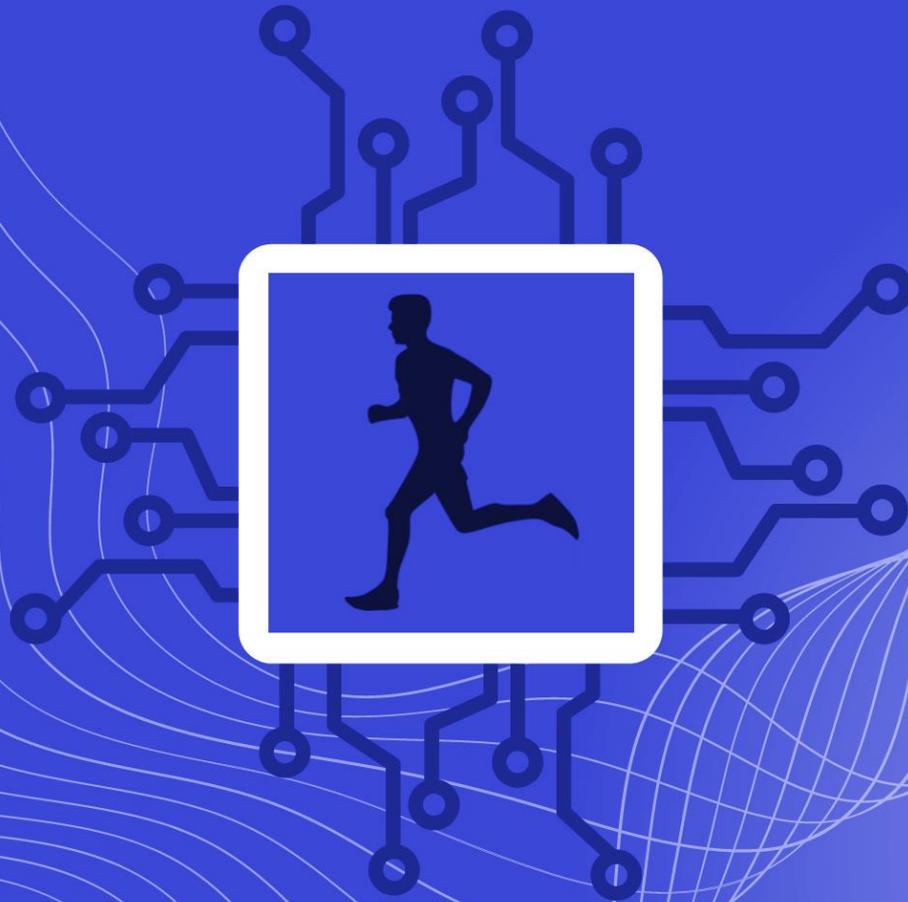


NEWSLETTER

# Sports Engineering Association



# SportE



Volume . 1

Issue . 2

February 2023

<http://sportsea.org/>

## FROM THE DESK OF CHIEF EDITORS



**Dr. Abhijeet Digalwar**



**Dr. Arun Jalan**



**Dr. Lalit Sharma**

Dear Readers,

It gives us immense pleasure to launch the second edition of the SEA newsletter “SportE” for 2023. On behalf of SEA members and editorial team, we take this opportunity to extend our sincere thanks to the ISEA and BITS Pilani - Pilani Campus for their support and best wishes for the newsletter.

Sports Engineering Association (SEA), India is a recognized group of people from engineering, science, Physical education & Sports and industry pledged to work towards the cause of sports, fitness, and industry. Sports engineering Association is an association trying to bring technical application of engineering in sport to solve sporting problems. These may include designing equipment, building facilities, analyzing athlete’s performance, regulating standards, ensuring safety requirements and developing coaching tools. The idea is to apply the engineering in the world of sports. Our aim is to attract people to work on this particular field and develop the technical aspect of sports.

In this issue, we will recount the various activities in which SEA members were actively involved after publication of first newsletter. We continued a separate section for the full-time students, in which they can participate in the fun-oriented quiz and also win a prize. The purpose of the quiz is just to promote awareness about science and sports among the student community. This section also includes future opportunities for the student members of SEA.

Last but not the least, we would like to thank all the members of SEA as well as editorial board members for their everlasting support throughout the creation of this edition.

## MESSAGE



**Prof. Shantanu Chaudhury**  
Director, IIT Jodhpur

Olympic movement is based upon the value of excellence, peace and respect. Sports is embodiment of these values. Engineering knowledge and systems make sports better. The discipline of Sports Engineering, hence, takes the spirit of Olympics forward. To be engaged in Sports Engineering is a privilege not only for scientific excitement but for contributions to the Olympic movement inter alia for the betterment of humanity. The Sports Engineering Associations deserves special admiration for taking this cause forward. Initiatives of this association will not only open up new avenues of technological research but take sports forward, pushing the limit of human achievements.

## MESSAGE



**Ms. Avani Lekhara**  
Major Dhyan Chand and Padmashri Awardee

February 25, 2023

**Ms. AVANI LEKHARA**  
(Major Dhyan Chand Awardee & Padmashri awardee)  
Paralympic Gold medalist  
Jaipur, Rajasthan

I am sincerely glad to know that the Sports Engineering Association (SEA), India is releasing its second issue of newsletter "SportE". Indeed, Sports Engineering has an important role in the development of sports and I am happy to know that the SEA has taken the initiative to bring engineers of the country on a platform to discuss and help athletes in India.

It is not an easy thing to compete at the International Sports Events without technical support. Being an athlete I understand the importance of technology whether its equipment or performance analyzing which helped me a lot to improve my game.

I appreciate the team of SEA, India for their endeavors towards the development of indigenous sports technology for sports in India and releasing the Newsletter about the activities of SEA.

With Best Wishes.

A handwritten signature in blue ink, appearing to read 'Avani'.

