Name of the Society:

IEEE Computational Intelligence Society Student Branch Chapter, BMSIT&M

Date of Formation:

Coordinator:

Prof. Sanjay M. Belgaonkar

Faculty Advisor, IEEE Computational Intelligence Society Student Chapter BMS Institute of Technology & Management

Objective:

To empower students with strong foundations in AI, Machine Learning, and Computational Intelligence through hands-on learning, innovation-driven activities, and expert engagement, bridging academic knowledge with real-world applications.

Frequency of Meetings:

Two team meetings per month, and an Annual General Meeting with all CIS members.

Social media link:

LinkedIn: https://www.linkedin.com/company/ieee-cis-bmsit/posts/?feedView=all

Instagram: https://www.instagram.com/cis_bmsit/

Roles and Responsibilities:

The IEEE CIS BMSIT Student Chapter is responsible for organizing technical events, workshops, mentoring programs, and project-based learning initiatives that promote knowledge in Artificial Intelligence, Machine Learning, and Computational Intelligence. The chapter facilitates peer learning, encourages hands-on innovation, supports research-oriented thinking, and creates opportunities for interaction with industry experts, while actively bridging the gap between academic learning and real-world applications to prepare students for emerging technological challenges.

Activities Conducted
IEEE Conference & Open Day 2025

Venue: BMS Institute of Technology & Management, Bengaluru

Academic Year: 2024–25

INTRODUCTION

The **IEEE Conference & Open Day** was organized as a flagship academic and outreach initiative on 21st Mar, 2025 at BMS Institute of Technology & Management with the objective of fostering technical excellence, research exposure, and student engagement within the IEEE ecosystem. The event successfully combined a **formal technical conference** with an **interactive open day**, creating a holistic platform for learning, innovation, and collaboration among students, faculty members, and IEEE professionals.

A key highlight of the event was the **featured keynote addresses by distinguished international speakers from Japan and Russia**, who provided valuable insights into emerging research trends, global technological developments, and practical applications in engineering and computational intelligence. The conference was further enriched by the presence of **Prashant Mishra**, **IEEE Bangalore Section Chair-Elect**, whose participation emphasized the importance of student-led technical initiatives within the IEEE framework.

Overall, the conference aimed to expose participants to emerging trends in engineering and computational intelligence while simultaneously showcasing the technical capabilities and initiatives undertaken by IEEE student societies at BMSIT.

INAUGURAL SESSION AND DISTINGUISHED PRESENCE

The event commenced with a formal inaugural ceremony that set a professional and academic tone for the proceedings. The session included opening remarks, acknowledgements, and an overview of the objectives of the conference and open day. A key highlight of the inauguration was the presence of **Prashant Mishra**, **IEEE Bangalore Section Chair-Elect**, whose participation added significant value and encouragement to the student community.

The conference also featured **keynote sessions by distinguished international speakers**, offering participants global perspectives on current research trends and technological advancements. These sessions enabled students to gain insights into real-world applications, interdisciplinary research, and the future scope of engineering and computational intelligence.

CONFERENCE PROCEEDINGS

The technical conference segment included structured sessions such as registrations, keynote addresses, and technical interactions. These sessions facilitated academic exchange, encouraged discussion on contemporary engineering challenges, and provided students with exposure to professional research and presentation standards. The conference successfully created an environment that promoted curiosity, critical thinking, and academic rigor.

OPEN DAY AND IEEE CIS STALL EXHIBITION

Following the conference sessions, the event transitioned into the **Open Day**, where various IEEE student societies set up stalls to showcase their activities and projects. The **IEEE CIS stall** emerged as a major attraction, drawing consistent interest from students, faculty members, and visiting dignitaries.

The stall was designed to highlight the society's focus on **Artificial Intelligence, Machine Learning, and Computational Intelligence**, while ensuring that the demonstrations remained accessible and engaging to a diverse audience.

SHOWCASING THE IEEE CIS WEBSITE

A key highlight of the IEEE CIS stall was the demonstration of the **official IEEE CIS Student Chapter website.** The website was developed as a centralized digital platform to represent the chapter's activities, events, projects, and future initiatives. During the Open Day, the team showcased the website's structure, features, and usability, emphasizing its role in improving communication, transparency, and outreach.

Visitors were introduced to how the website serves as a one-stop resource for students interested in computational intelligence, providing information about events, learning resources, and opportunities to engage with IEEE CIS.

