Short Research Trip to France (SRTF) between 3rd Dec to 17th Dec, 2023 under the framework of the Scientific High Level Visiting Fellowships (SSHN) programme sponsored by The French Institute in India and the Embassy of France in India.



**Prof V R dEsAi** participated in the Inaugural function of HYDRO 2023, the 28th International Conference on Hydraulics, Water Resources and River Engineering hosted by NIT Warangal on 21st Dec, 2023.

**Prof. V R dEsAi** participated as the "Chief Guest" at the International Symposium on "Digital Libraries: Sustainable Development in Education at IIT Kharagpur on 20th November 2023.



**Dr. Basavarajappa S.** [Registrar, IIT dhArwAD] and **Dr. Amarnath Hegde** [Associate Professor, Department of Civil and Infrastructure Engineering] featured in top 2% of scientists Stanford University's 2023 list.

**Prof. Nagesh Iyer**, [Dean, Infrastructure, Planning and Support, NT dhArwAD], has been recognized for his eminence and contribution to the profession of Civil engineering at 38th National Convention of Civil Engineering at Belagavi on October 8, 2023.



**IIT dhArwAD** was awarded the Winner Award in Higher Education category for 'Innovation in Curriculum & Learning at the India Didactics Association (IDA) function held at Bengaluru International Exhibition Centre (BIEC), Bengaluru on 17 October 2023.

**Prof. Rajesh Mahanand Hegde**, Dean (Research and Development) and Professor, Electrical, Electronics and Communication Engineering, IIT dhArwAD has been appointed as chairman of the expert committee for recognition of prior learning (RPL) by University Grant Commission (UGC). The National Education Policy facilitates multiple pathways to learning including non-formal education. The National Credit Framework (NCrF) and National Higher Education Qualification Framework (NHEQF), developed according to NEP 2020 also emphasizes on Recognition of Prior Learning. In this context the Expert Committee has been tasked to frame Guidelines for Recognition of Prior Learning.



## High Value Publications

**Prof. Nilkamal Mahanta** (Department of Chemistry) published a short review article in prestigious Nature Chemical Biology Journal (Impact Factor: 16) in December 2023.







IIT Dharwad



IIIT Dharwad

## Organizers



NIT Goa



KLE Tech



KIIT Gurugram

The International Conference on Speech and Computer (SPECOM) is an enduring interdisciplinary scientific annual event with a rich tradition, dating back to its inaugural session held in St. Petersburg in 1996. This flagship conference consistently delivers a comprehensive technical program, showcasing the latest advancements in research and technology within the field of speech processing and its diverse applications.

Marking its 25th Jubilee edition, SPECOM unfolded its proceedings from November 29th to December 1st, 2023, at Hotel Denissons in HubLLi-dhArwAD India. Additionally, a satellite workshop was organised in Goa at Abolim Hall of the International Centre on Speaker and Language Identification, Verification and Diarization. The successful coordination of this landmark event was orchestrated by IIT Dharwad, in collaboration with four other esteemed organising institutes. Notably, the conference garnered significant attention, receiving an unprecedented 170 submissions, with an impressive acceptance rate of 55%.

The General Chairs of the conference were Prof. B. Yegnanarayana (IIIT Hyderabad) and Prof. Shyam S. Agarwal. The Technical Program Committee Chairs were Prof. Alexey Karpov (SPC RAS, St. Petersburg), Prof. Rajesh M. Hegde (IIT dhArwAD), Prof. K. SamudraVijaya (KL University), and Dr. K.T. Deepak (IIIT dhArwAD). The Organizing Committee was chaired by Prof. S.R.M Prasanna (IIT dhArwAD) and Prof. Suryakanth V. Gangashetty (KL University).

The distinguished roster of plenary and keynote speakers featured luminaries from across the globe, including Prof. Visar Berisha (Arizona State University, USA), Prof. Bhiksha Raj (Carnegie Mellon University, USA), Prof. Satoshi Nakamura (Nara Institute of Science and Technology, Japan), Prof. Hema A. Murthy (IIT Madras), Dr. Oldrich Pichot (Brno University of Technology, Czechia), Prof. Priyankoo Sarmah (IIT Guwahati), Dr. Padmanabhan Rajan (IIT Mandi), Dr. Prasanta Kumar Ghosh (IISc Bangalore), and Dr. Preethi Jyothi (IIT Bombay). In addition, industry experts from companies such as Amazon and Samsung R&D enriched the conference with their insights.