(Avani Lekhara)

## MESSAGE FROM MEMBERS

### Dr. Subir Debnath

Life Member, SEA. Malaviya National Institute of Technology Jaipur, India



Is possible to think of sports excellence without Sports Engineering? Let's talk about inflating a football in the late 1970s and 1980s. Engineering technologies was first, you had to inflate the football bladder, tie it then put the nozzle of the bladder inside a leather covering and and lastly stitch it with skilled hands, all that even before you could think of playing. Even after going through the entire process, it was highly likely that the ball pressure could be either less or more, which would make it unsuitable for playing barefoot. Today, FIFA has officially approved that every football used in an official match should have a standard size, weight, circumference, and approved pressure. These standards can only be maintained and made possible by the constant research and development by sports engineers.

Sports engineering requires expertise in many technical fields; from mechanical design to aerodynamics, material science to computer modeling. It also includes designing and building stadia, testing sports equipment, sensor tools, rackets, swimsuits, analysing athlete performance through data science, regulating standards, ensuring safety requirements, and developing coaching tools, among many others.

In India, where we have more than 4400 engineering colleges/universities and over 15 lakh tech graduates every year, graduating with multitudes of degrees except Sports Engineering. The question is who will initiate Sports Engineering? The answer is simple, the existing engineering colleges and institutes have to shoulder a responsibility akin to other foreign universities of the world and introduce courses, specialty minor degrees, and eventually major degrees related to Sports Science and Engineering.

I am elated that the Sports Engineering Association of India has taken responsibility with the Government of India to educate and motivate our academicians through seminars, conferences, research, and newsletter publications.

"A lot of wishes for a ray of hope in India"

### Mr. Rehan Sumar

Life member, SEA.CEO & MDAAR ESS GROUP



I remember vividly when I first signed up with SEA as a Founder Member & my first interaction with Dr. Modak. There were fewer members then but the enthusiasm even at that time was indicator that the organization was only going to grow. Thanks to the hard work & efforts of the core members & support by the rest, I can proudly say that SEA is a well-established association. Linking technology to sports is the key for better athlete performance & SEA has created the platform for various stakeholders in India to present their ideas & innovations. Being a recognized body, these innovators have the opportunity to be heard by their target audience. The conferences, seminars, webinars are great initiatives by SEA to educate & bring the stakeholders to interact with each other.

The news letters are a great tool to update the community with the past activities as well as the future plans 'SportE' now into its second edition & I would like to extend my heartfelt congratulations to the entire team of SportE & wish for their continued success.

**ARTICLE:**  
**Perspective of Sports Engineering**



**Prof. DAVID JAMES**  
Managing Director, LABOSPORT, UK

For many people, a career in sports engineering seems like the perfect way to combine their passion for sports and technology. Those of us lucky enough to have established a career in sports engineering will probably agree that we are very lucky indeed. Of course, the practical reality of the job is sometimes a little less glamorous than you might think, but to be able to work in an industry that is so special is a very privileged position indeed.

Over the years, many people have asked me the best way to break into the world of sports engineering. Unfortunately, it is not always clear what the different options are or what career opportunities may lie ahead. This article will try to provide some clarity and hopefully some helpful advice!

First of all, it is important to understand what sports engineering actually is. Opinions may differ, but at its core, sports engineering deals with the research and development of technology for the sports industry. The field is very broad and includes a wide range of activities. Sports engineers can be involved in projects as diverse as designing mountain bike suspensions to developing image processing algorithms. The subject is technical in nature and attempts to quantify the performance gains that can be achieved through a particular design or method. It is important to note that a sports engineer is not a sports scientist; and although there is a lot of overlap, the two fields are actually quite different. I have often remarked that a sports scientist deals with what goes on inside the athlete, while a sports engineer deals with everything outside; especially their equipment and environment. While this definition may not be entirely robust, there is some truth in it!

Many sports engineers have a background in a traditional academic discipline such as engineering. Previous study in a field such as this provides a solid platform to develop the expertise required by industry. However, studying mechanical engineering is certainly not the only path one can take; many sports engineers have backgrounds in electrical engineering, materials science, medical physics, mathematics, or pure physics, to name a few. Sports engineering and sports technology degree programs are also growing; more of that below. Because sports engineering encompasses such a broad church of activities, individuals from a variety of fields can be very successful. However, a common trait is evident in all successful sports engineers, and that trait is a love of sport that can only be rivaled by their obsession with science and technology.

Over the past decade, a large number of new undergraduate sports engineering courses have appeared in university prospectuses, particularly in the UK. This trend reflects the maturity of sports engineering as an established academic discipline and the growing sports equipment industry that is driven by technical performance. Undergraduate sports engineering courses vary greatly in quality and scope. Some excellent courses are essentially a traditional engineering degree that has been adapted to use sporting examples; while other courses are more focused on product development and linked to industrial design. If you're thinking of starting an undergraduate degree in sports engineering, it's really important to know what type of course you're looking at. Is the course accredited by a professional engineering body such as IMechE? Is it important to you? Did the graduates manage to get a job in the field of sports equipment? Are the skills you will develop on the course transferable to other sectors?

Careers in sports engineering are real, but they are less abundant than in other fields of engineering. Unfortunately, not all graduates find their dream job after graduation and many move on to other fields. A good question to ask yourself before you start might be; what would an employer from another engineering industry think of my sports engineering?

In my experience, employers look for engineering skills first and sports knowledge second. This goes without saying, but unfortunately many individuals assume that just because they love sports, they have the necessary attributes to become a successful sports engineer. The reality is that sports is a competitive business and just as companies will be looking for the best athletes to endorse their products, they will also be looking for the best engineers to do research and development.