To enhance interaction and engagement, the CIS Execom team incorporated **five hidden easter eggs** within the website, students who successfully identified them were rewarded with **chocolates and IEEE CIS stickers**. This initiative was well received, as it not only encouraged exploration of the website but also demonstrated the chapter's creative approach to outreach while maintaining a strong digital and professional presence.
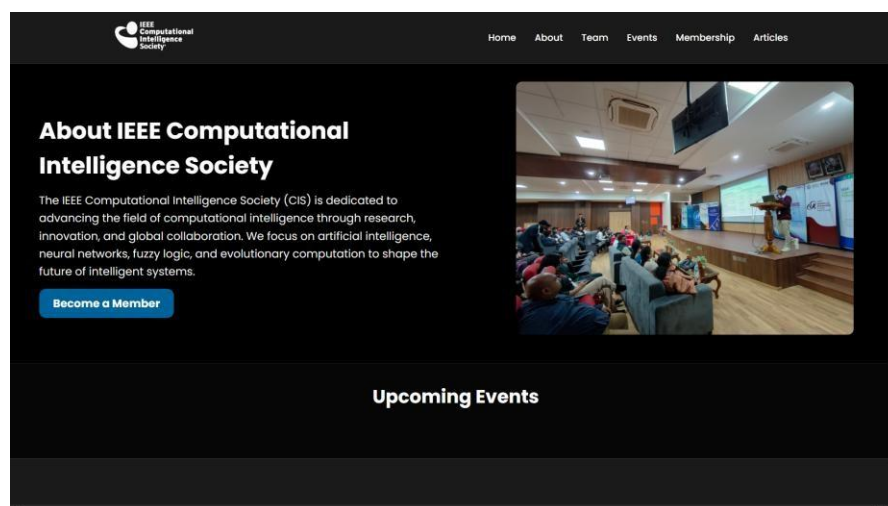

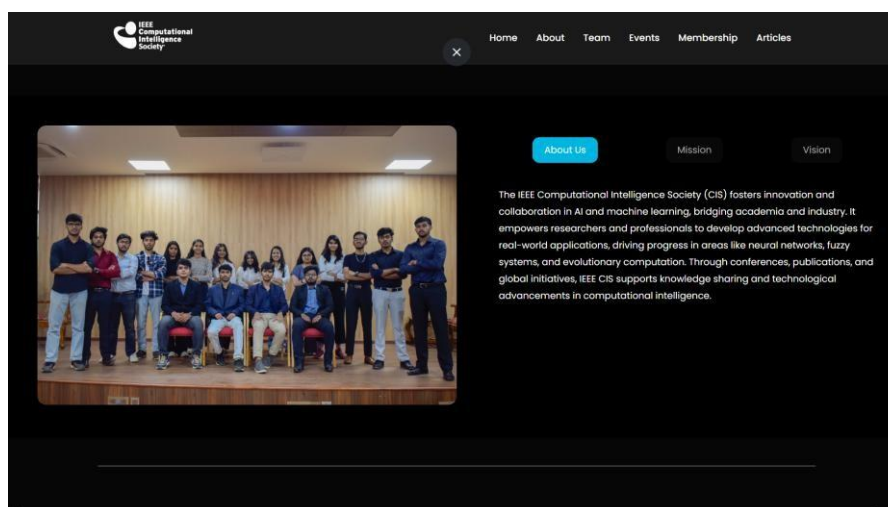Fig: Website of IEEE CIS Student Branch Chapter, BMSIT&M

Fig: About Us Section of Website of IEEE CIS Student Branch Chapter, BMSIT&M

AI CHATBOT FOR THE COLLEGE WEBSITE

Another major attraction at the IEEE CIS stall was the AI-based chatbot developed for the college website. **The chatbot was designed and implemented by the IEEE CIS Execom**, demonstrating the practical application of artificial intelligence in enhancing user experience and automating information access within an academic environment. The system was developed to assist users by responding to common queries related to the college, thereby reducing manual effort and improving efficiency.