The thematic spectrum of the conference encompassed diverse areas, including Automatic Speech Recognition (ASR), Child Speech Processing, Under-Resourced Languages, Speech Processing for Medicine, and more. Authors hailing from countries such as India, Russia, Argentina, Hungary, Canada, Japan, among others, presented their original contributions through both poster and oral presentations, further enhancing the global perspective of SPECOM. The conference not only served as a platform for sharing cutting-edge research but also fostered collaboration and knowledge exchange among experts and enthusiasts alike.





# Student Achievements

Mr. Sujeet Kumar Jaiswal, PhD student, Department of Mechanical, Materials and Aerospace Engineering presented a paper titled "Inlet Distortion Studies on a Centrifugal Compressor" at the ASME GT India 2023 conference in Bengaluru on December 7 and 8, 2023.



Mr. Faheem UI Haq, MS student from department of Electrical, Electronics and Communication Engineering received prestigious GIPSA (Grid Controller of India Power System Award) for best masters thesis in power and energy systems in India. He worked on game theoretic solutions for ancillary services from electric vehicles under the supervision of Prof. Pratyasa Bhui

Mr. Jack Benjamin, MS student from the department of Electrical, Electronics and Communication Engineering received internship offer from Toshiba. He is working on Grid Forming Inverters under the supervision of Prof. Pratyasa Bhui and Prof. Animesh Sahoo.



Ms Sayali Lokhande and Mr. Akash Poptani, B Tech Students working with Prof. Rahul Pandya in department of Electrical, Electronics and Communication Engineering received best student paper presentation award in the 2023 IEEE Asia Pacific conference on Geoscience, Electronics and Remote Sensing Technology (AGERS) held in Surabaya, Indonesia between 19 - 20 December 2023.

Mr. Deepak Mudakavi PhD student from Department of Mechanical, Materials and Aerospace Engineering was conferred with "Best Oral Presentation" award at the International Conference on "Materials Processing using Lasers and Surface Engineering" (IMPULSE 2023) held during December 14-15, 2023 at Indian Institute of Technology Madras.



Mr. Janmejaya Panda, PhD student from Humanities, Economics, Arts and Rural Technology Department presented a research paper entitled "Risk Aversion, Climate-smart Agriculture and Technical Efficiency: Evidence from Rice Cultivation in the Indian State of Odisha" in the Global Economic Issues 2023 symposium, organised at Ho Chi Minh city, Vietnam, during 30 - 31 October, 2023.

Ms. Simita Das, PhD student, Department of Chemistry secured 2nd Position for Oral Presentation in International Seminar on "From Laboratory to Industry: Green Chemistry for Circular Economy", organised by Dnyanprassarak Mandal's College and Research Centre, University of Goa, on 18 May 2023.



Mr. Rachit Varma (Computer Science and Engineering Department, Supervisor: Dr. Anand Konjengbam), Ms. Renuka Varma P C (Electrical, Electronics and Communication Engineering, Dr. Abhijit Kshirsagar) and Ms Himani Sharma (Department of Physics, Dr. Kavita Devi) were awarded Prime Minister Research fellowship in the current cycle 11.



## Bridging Connections

### Youth Cultural Exchange Fosters Unity Between KarnATaka and Punjab

Ek Bharat Shreshtha Bharat, Yuva Sangam (Phase – III) initiative, led by the Indian Institute of Technology Dharwad in collaboration with the Indian Institute of Technology Ropar, Punjab, and supported by the Indian Railway Catering and Tourism Corporation (IRCTC), successfully concluded. The primary aim of this week-long initiative was to strengthen connections among youth from diverse states, fostering unity and understanding among the nation's young minds.

Yuva Sangam's core objective is to provide youth with multi-dimensional exposure in five broad areas: Paryatan (Tourism), Parampara (Traditions), Pragati (Development), Paraspar Sampark (People-to-people connect), and Prodyogiki (Technology).