It is my personal opinion that it is often better to develop a broad and solid foundation in a subject area than to specialize in a particular field. One should really try to understand the basic science involved before applying. In this regard, I think a postgraduate qualification (MSc) in Sports Engineering is a reasonable option. Developing your core skills in a technical subject during your first degree will keep your options open and a postgraduate qualification will expand and apply your existing knowledge base in a sporting environment.

There is no formula for becoming a sports engineer, and unfortunately no college course will guarantee you success in your ambitions. In the end it's all about persistence, making the most of every opportunity, taking chances and maybe just a little bit of luck!

**ARTICLE:**  
**Sports Engineering: the need of the hour for sports in India**

**Dr. Pintu Modak**

Founder - Director, SEA



“No WORD makes any sense unless sense it in PRACTICE”

Technology is continually changing the nature of sports. It has made a tremendous impact on many sports over the years. Its impact can be observed in a variety of ways ranging from the infrastructure, design of sport equipment and apparel, analysis of sport performance, accuracy in performance measurements, enabling umpires for better decisions to providing spectators with better viewing of sport performance. The technology also has a substantial impact on enhancing social inclusion and expanding the base of participation at community level in society. Not only sports, the advancement of technology also made a big impact on fitness as tele fitness. The internet of things (IoT) and AI applications are widely used to know about losing or gaining weight, Calories burn, tracking performance and many more.

As the technology is the application of engineering studies, sports engineering has become an essential domain in sports to provide coaches and athletes with the standard facilities and equipment as pre-requisites for sports performance at all levels. Performance in the international arena depends heavily on the advanced sports infrastructure. Undoubtedly, India has no dearth of sports talents but what we lack is sports infrastructures and facilities at peripheral level. Even though India has the third largest scientific and technical manpower in the world, its contribution in sports remains almost zero. Hence, we are therefore depended upon imported equipment, facilities and outsourcing technical manpower which every schools and colleges cannot afford. And outsourcing technology will never bring the sustainability in sports development. This is one of the important reasons leading us to lagging in sustainable sports development. It is important for us to have indigenous technology, affordable equipment and facilities for improving sports at all level. This makes a rational case to bring together people from Sports Science/Physical Education and Engineering/Science on a single platform to deliberate the most and forward looking issues in sports.

Engineering plays a significant role in sports. As so engineering principles such as lever, force, friction, energy transfer (kinetic & kinematic), stress in materials, aerodynamics etc. are applied in designing sports equipment, infrastructures and facilities. The primary purpose of using engineering principles in sports is to improve performance and make the sports safer by having lighter, faster and stronger equipment. And engineers in India are well capable of carrying out research to improve sports technology. But what they need is to know the application of their subject knowledge in sports technology. Aeronautics and Astronautics for example, have a lot in common with tennis racquets, skis, and other sporting goods as the same engineering principles are applied. The similarities between sporting goods and aerospace technology are also quite striking. The both need strong, lightweight materials as they must have good aerodynamics.

### **Engineers don't need to divert from their core subjects but can apply their expertise in sports remaining in their own domain.**

There is no lack of effort from the athletes in India, but we are doing nothing in sports technology to support them. This has been the reason for the genesis of India's first avowed Sports Engineering Association (SEA). The SEA is a common platform for people from Engineering/Science and Sports Science/Physical Education to address the issues concerning the sports community in technology. But merely having sports engineering and technology will only lead to nothing else, unless the sports administrators will sense its application in practice. What we need is to synergize with each other remaining in our own domain and sincerely accepting the other domain and connect with the sports will help us to achieve our goal.

For the explication of Sports Engineering we need to do the followings:

- The Department of Science & Technology (DST) has to divert its some funds to attract technical institutes exclusively to research in Sports Technology and Infrastructures.
- Technical Institutes should have a Sports Engineering Research Center where students and faculty from Engineering and Science can pursue their projects in sports technology.
- Decentralizing (towards rural areas) the sports Infrastructures and Facilities accessible to everyone irrespectively which will mean a real sense of having the vision - SPORTS FOR ALL and the only way to make a STRONG SPORTS CULTURE. This will be possible only when we can connect sports with engineering and have our own technology for affordable sports infrastructure and facilities of national standard.
- The acceptance of engineering application by Indian Sporting Industries and their investments in R&D

The execution of the above ideas may strengthen foundation of sports and will bring success sustainably to the nation as a whole.

**ARTICLE:**  
**Robotics and Automation in Sports**

**Dr. Gagan Deep Meena**

Life Member, SEA. Assistant Professor, EED, NIT Patna



Robots are no longer coming, they have arrived. This argument holds true for almost every segment of our existence. Sports engineering is getting revolutionized by the advancements in robotics and automation. Robots are entertaining us, helping us in curing a lot of diseases, surveillance, rescue, studies, cooking, etc. you name any sector they are already in. They are going to make us better sports persons or assist us in our games. There are some really exciting robot machines which have featured in the last decade. Sky tech's Bot boxer and Ski Simulator are two training robots. Bot Boxer is the world's only AI training interactive sports simulator for martial arts designed to be your personal trainer. It is equipped with high-

tech vision, precision sensors, supreme reaction and feedback mechanism which tracks your every move, every punch you throw and saves itself from getting punched. Ski Simulator is a training robot machine for skiing. It becomes your personal ski slope with exact sensations of snow sports indoors year-round. The only cutting-edge interactive snow sports simulator trusted by the U.S. Olympic Ski Team. Golf is a game where it requires perfect hand and body movement, i.e. your swing should be perfect. RoboGolfPro is a revolutionary robotic swing trainer that allows you to "feel" the proper movement of the body and arms in your swing. It is the only golf lesson machine in existence that physically takes the club and corrects the golf swing specifically for your ability and physique. This develops a muscle memory which enables you to replicate that swing when you are out on the course. Their certified golf lesson instructors carefully evaluate your swing and then enter that information into computers. The robot then guides your arms and body to formulate a golf swing and motion that is the best fit for you. This can save you up to hundreds of hours in the time it normally takes to go through the learning curve of better understanding your swing. You will be striking the ball much better in no time!