The demonstration highlighted how computational intelligence can be leveraged to solve real-world institutional challenges. Faculty members and visitors appreciated the relevance and scalability of the solution, and the project served as an excellent example of how student-driven innovation can directly contribute to campus-level digital transformation.
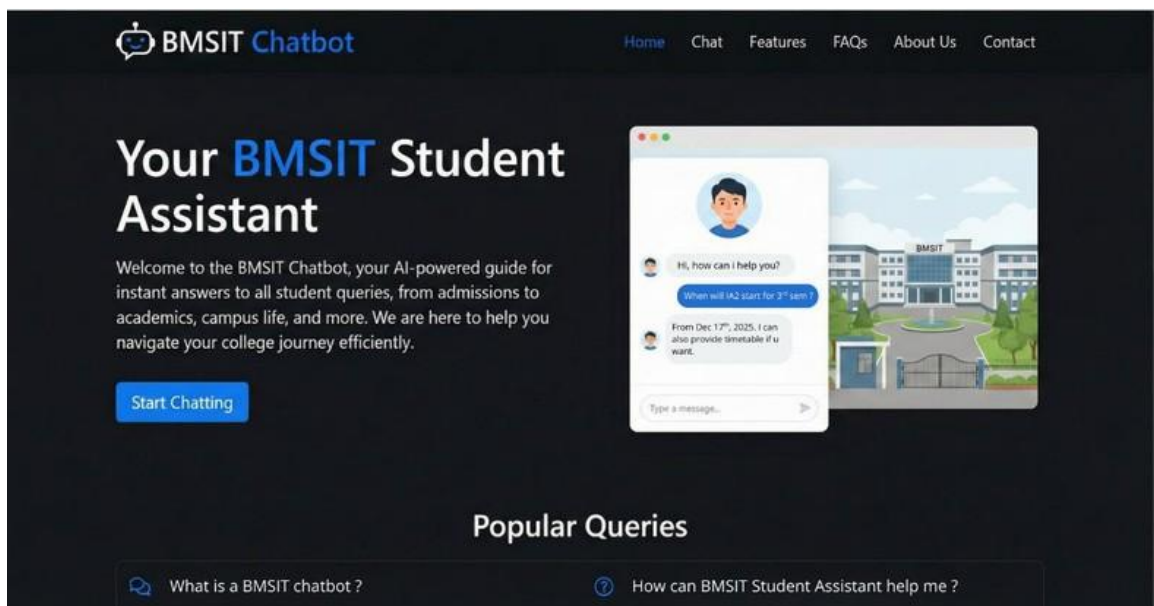

Fig: Home Page of BMSIT&M Chatbot developed by CIS Execom

Fig: Project details of the BMSIT Chatbot.

INTERACTIVE ENGAGEMENT AND OUTREACH

To encourage participation and curiosity, the IEEE CIS team also organized **interactive technical games and demonstrations** at the stall. These activities were designed to simplify complex AI and computational intelligence concepts through gamification, making them approachable for students from all academic levels. The interactive nature of the stall helped sustain engagement throughout the Open Day.

The IEEE CIS stall also received a visit from **Mr. Prashant Mishra**, **IEEE Bangalore Section Chair-Elect**, who interacted with the team, observed the demonstrations, and appreciated the technical depth and clarity with which the projects were presented. Such interactions served as a strong motivation for the students and reinforced the importance of hands-on learning and innovation.

IMPACT AND OUTCOMES

The IEEE Conference & Open Day proved to be highly impactful for the IEEE CIS Student Chapter. The event:

- Strengthened the chapter's visibility within the campus

- Encouraged student interest in AI and computational intelligence

- Provided recognition and feedback from IEEE leadership and faculty

- Demonstrated real-world applications of student projects

The stall activities, particularly the CIS website and AI chatbot, showcased the chapter's ability to translate theoretical knowledge into practical solutions.

Conclusion

The **IEEE Conference & Open Day** was successfully conducted and met its objectives of promoting technical learning, student engagement, and innovation. Through conference sessions, project demonstrations, and interactive outreach, the event highlighted the active role of IEEE CIS BMSIT in nurturing computational intelligence skills among students. The IEEE CIS stall witnessed strong participation, with visits from 96 IEEE student members and over 150 non-IEEE students, reflecting the event's wide reach and impact across the campus community. The chapter remains committed to building upon this momentum and continuing to deliver impactful technical initiatives in the future.

GATE Bootcamp – CS & DA Edition

Venue: Seminar Hall 2, BMS Institute of Technology & Management, Bengaluru

Date: 16 May 2025

INTRODUCTION AND OBJECTIVE

The **GATE Bootcamp – CS & DA Edition** was organized by the IEEE CIS Student Branch Chapter at BMS Institute of Technology & Management with the purpose of guiding students aspiring to attempt the **GATE Computer Science (CS)** and **GATE Data Analytics (DA)** examinations. The bootcamp aimed to equip participants with effective preparation strategies, structured study plans, and insights into optimizing time management — key elements for successful performance in competitive examinations.