For Punjab participants, the cultural journey unfolded from November 26th, 2023, to December 6th, 2023. The meticulously planned itinerary showcased various facets of KarnATaka's heritage, including the historical and archaeological wonders of Hampi, Badami, and Pattadakal. Participants also visited KarnATaka Khadi Gramodyoga in Garag village, Dharwad district, experiencing the National flag manufacturing process. Additionally, they had hands-on experiences like Pottery making in Central Village Pottery Institute, Khanapur, visits to Tata Hitachi, Akshaya Patra, and exploration of local vibrant streets.

The journey for KarnATaka participants commenced from December 13th, 2023, to December 24th, 2023. It encompassed visits to spiritual and historical places, along with experiencing Punjab feasts. Highlights included visits to the Golden Temple, archaeological museums, and sites of the Indus Valley civilization excavation. Participants also had the golden opportunity to visit Raj Bhavan, where they met the Honorable Governor of Punjab, Shri Banwarilal Purohit. The itinerary further included a visit to the Wagah border, where participants experienced the Beating Retreat border ceremony.





# Ethical Horizons in Artificial Intelligence – A Journey Towards Fairness in the Digital Era

Dr. Vandana Bharti, Assistant Professor, CSE Dept., IIT dhArwAD

Artificial Intelligence (AI) serves as a transformative force, swiftly reshaping the landscape of industries, economies, and societies with unprecedented speed. This rapid evolution, however, brings with it the pressing need to confront ethical considerations surrounding its development and deployment. Beyond a mere technological requirement, the pursuit of fairness in AI emerges as a profound moral obligation. In the current era marked by swift AI advancements, ethical considerations rightfully claim a central position in societal discourse. As AI technologies seamlessly integrate into our daily lives, the demand for comprehensive ethical guidelines becomes increasingly evident. The essence of this matter lies not only in unlocking the potential of AI for progress but in doing so with a heightened awareness of its ethical implications.

At the core of the ethical discourse surrounding AI lies the paramount importance of fairness. The creation and implementation of AI systems should not inadvertently perpetuate or worsen existing societal biases. Recognizing this, the call for fairness in AI transcends a technological mandate; it evolves into a moral commitment rooted in principles of justice, equity, and the overall well-being of humanity. Beyond the singular focus on fairness, a thorough exploration of the broader ethical considerations enveloping AI is imperative. Privacy, accountability, transparency, and the societal impact of AI technologies are integral facets that demand meticulous examination. This multifaceted approach ensures that the ethical framework guiding AI development is robust and comprehensive.

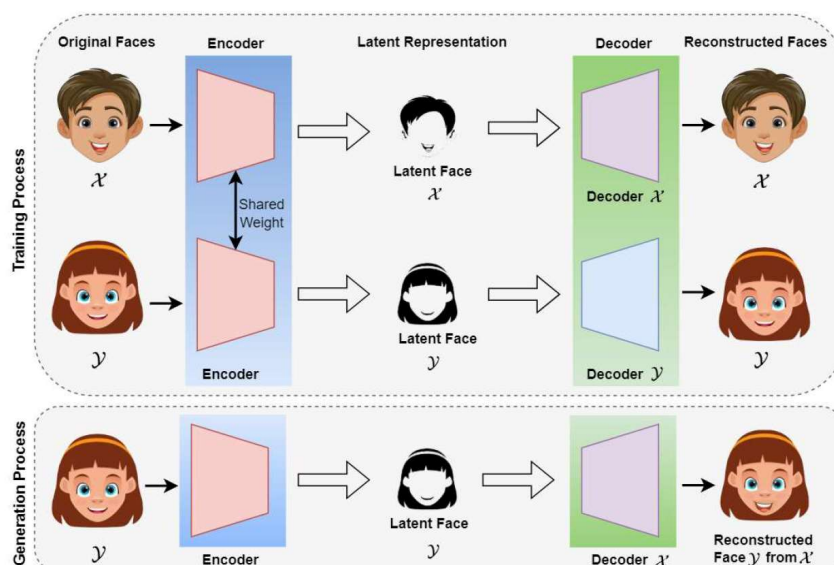
The responsible integration of AI technologies hinges on navigating the intricate interplay between innovation and ethical considerations. Developers, policymakers, and stakeholders must collaborate to establish guidelines that shield against the unintended consequences of AI deployment. Ethical considerations should be ingrained in the design phase, ensuring that AI systems align with societal values and adhere to ethical norms. The ethical horizons of AI represent a vast landscape of challenges and opportunities that define the trajectory of responsible AI development.