Outdoors are fun to do, but that fun increases if you can make videos and monitor your performance, you can also brag a little bit on social media via these good videos. Skydio's drone for tracking a subject in motion, that can be a runner, cyclist, biker, on trails or flat roads. Wherever your adventures take you, Skydio offers unparalleled subject tracking and enables Skydio drones to maneuver around obstacles and film you like no human pilot ever could. Human performers have developed impressive acrobatic techniques over thousands of years of practicing the gymnastic arts. At the same time, robots have started to become more mobile and autonomous and can begin to imitate these stunts in dramatic and informative ways. Disney's research department brings us a simple two degree of freedom robot that uses a gravity-driven pendulum launch and produces a variety of somersaulting stunts. The robot uses an IMU and a laser range-finder to estimate its state mid-flight and actuates to change its motion both on and off the pendulum. They further developed it and named it as Disney's Stickman. AI-powered automation technologies are rapidly emerging as the primary driver of innovation within the field. For athletes, coaches, reporters, and audiences alike, automation tools are helping to reshape how we engage with our most beloved sports and bring out the potential in every athlete. Wearable tech now plays an intractable role in professional sports. Heart rate monitors, muscle sensors, diagnostic wristbands, and more are being used to automate the coaching process. We should be just thankful to human researchers, and stay tuned for more exciting robots entering our world to make it much better!

## INTERNATIONAL WORKSHOP

Research Methodology workshop was conducted online through google meet in 2 sessions on 21<sup>st</sup> and 23<sup>rd</sup> February.

### Session 1: 21<sup>st</sup> February 2023



**Speaker:** Prof. M S Dasgupta  
Faculty Mechanical Engineering, BITS Pilani

**Topic:** Scope of research in Sports Engineering in Indian perspective



**Speaker:** Dr John Hart  
Senior Research Fellow, Sheffield Hallam University

**Topic:** Reverse engineering application in Sports Engineering research



**Speaker:** Mr. Bhagyesh Trivedi  
Alumni BITS Pilani

**Topic:** Making your literature survey publication worthy using Bibliometric Tools – A hands-on session

### Session 2: 23<sup>rd</sup> February 2023



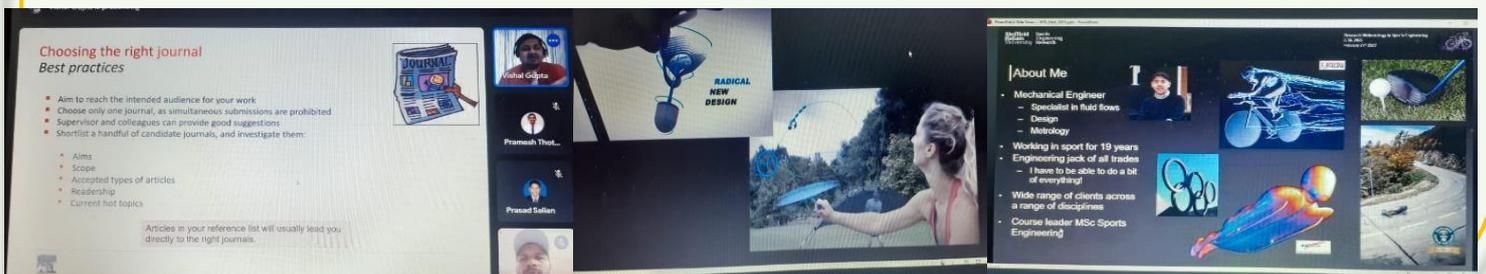
**Speaker:** Mr. Vishal Gupta  
Senior Customer Consultant, Elsevier Limited, London

**Topic:** Publishing in academic journals: Do's and Don'ts of research article writing



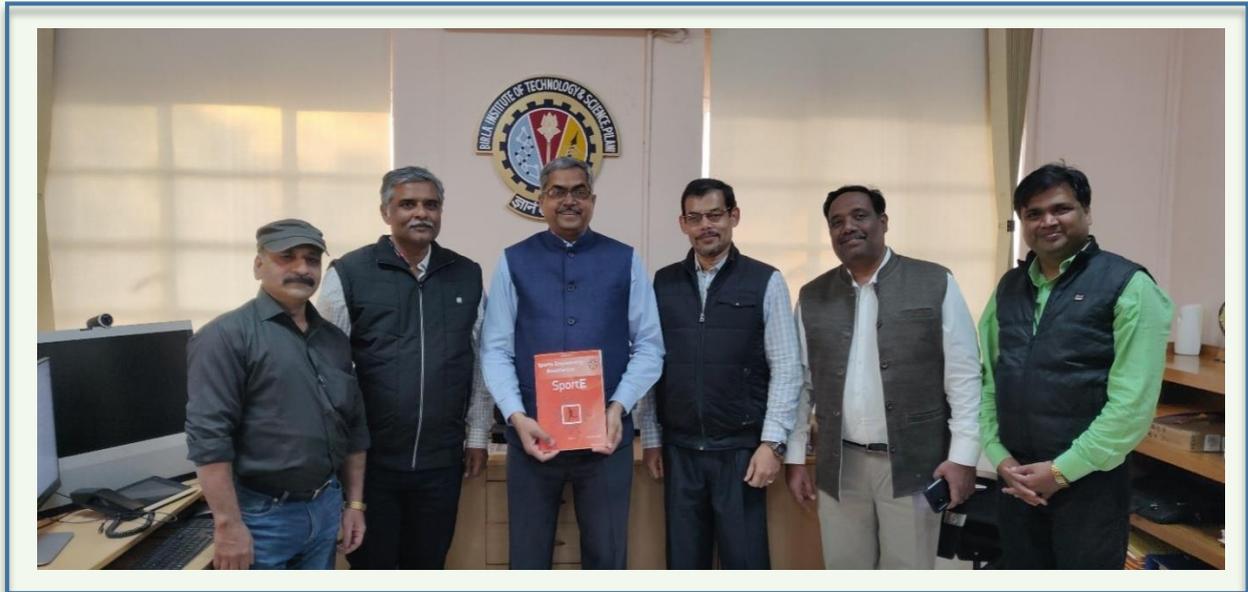
**Speaker:** Dr. Suvanjan Bhattacharyya  
Assistant Professor, Mechanical Engg. BITS Pilani