INAUGURAL SESSION AND WELCOMING REMARKS

The event commenced at **10:00 AM** with an introductory address by **Umashankar S**, Chair of the IEEE CIS Society Student Branch Chapter, who welcomed the participants and highlighted the importance of early, focused preparation for GATE. This was followed by encouraging remarks from **Prof. Sanjay M. Belgaonkar**, Faculty Advisor of IEEE CIS, who emphasized the significance of systematic planning and academic discipline for competitive exam success. Subsequently, **Dr. Anupama**, Head of the Department of Artificial Intelligence and Machine Learning, addressed the participants, underscoring the value of structured guidance in navigating the extensive GATE syllabus.

Fig: The Inaugural session event banner

TECHNICAL SESSION BY RESOURCE PERSON

The core of the bootcamp was led by **Ms. Anjali Chauhan**, a renowned GATE mentor and educator who has secured an **All-India Rank (AIR) 13** in the GATE Computer Science & Engineering examination. Ms. Chauhan delivered an insightful session centered on:

- **Effective preparation strategies** for GATE CS and DA

- **Study planning and resource recommendations**

- **Time management techniques for competitive exams**

- Personal insights and experiences that helped shape her own success

Her interactive delivery and clarity of concepts resonated strongly with the participants, providing both practical advice and motivational direction for their preparation journeys.

INTERACTIVE Q&A AND DOUBT CLEARING

Following the structured session, a **30-minute interactive question-and-answer segment** was conducted. During this session, participants had the opportunity to raise doubts, seek personalized guidance, and clarify concerns related to GATE preparation. The resource person addressed queries ranging from topic prioritization and study scheduling to resource selection and confidence-building strategies. Many participants expressed appreciation for this direct engagement, stating that it helped demystify the preparation process.

PARTICIPATION AND ENGAGEMENT

The bootcamp witnessed **enthusiastic participation** from students across relevant streams, with approximately **140 students** registering for the event. The turnout reflected strong interest among peers in improving their competitive examination readiness and leveraging expert mentorship effectively.

CONCLUSION

The **GATE Bootcamp – CS & DA Edition** concluded successfully with a formal vote of thanks presented by the Faculty Advisor, followed by a group photograph commemorating the session. The bootcamp achieved its objective of providing actionable guidance and strategic direction to students preparing for GATE, and it served as a valuable learning opportunity for attendees to refine their preparation approach.

The IEEE CIS Society Student Branch Chapter extends sincere gratitude to **Ms. Anjali Chauhan**, faculty advisors, and all participants for contributing to a highly informative and impactful session.

JUNIOR ENGAGEMENT & BRIDGE COURSE

Venue: Classrooms 503 and 504, BMS Institute of Technology & Management, Bengaluru

Date: September 2, 2025

OVERVIEW

As part of the **Junior Engagement and Bridge Course initiative**, IEEE CIS BMSIT actively participated in the orientation program conducted for first-year students of AIML, first-year students of CSBS, first year students of CSE and other allied branches. The primary objective of IEEE CIS involvement was to introduce juniors to the domain of Computational Intelligence, create early awareness about IEEE culture, and establish a foundation for long-term technical and professional engagement.

IEEE CIS Orientation and Outreach

During the bridge course, the IEEE CIS team conducted a focused interaction session aimed at familiarizing junior students with the society's vision, technical domains, and opportunities available within IEEE CIS. The session highlighted key areas such as **Artificial Intelligence, Machine Learning, and Computational Intelligence**, and emphasized how students could explore these domains through projects, workshops, hackathons, and research-oriented activities under the CIS banner.

The presentation also introduced students to the structure of IEEE CIS at BMSIT, the role of the Execom, the importance of participating in tech societies early in their academic journey.

INTERACTIVE ENGAGEMENT WITH JUNIORS

To ensure active participation and better understanding, the IEEE CIS interaction was complemented by **interactive discussions and engagement activities** conducted during the orientation. Juniors were encouraged to ask questions related to career paths in AI-driven fields, expectations from technical societies, and ways to balance academics with extracurricular involvement. These interactions helped reduce hesitation among first-year students and created a welcoming environment for future involvement in IEEE CIS initiatives.