One primary challenge is the presence of bias in AI algorithms, often reflecting and perpetuating societal prejudices ingrained in training data. Mitigating this bias requires ongoing efforts in algorithmic fairness, diverse dataset curation, and continuous monitoring. Opportunities emerge in utilizing AI for social good, addressing societal issues, and promoting inclusivity. The ethical deployment of AI can bridge gaps in healthcare, education, and other essential services, contributing to the betterment of society. Striking a balance between innovation and ethical considerations is not only possible but imperative for creating a digital era that prioritizes fairness and equity. In essence, the ethical compass guiding AI development must remain unwavering, ensuring that progress is not pursued at the expense of ethical principles and societal well-being.

At the forefront of current ethical dilemmas is the convergence of AI and the innovative deepfake technology, marking a pivotal turning point that brings forth a blend of awe-inspiring potentials and daunting challenges to our swiftly evolving digital landscape. As AI, with its transformative prowess, continues to reshape industries and societies, the rising tide of deepfakes introduces a layer of complexity, amplifying the ethical considerations that underpin the development and deployment of these cutting-edge technologies.

## The Rising Threat of DeepFakes

The need of ethical principles in AI development is underscored by the discussion surrounding one of its prominent innovations – Deepfakes. It presents a significant and immediate danger in our digital landscape. Fueled by sophisticated machine learning algorithms illustrated in Figure 1, deepfakes epitomize the ability to generate uncannily realistic simulations of human faces and voices. This technological advancement, though fascinating, carries profound implications across various domains of our interconnected world. In the realm of entertainment, filmmakers harness the creative potential of deepfakes to seamlessly integrate actors into scenes, expanding artistic possibilities. However, this newfound creative freedom is coupled with ethical concerns, as the malleability of reality challenges the boundaries of authenticity.



**Figure 1:** Illustration of a deepfake creation model employing two encoder-decoder pairs. Two networks share a common encoder but utilize distinct decoders during the training process (top). In the bottom image, the face of individual  $Y$  is encoded with the shared encoder and decoded using decoder  $X$  to generate a deepfake. The reconstructed face (bottom) exhibits the features of face  $Y$  but with the mouth shape of face  $X$ .



While the political sphere confronts a distinctive challenge, as deepfake videos possess the potential to sway public opinion, distort facts, and disrupt democratic processes. The ease with which fabricated videos of public figures can circulate amplifies the urgency to develop robust tools for detection, mitigation, and public awareness. Addressing the ethical dimensions of deepfakes in politics is pivotal to preserve the integrity of information and safeguarding the democratic principles upon which societies are built.

Also, deepfakes pose a unique threat in the cybersecurity landscape by enabling identity theft, corporate espionage, and the dissemination of false information. As organizations grapple with safeguarding against these deceptive media creations, the imperative to establish robust authentication mechanisms and educate individuals about the risks associated with trusting multimedia content becomes increasingly apparent.

Further at a personal level, the use of deepfake technology raises concerns about privacy and interpersonal trust. From fabricated celebrity endorsements to potential instances of personal videos being manipulated for malicious purposes, the ethical considerations surrounding deepfakes touch upon fundamental aspects of individual autonomy and consent. Balancing the innovative potential of deepfakes with the imperative to protect personal integrity and privacy underscores the ethical challenges inherent in their proliferation.

Mitigating the negative impacts of such AI tool demands a multifaceted approach. Technological innovation plays a crucial role in developing reliable detection tools and advancing media forensics. Simultaneously, legal frameworks must evolve to address the malicious use of technology like deepfakes, providing avenues for recourse and accountability. Promoting media literacy becomes instrumental in empowering individuals to discern the authenticity of digital content and navigate the nuanced landscape of AI-generated simulations.

As AI and related technologies continue to evolve, the ethical compass guiding their development must remain steadfast. Striking a delicate balance between innovation and ethical considerations is imperative to harness the transformative potential of these technologies while upholding fundamental values such as truth, privacy, and trust. The responsible deployment of AI and deepfake-related tools is essential to shape a digital era that not only prioritizes progress but also safeguards the ethical principles vital for a resilient and trustworthy society.