**Topic:** Key points to writing an excellent technical paper in Sports Science and Engineering



## UNVEIL OF 1<sup>ST</sup> NEWSLETTER

First newsletter of SEA "Sport-E" unveiled by Prof. S K Barai, Director BITS Pilani, Pilani Campus on 30<sup>th</sup> November 2022.



## NSNIS PATIALA, SAI VISIT FOR COLLABORATIVE DISCUSSION

A team of SEA members visited NSNIS Patiala during 25-26th September 2022 for interaction with coaches and administrators to find the areas where our engineers can help them in improving sports performance by adopting indigenous technology.



## STUDENT CORNER

### Project financial support

We encourage students' involvement from engineering and science disciplines in various activities like product design, movement analysis, apps development, software development etc. In this regard, cash support is announced here with. All student members are eligible to apply and application process is open any time of the year. Apply with a one-page summary of your project and student membership number to [sportsengineeringindia@gmail.com](mailto:sportsengineeringindia@gmail.com).

SEA provides with a funding opportunities to student members to undertake small projects on sports technology, SEA also strive to provide them nationwide platform to present their development work through the newsletter ad conferences.

### Student Project Scheme

The objective of this scheme is to engage students in exploring innovative technology applied in sports. Under this Scheme, a student member of SEA as individual or as group can apply for a financial support up to Rs. 10,000/- to undertake a minor research projects or some prototype/ model/ product development work for maximum 6-month duration.

The details of application procedure are available in SEA website. i.e. <http://sportsea.org>. Full time student in UG/PG Engineering/ Science/ sports science are eligible to apply after joining as student member of SEA.

### Winner announcement for Quiz 1 {November 2022}

A total of 73 students across India participated in the Quiz - 1, of which 14 students submitted with correct answers. Congratulations to all the winners. All the winners are offered student memberships in the Sports Engineering Association (SEA) for one year as complementary while they can work closely with the team of SEA, obtain project funding up to Rs. 10,000/-. Please fill the form of student membership as per our website i.e. <http://sportsea.org>.

Name	Institute
AbhinavHarshaAdya	BITS Pilani
Esha Shah	BITS Pilani
Shabhareesh Kumar P H	Government Engineering College Kushalnagar
Nayana A S	Government engineering college kushalnagar
Vivekananda Acharya	Government engineering college kushalnagar
Manoj H N	Government Engineering college Kushalnagar
Sujith Kumar P H	Government Engineering College kushalnagar
Bhavani Shankar G S	Government Engineering college kushalnagar
Anusha N L	Government engineering College kushalnagar
HarshaSureshaSudi	Government Engineering College Kushalnagar
Lekhana HM	Government Engineering College kushalnagar
Vidyalakshmi k s	Government Engineering college kushalnagar
Thejaswini Ks	Government engineering College kushalnagar
Chaithra H T	Government Engineering College Kushalnagar

**Online Quiz for Students: Quiz 2**

This Quiz is designed for students and only students can participate in the quiz. Purpose of the quiz is just to promote awareness about science and sports among the student community. No data will be stored on the website regarding your responses.

Students are required to follow the guidelines before attempting the quiz

- Students are required to furnish his/her personal details.
- The quiz will comprise Objective type Multiple Choice Questions (MCQs).
- Each question has four options, and the student has to click the appropriate option.
- Students can attempt the quiz only once.
- The quiz will open on March 15, 2023 and close on April 15, 2023.
- Winners will be informed by email in fifteen days after the quiz closes.
- All winners shall be issued E-Certificates.
- The first TEN winners (first attempters) will be given student memberships in the Sports Engineering Association (SEA) for one year and can work closely with the team of SEA.
- Decisions of the quiz organizing team will be final and binding in case of any discrepancy or dispute.

**Use the following link to participate in the online quiz**

<https://forms.gle/fW8RmBnmCNrbWt9EA>

**OUR ASSOCIATES**

1. International Sports Engineering Association (ISEA), England
2. Wool Research Association (WRA), Pune, Maharashtra, India
3. Qualisys India
4. Kistler, India
5. Shiv Naresh Sports Pvt Ltd
6. Great sports, India
7. European College of Sports Science, Germany

**NEW MEMBERS - Lifetime, SEA**

L/2022/15/12/10053

**Dr. Pallab Dasgupta**

High Performance Director & Coach (retd), Sports Authority of India (SAI). West Bengal

ANNOUNCEMENT POSTER OF 3<sup>RD</sup> INTERNATIONAL CONFERENCEICSE  
2023

# 3<sup>rd</sup> International Conference on SPORTS ENGINEERING

2<sup>nd</sup> to 4<sup>th</sup> November 2023  
at BITS Pilani, Pilani Campus, Rajasthan, India



Conference Venue  
**BITS Pilani**  
Pilani Campus

Central Theme

**Engineering Application  
And Sports Performance**

## CALL FOR PAPER

Original work in all Engineering, Technology or Data science applications and scientific analysis or application oriented research in sporting domain are welcome. All accepted abstracts with author registration will be published in ICSE-2023 Technology series.

## PAPER PRESENTATION

Submission is through EasyChair, Abstract acceptance is progressively communicated, All abstracts and papers are peer reviewed, Presentation in multiple parallel tracks.