CONTRIBUTION TO TECHNICAL AWARENESS

IEEE CIS also contributed to the broader technical exposure of juniors by supporting discussions around **real-world applications of computational intelligence**, emerging AI trends, and interdisciplinary opportunities. The emphasis was placed on helping students understand how computational intelligence concepts translate from classroom theory to practical problem-solving, industry use cases, and research opportunities

IMPACT AND OUTCOMES

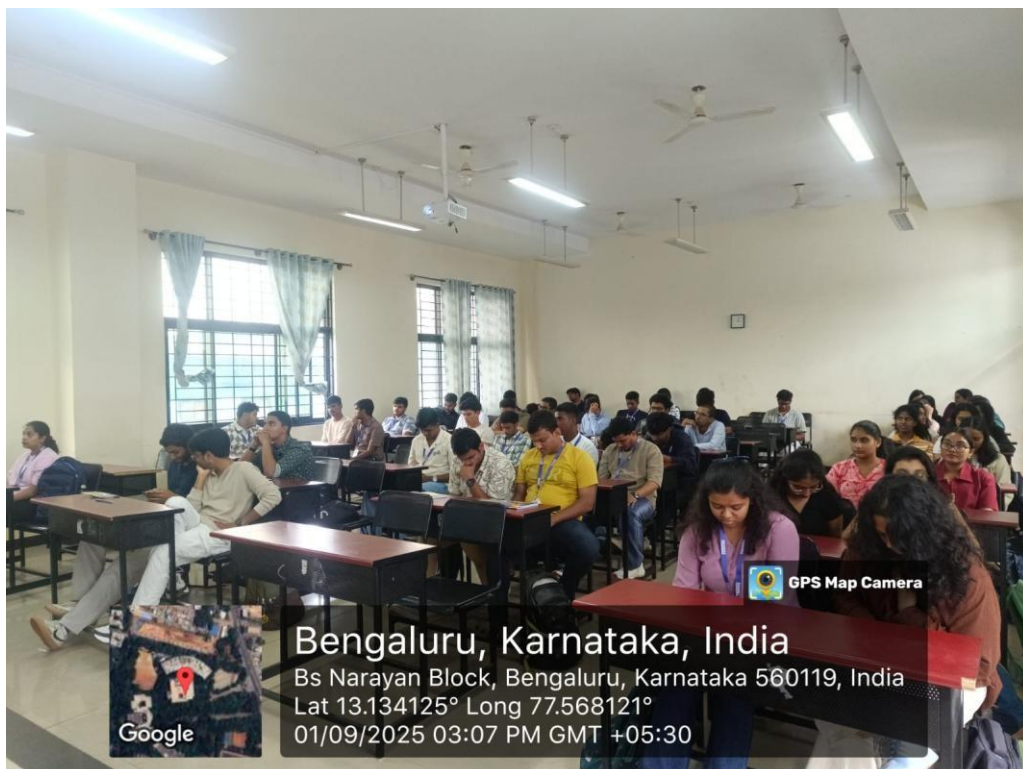The Junior Engagement and Bridge Course initiative proved effective in:

- Increasing awareness about **IEEE CIS and its technical focus areas**

- Encouraging juniors to explore **AI and computational intelligence early**

- Establishing **initial mentor-mentee connections** between seniors and juniors

- Motivating students to participate in future IEEE CIS events and activities

The positive interaction and student feedback indicated strong interest in technical societies and highlighted the importance of early engagement programs in building a vibrant student community

CONCLUSION

Through its participation in the Junior Engagement and Bridge Course, IEEE CIS BMSIT successfully contributed to orienting first-year students toward computational intelligence and IEEE-driven learning opportunities. The initiative strengthened the chapter's outreach efforts and laid a solid foundation for sustained student involvement in technical, research, and innovation-focused activities in the years ahead

Bengaluru, Karnataka, India
4hm9+p6x, Bengaluru, Karnataka 560119, India
Lat 13.134175° Long 77.567937°
02/09/2025 03:09 PM GMT +05:30

Bengaluru, Karnataka, India
Bs Narayan Block, Bengaluru, Karnataka 560119, India
Lat 13.134125° Long 77.568121°
01/09/2025 03:07 PM GMT +05:30

WINTER OF PROJECTS 2025

Venue: BMS Institute of Technology & Management, Bengaluru

Dates: October 29th 2025 to December 5th 2025

OVERVIEW

Winter of Projects (WoP) 2025 was a flagship, multi-phase project-based learning initiative conducted to provide students with hands-on experience in solving real-world problems using advanced computational intelligence techniques. The program was designed to move beyond conventional workshops by guiding participants through the **complete project lifecycle** — from ideation and problem understanding to prototyping, iterative reviews, and final project exposition.