### Implementing Robust Measures to Safeguard Ethical AI Development:

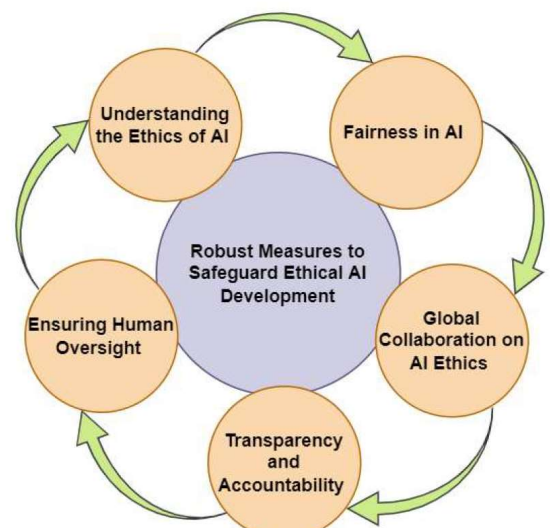
**1. Understanding the Ethics of AI** - Upholding ethical principles in AI involves ensuring that the creation and utilization of AI systems align with human values, respect fundamental rights, and prioritize fairness and transparency. As AI's role in decision-making processes deepens, a proactive focus on ethical considerations becomes imperative to avert unintended consequences and mitigate potential societal harms.

**2. Fairness in AI** - A central ethical concern revolves around the issue of fairness in AI systems. Addressing biases embedded in algorithms is paramount, as these biases can lead to discriminatory outcomes, exacerbating existing social inequalities. Ongoing efforts by developers and researchers aim to rectify biases in training data and algorithms, emphasizing the creation of AI systems that not only deliver accurate results but also adhere to principles of fairness. This commitment necessitates a comprehensive evaluation of potential biases and a steadfast dedication to inclusivity and diversity in the development process.

**3. Transparency and Accountability** - Transparency serves as a foundational pillar of ethical AI. Users and stakeholders must possess the ability to comprehend the decision-making processes of AI systems, enabling them to hold developers and organizations accountable. Transparent AI systems empower users to question and challenge decisions, cultivating trust and accountability in the responsible deployment of these technologies.

**4. Ensuring Human Oversight** - Despite the augmentation of decision-making processes by AI, human oversight remains indispensable. Human judgment is critical to ensure that AI aligns with ethical standards and societal values. Establishing clear guidelines for the circumstances and methods of AI deployment, coupled with mechanisms for human intervention, prevents the undue delegation of decision-making authority to algorithms.

**5. Global Collaboration on AI Ethics** - Recognizing that AI's impact transcends national boundaries, there is a pressing need for global collaboration to establish ethical standards. Governments, industry leaders, researchers, and civil society must join forces to formulate universally accepted ethical guidelines for AI. This collaborative effort fosters a shared understanding of ethical challenges and cultivates a collective commitment to the responsible development of AI on a global scale. It paves the way for a harmonized approach to AI ethics, minimizing discrepancies and ensuring a cohesive framework that promotes the well-being of humanity.



Navigating the evolution of AI demands an unwavering commitment to ethical principles. Emphasizing fairness, transparency, accountability, and human oversight is pivotal to ensure the beneficial integration of AI technologies into society. By collectively addressing these ethical considerations, we pave the way for a future where technological progress aligns harmoniously with ethical values. The implementation of these robust measures serves as the foundation for the responsible and ethical advancement of AI, fostering trust and nurturing positive societal impacts.



# Events

22nd November, 2023: Prof. Satyapriya Gupta organized the 3rd Mechanical, Materials and Aerospace Engineering Annual Research Symposium "ShOdhaYAntriKI-23". The event consist of more than 10 research talks by research scholars, 7 Oral poster by UG students, 4 Invited talks (from academia and industry and more than 60 posters from UG and PG students. The main attraction of the Symposium was the Industry-Academia Panel Discussion where invited guests from industry and academia deliberated on "Bridging the Skill and Knowledge Gap between Academia and Industry in India"



A contingent of IIT dhArwAD faculty and staff members participated in 28th staff inter IIT sports meet at IIT Gandhinagar.



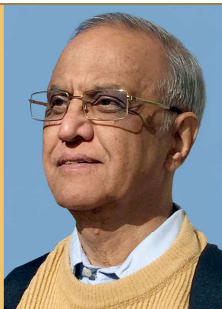
The new Eklavya Dhyana Chand Indoor Common sports facility was inaugurated at IIT dhArwAD permanent campus on 18/10/2023.