## JOURNAL PUBLICATION

Reputed publication houses like: Materials Today Proceedings (Elsevier), IOP Conference Series: Materials Science and Engineering (IOP Publishing), European College of Sports Science Journal are approached and positive response received.

## RESEARCH TRACKS

**Computational:** Sports data analysis, Biomechanical Signal Processing, Human-Computer Interaction, Artificial intelligence, Machine learning, Match and technique analysis, Coding and app development, Predictive analytics, Sports statistics, Computer vision AI-ML for Sports; Image and video Analysis, Sporting action recognition, Internet of things etc.

**Analysis and modelling:** CFD, FEM, Aerodynamics, Thermodynamics and heat transfer, Modelling of sports equipment, Motion analysis, Testing of sports equipment, Performance measurement, Image and video Analysis, Sporting action recognition, Machine learning, Match and technique analysis etc.

**Design and development:** Sports equipment, Wearable devices. Synthetic sports flooring/surfaces, Coding and app development, Sports attires, Sports shoes, Training equipment, Sports facilities, Synthetic sports flooring, Sports teaching aids, Equipment for para athletes etc.

**Sports Performance:** Technology in sports training & performance, Talent identification, Injury prevention, Sports nutrition & technology, Computers in sports Psychology, Sports fitness, Sports management, Application of advanced tools in performance tracking etc.



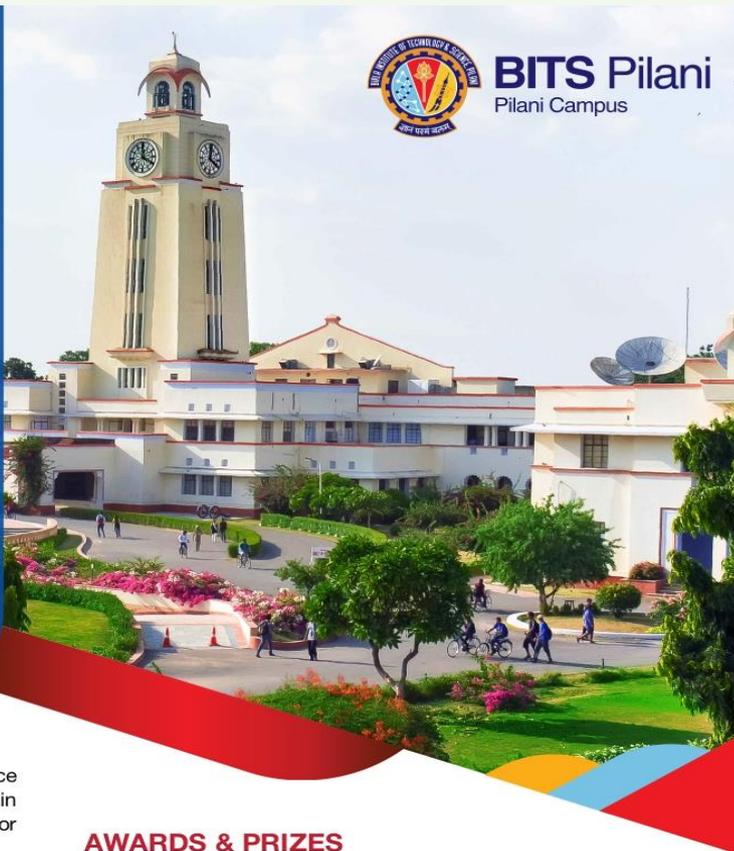
<http://sportsea.org/>



[sportsengineeringindia@gmail.com](mailto:sportsengineeringindia@gmail.com)



**BITS Pilani**  
Pilani Campus



## AWARDS & PRIZES

Each session in conference will have Best paper cash award of ₹15,000 and 2nd Second Best paper award of ₹10,000 each.

## ACCOMMODATION

A limited number of free accommodations in Boys' and Girls' Hostel for full time student delegates.

All delegates can avail conference discounted rate for accommodation in local Hotels, Guest houses and Heritage Havelies in and around Pilani. There is also limited accommodation available within the university campus.

## REGISTRATION

Registration is through on-line payment at conference website. Highly discounted Advance and Early bird registration. You can also avail benefit of networking, listening to keynotes, Panel discussion workshop etc. without accepted paper, through Listener's registration.

## ORGANIZERS

ICSE 2023 is organised by Sports Engineering association (SEA) India, under the auspices of Ministry of Youth affairs and Sports, New Delhi, With technical support from International Sport Engineering Association, UK (ISEA).

## PREVIOUS CONFERENCES

India's first and second international conference on Sports Engineering:

- <https://www.bits-pilani.ac.in/icse2017/>
- <http://icse.sportsea.org/>

## ATTRACTIONS

Pre-conference workshop, Students' Design contest, Panel Discussion, Welcome Dinner, Keynote Lectures, Plenary lectures, Paper presentation parallel tracks Working lunch & refreshments, Local tour.



Abstract submission

<https://forms.gle/a9wHwUv2vVbxKVsn6>

ANNOUNCEMENT BROCHURE OF 3<sup>RD</sup> INTERNATIONAL CONFERENCE**ORGANIZERS**

ICSE 2023 is jointly organized by **Sports Engineering association (SEA) India**, and **Birla Institute of Technology & Science, Pilan**, under the auspices of the **Ministry of Youth affairs and Sports, New Delhi**, with technical support from **International Sport Engineering Association, UK (ISEA)**.

**CENTRAL THEME**

Engineering Application and Sports Performance

**RESEARCH TRACKS**

**Computational:** Sports data analysis, Biomechanical Signal Processing, Human-Computer Interaction, Artificial intelligence, Machine learning, Match and technique analysis, Coding and app development, Predictive analytics, Sports statistics, Computer vision AI-ML for Sports; Image and video Analysis, Sporting action recognition, Internet of things etc.