Mr. Abhijit Shanbhag, President, and CEO of Graymatics Singapore, visited IIT dhArwAD to explore the possibility of having fruitful collaboration in areas of mutual interest.



The Student Welfare Division of IIT dhArwAD organized a workshop titled "Uplifting Self and Others" on 14 October 2023. The primary goal was to help the students and Institute members find their best selves. The event was conducted in partnership with YourDOST, an online counseling and emotional support platform.

Prof. Emeritus B. V. Limaye from IIT Bombay delivered the 4th institute colloquium lecture on topic "Primes: Building Blocks for Numbers" on 4 October 2023.



The IIT dhArwAD NSS unit organised a Khadi mahotsav 2023 on 11 October 2023.



Members of IIT dhArwAD community proudly participated in celebrations for Karnataka Rajyostava on 1 November 2023.



An informative lecture on "Study, Research in Germany" was delivered by Dr. Manjula Mundakana, Senior Advisor, Science Technology and Political Affairs, Consulate General of the Federal Republic of Germany and Dr. R. Madhan, Director, Indo-German Science & Technology Centre (IGSTC), New Delhi on 19-10-2023.



Prof A Lindsay Greer from Cambridge University, visited IIT dhArwAD and delivered a Institute Colloquium lecture on "Glassy State of Matter".



## Newly Joined Faculty and Staff members of IIT dhArwAD



**(Staff from Left to Right):** Subramanya Hanumanu Sai (Junior Technician), Kachapogu Suresh (Junior Technician), PM Venkateswarlu (Junior Technician), Chitra S Naik (Junior Technician), Bharath G Relekar (Junior Technical Superintendent), Manjunath S G (Junior Technical Superintendent)

**(Faculty from Left to Right):** R K Mathad, Surya Pratap Singh (Assistant Professor, Biosciences and Bioengineering), Prof. S. Basavarajappa (Registrar), Debalina Chakravarty (Assistant Professor, Humanities, Economics, Arts and Rural Technology), Prof. Venkappayya R. dEsAi (Director), Samba Raju Chiluvuru (Assistant Professor, Electrical, Electronics and Communication Engineering), Ramjee Repaka (Professor, Mechanical, Materials and Aerospace Engineering), Dileep A D (Associate Professor, Computer Science and Engineering)



**(Newly joined Staff Members Left to right):** Prajwal Kapileshwari, Junior Superintendent; Anita Verma, Junior Assistant, Kenchappa Sasanur, Junior Assistant, Avinash B, Junior Assistant.

## Donors of IIT Dharwad

List of Donors to IIT dhArwAD

Sl.No	Donar's Name	Affiliation	Designation	Donation Amount (₹)	Donation Date
1	Mr P Nagaraju	Square A Engineering Enterprises Private Limited, Hyderabad	Director	7,00,000.00	02.12.2021
2	Mr. Shivaprasad	IITRAM Ahamedabad	Director General	7,50,000.00	30.03.2021
3	Mr. Shivaprasad	IITRAM Ahamedabad	Director General	50,000.00	21.04.2021
4	Mr. Shivaprasad	IITRAM Ahamedabad	Director General	2,00,000.00	22.04.2021
5	Mr. Shivaprasad	IITRAM Ahamedabad	Director General	5,50,000.00	23.04.2021
6	Prof. Venkappayya R. dEsAi	IIT dhArwAD	Director	50,000.00	22.08.2023
7	Prof. Hiranya Deka	IIT dhArwAD	Assistant professor	10,000.00	17.09.2023
8	Mrs. Vijay Laxmi Wadeyar	Champ Sports	Owner	10,000.00	21.09.2023
9	Blood Bank Center (A use of Shre Guruseva Social Society)dhArwAD	dhArwAD Blood Bank	Trustee	15,000.00	21.09.2023
<b>Donation During the Quarter</b>					
10	Prof. Dhiraj Patil	IIT dhArwAD	Associate Professor	10,000.00	25.12.2023
11	Prof.Rajshekhar V Bhat	IIT dhArwAD	Assistant Professor	10,000.00	29.12.2023
<b>Total</b>				<b>23,55,000.00</b>	



# Cultural Chronicles Of IIT dhArwAD



## Ought to be

Will you join me, will you see

Everything that's ought to be

A united civilisation that grows

A peace which everyone knows

Where everyone receives aid

Where love may never fade

A world brimming with innovation

Ideas not curbed, by border or nation

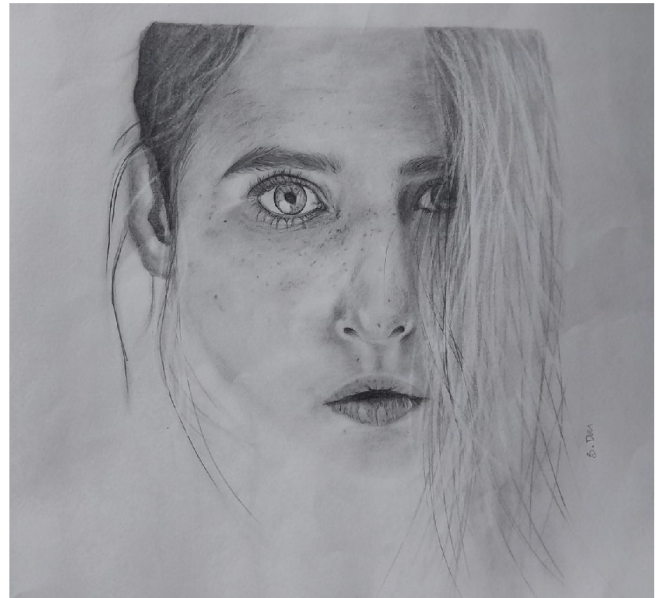
Where in all directions that can be seen

Flourishes mother nature, and her children green

Will you join me, will you see

The world which is dear to me

— Aditya Shiroadkar



## Dreams Never Die

Tunes in my ears, the late night stars staring at me,  
With hopelessness and disappointment;  
My sight blurred, but with crystal clear vision,  
Failures scorching me in the arctic outside;  
Drops begin to fall, not from the sky, from my misty eyes.

It is a path I have chosen;  
Full of thorns, stones and impediment;  
It is a path of uncertainty,  
Filled with heartbreaks and anguish;  
I may abandon it, breaking free from the battle;  
But heart aches to leave the desire of paradise.

One without flowers, but still beautiful;  
A thousand voices chanting, yet peace in the heart;  
Clouds of happiness and showers of fame;  
The air smells victory and adrenaline in every breath.

Tears can tear me apart,  
My back on the wall;  
It may appear to be a dungeon;  
Me wanting to break free.

—Kavichelvan

## "स्वप्न"

'स्वप्न' नहीं परियों की कहानी।  
यह तो है जीवन की रवानी॥  
हँसना-रोना, गिरना-उठना,  
चक्र यही तो चलता है।  
स्वप्न इसी के दुर्द-गिर्द कहीं,  
सजता और सँवरता है॥  
माँ की गोद में जब थे बसेरे।  
बंद आँखों में थे सपने बहुतेरे॥  
आँख खुली तो तन्हाई ली।  
सपनों की केवल परछाई थी॥  
यौवन ने जब ली अंगड़ाई।  
सपनों ने मुझसे प्रीत बढ़ाई॥  
हम लगे सजाने सपनों की बस्ती।  
जीवन में थी यौवन की मस्ती॥  
कुछ सँवर गए, कुछ बिखर गए।  
कुछ टूट गए, कुछ छूट गए।  
मानो सपने हमसे रुठ गए॥  
आया बुढ़ापा, स्वप्न जवाँ था।  
जीवन को तो होश कहाँ था?  
सज न सकी सपनों की महफिल।  
मन भी हो गया काफी बोझिल॥  
बोझिल मन ये गाता है।  
मनुष्य भाग्य विधाता है॥  
क्यों हम छोड़ें सपनों का साथ।  
करते रहेंगे दो-दो हाथ॥  
कुछ टूटेंगे, कुछ बिखरेंगे।  
पर ऐसे ही हम निखरेंगे॥  
यह संसार भी एक सपना है।  
यहाँ नहीं कोई अपना है॥  
लोग यहाँ हैं मिलते-बिछड़ते।  
सपने नए सँवरते-मिटते॥

— प्राची प्रसून





॥ सा विद्या या विमुक्तये ॥

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भा. प्रौ. सं. धारवाड

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Sambandh

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