**Analysis and modelling:** CFD, FEM, Aerodynamics, Thermodynamics and heat transfer, Modelling of sports equipment, Motion analysis, Testing of sports equipment, Performance measurement, Image and video Analysis, Sporting action recognition, Machine learning, Match and technique analysis etc.

**Design and development:** Sports equipment, Wearable devices. Synthetic sports flooring/surfaces, Coding and app development, Sports attires, Sports shoes, Training equipment, Sports facilities, Synthetic sports flooring, Sports teaching aids, Equipment for para athletes etc.

**Sports Performance:** Technology in sports training & performance, Talent identification, Injury prevention, Sports nutrition & technology, Computers in sports Psychology, Sports fitness, Sports management, Application of advanced tools in performance tracking etc.

**CALL FOR PAPERS**

We invite original research work in all Engineering, Technology or Data science applications in sports and Scientific analysis or application oriented research in sporting domain for the conference. All accepted abstracts with author registration will be published in ICSE-2023 proceedings and these proceedings shall become part of the ICSE Science and Technology series.

Abstract may be submitted immediately or at any point until abstract submission deadline. Submissions made electronically using [Abstract Submission Link](#) are only acceptable. Acceptance are communicated on-going basis.

**BEST PAPER AWARDS**

Each session in conference will have First and Second Best paper cash award of ₹15,000 and ₹10,000.

**STUDENT DESIGN AND HACKATHON CONTEST PRIZE**

The 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>, and 4<sup>th</sup> position for student design contest winners will receive certificate and cash award of Rs. 25,000, 15,000, 10,000 & 5,000 respectively.

**PRE-CONFERENCE WORKSHOP**

Pre-conference workshop shall be organized on the first day of the conference. The Workshop shall cover hand-on on latest developments in sports training, performance measurement and enhancement.

**JOURNAL PUBLICATION**

Reputed publication houses like: Materials Today Proceedings (Elsevier), IOP Conference Series: Materials Science and Engineering (IOP Publishing), European College of Sports Science Journal are approached for publication of conference papers. ICSE-2023 Journal publication committee can be [contacted for more details](#).

**RESEARCH METHODOLOGY**

To promote quality research in the area of Sports Engineering and Science in India, an on-line session on "Research Methodology in Sports Engineering" will be organized in the month of February 2023 for the students and budding researchers. This session will be addressed by accomplished researchers and entrepreneurs from around the globe. It will cover Cutting edge on-going research works at various Universities. Scholarship options, Study abroad, Internship opportunities and scope of Higher studies in sports engineering will also be deliberated. The session will also cover Scientific communication skill, Modern aspects of research methodology and tools like Bibliometric, as well as Literature survey and Data gathering methodology in sports engineering. Date of the workshop will be intimated to the registered participants soon.

Register right away and free for the Research Methodology workshop: [Research Methodology workshop](#)

**REGISTRATION**

	India (₹)	Foreign (US \$)
Refundable Registration	3500	200
Early Bird, Students (Indian)	3000	
Early Bird Registration	4000	250
Full pay Registration	5000	300

*Bulk Registration: (College authorities can contact ICSE-2023)  
Delegates from SAARC Countries can avail Indian rate*

Registration charges include conference kit, admission to workshops and Key note addresses, Penal discussion, 3 working lunch, and welcome dinner. Accommodation is not included in registration charges.

**Scan QR & Pay online to Register**

**IMPORTANT DATES**

All deadlines refer to Indian Standard time, that is 5 hours & 30 minutes ahead of GMT.

Conference Dates:	02 – 04 November 2023
Refundable Registration:	15 February 2023
Research Methodology on-line sessions Registration (free):	15 February 2023
Abstract submission:	03 March 2023
Abstract acceptance notification:	31 March 2023
Early Bird Registration:	01 May 2023
Full paper submission:	16 August 2023
Full pay Registration:	16 Sep 2023

**IMPORTANT CONTACTS AND LINKS**

- Conference Home Page: <http://icse.sportsea.org/>
- Abstract Submission: <https://forms.gle/a9wHWuV2vVbxKVs6>
- General Queries Email: [sportsengineeringindia@gmail.com](mailto:sportsengineeringindia@gmail.com)
- Surface Mailing Address: SEA office, Room No. 2103, BITS Pilani, Rajasthan-333031 (INDIA)

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**Feel free to contact us for further details at:**

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**ACCOMMODATION****Student Accommodation:**

Limited number of accommodations in Boys' and Girls' Hostel are available for accommodation of student delegates of the conference on first come first serve basis. These can be offered free of charge for full time student participants from other Indian Universities for 3 nights during the conference and is based on early registration. Dinner and Breakfast coupons at nominal charges can also be provided. Make specific request for the same during registration payment and you will be communicated confirmation message for the hostel accommodation.

**Delegates Accommodation:**

In and around Pilani (Rajasthan) there are a number of Hotels, Guest houses and Heritage *Havelies*. Delegates can find suitable accommodation of their choice and need. The Conference organizing committee maintains an updated list of such accommodations and their contacts who have track record of hosting Institute guests. Make specific request for the same during registration payment and you will be shared with the accommodation options along with special conference discounted price list. There is also limited accommodation available within the university campus.

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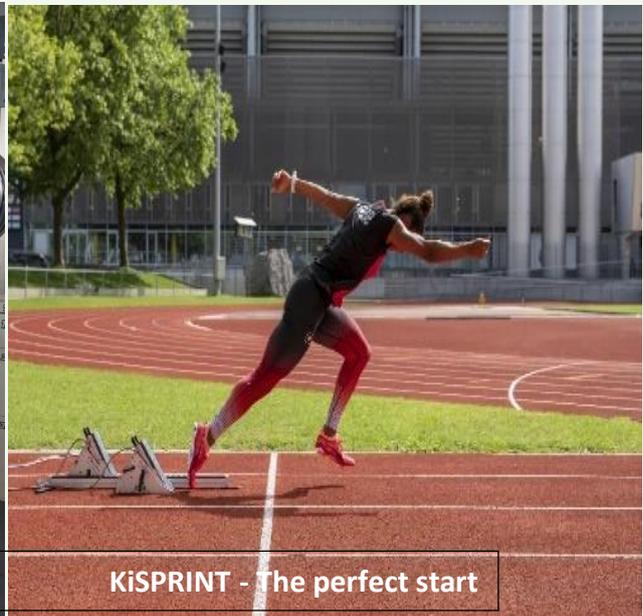
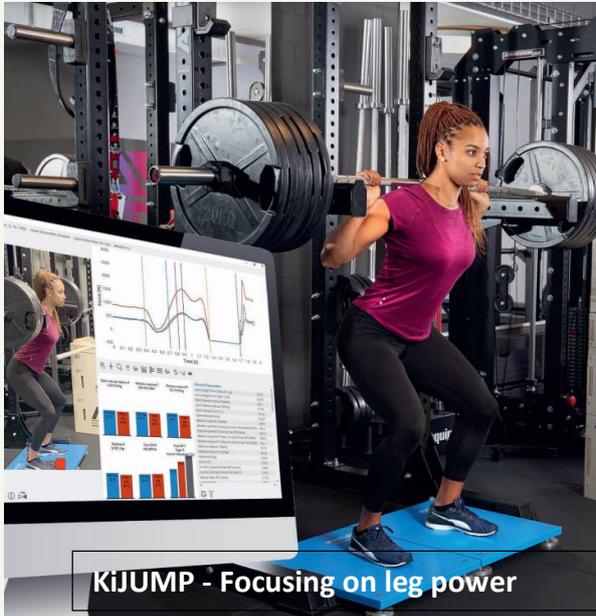


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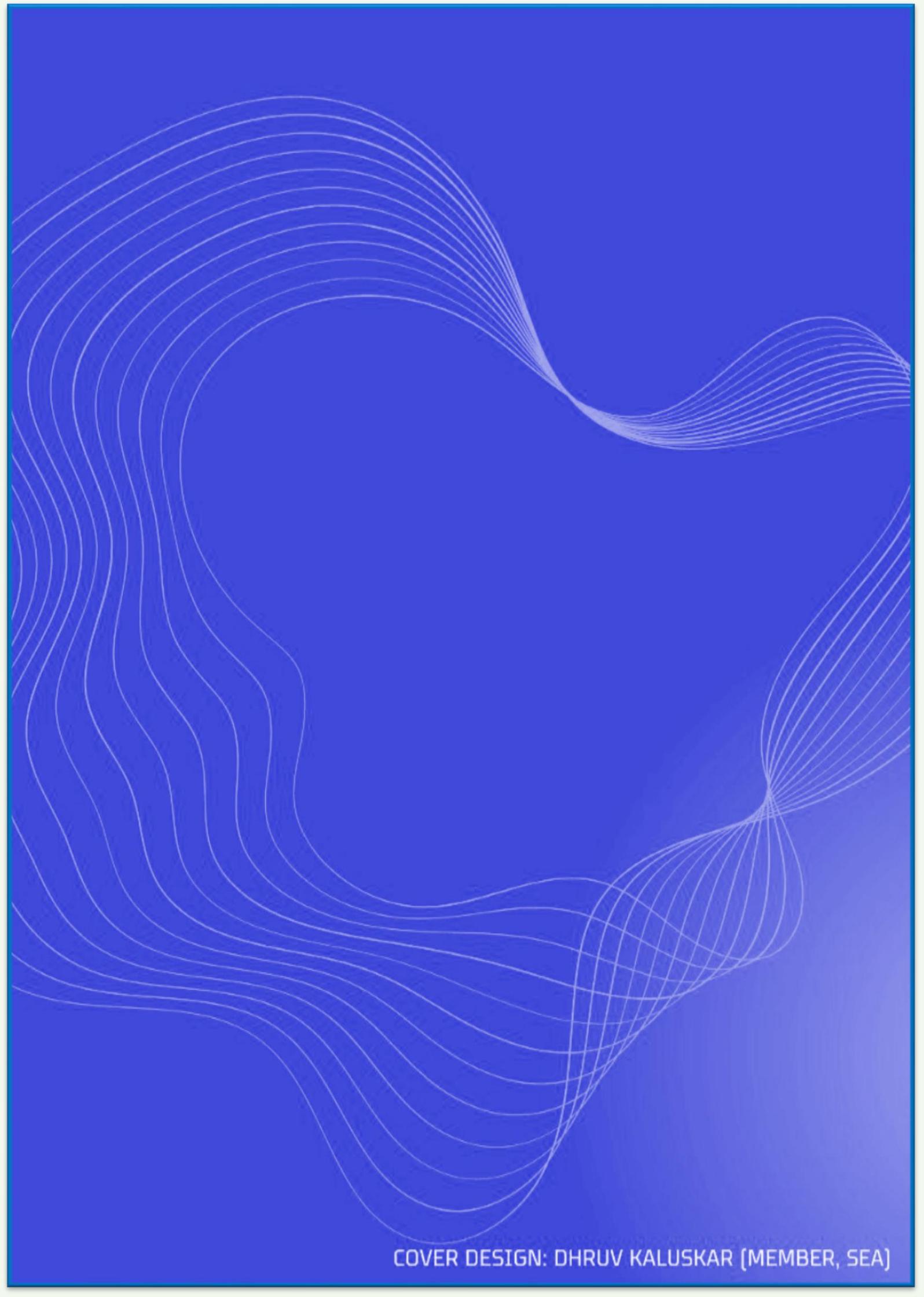
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