The IEEE CIS Student Chapter at BMSIT played a **key leadership and mentoring role** in this initiative by proposing domain-focused problem statements, leading an open innovation track, and providing continuous technical mentorship throughout the program duration.

PROGRAM TIMELINE AND STRUCTURE

Winter of Projects 2025 followed a **well-defined and structured timeline**, ensuring systematic progress and continuous engagement:

- **26th October 2025** – Opening of registrations, inviting students across departments to participate in WoP 2025.

- **29th October 2025** – Official release of problem statements, including IEEE CIS–led challenges.

- **31st October 2025** – Pitching and auction round, followed by the formal inauguration of Winter of Projects 2025.

- **3rd November 2025** – Commencement of the prototyping phase, marking the start of hands-on development.

- **4th – 11th November 2025** – Mini technical workshops aimed primarily at first-year students to build foundational skills required for project execution.

- **7th November 2025** – First project review, focusing on problem understanding, architectural design, and early implementation progress.

- **14th November 2025** – Second project review, emphasizing technical depth, optimization, and solution refinement.

- **28th November 2025** – Project Expo and felicitation of winners, where teams showcased their final working solutions.

Throughout the program, **mentor–mentee interactions between IEEE CIS ExeCom members and participating teams were conducted flexibly outside regular class hours**, enabling continuous guidance and technical support.

IEEE CIS PROBLEM STATEMENTS AND MENTORED TEAMS

IEEE CIS BMSIT contributed three advanced problem statements aligned with the core principles of computational intelligence, along with one open innovation track, all of which were actively mentored and led by the CIS team.

Problem Statement 1: LLM-Based Academic Assistant Chatbot

This problem focused on developing an LLM-powered Academic Assistant Chatbot integrated with a Retrieval-Augmented Generation (RAG) framework to address the challenge of fragmented academic resources at BMSIT&M. Students were tasked with building a system capable of understanding natural language queries such as requests for notes, syllabi, or previous-year question papers, and retrieving accurate documents from a centralized Google Drive repository.

The project emphasized:

- Natural language understanding

- Vector-based document retrieval

- RAG pipelines for contextual responses

- Metadata tagging and summarization techniques

This problem statement directly connected AI research concepts with a high-impact academic use case, demonstrating how computational intelligence can simplify student workflows.

Problem Statement 2: Intelligent Motion- and Emotion-Aware Music Recommendation System

The second CIS problem statement challenged teams to develop a real-time personalized music recommendation system using motion sensing and emotional state analysis. By leveraging accelerometer and gyroscope data from smart devices, teams mapped physical movement patterns to music tempo, genre, and energy levels.

Key technical aspects included:

- Sensor data processing

- Valence–arousal emotion modelling

- Real-time recommendation systems

- Fusion of emotional inputs and physical activity data

This problem encouraged interdisciplinary thinking by combining signal processing, affective computing, and recommendation algorithms, highlighting the versatility of computational intelligence in user-centric applications.

Problem Statement 3: Adaptive AI Gaming Opponent for Chess and Checkers

The third problem statement focused on creating an adaptive AI gaming opponent that evolves with the player's skill level instead of dominating or underperforming. Using reinforcement learning, dynamic difficulty adjustment, and evaluation engines, teams designed AI systems that analyzed player moves in real time, provided feedback, and gradually increased challenge levels.

This problem integrated:

- Game theory

- Reinforcement learning

- LLM-based feedback generation

- Player-centric adaptive systems

The objective was to design AI that teaches and challenges, reinforcing the educational potential of computational intelligence.

Open Innovation Track

In addition to structured problem statements, IEEE CIS led an open innovation track that allowed teams to propose original ideas beyond predefined domains. This track encouraged

creative exploration, independent problem identification, and innovation-driven development, while still receiving mentorship support from the CIS Execom.

MENTORSHIP AND REVIEW PROCESS

IEEE CIS mentors actively guided **four teams** across the three CIS problem statements and the open innovation track. Mentorship sessions focused on:

- Clarifying problem scope and feasibility

- Assisting in system architecture and design decisions

- Reviewing algorithmic choices and model performance

- Providing feedback during both project review rounds

The structured review process ensured that teams demonstrated measurable progress at each stage and maintained alignment with computational intelligence principles.
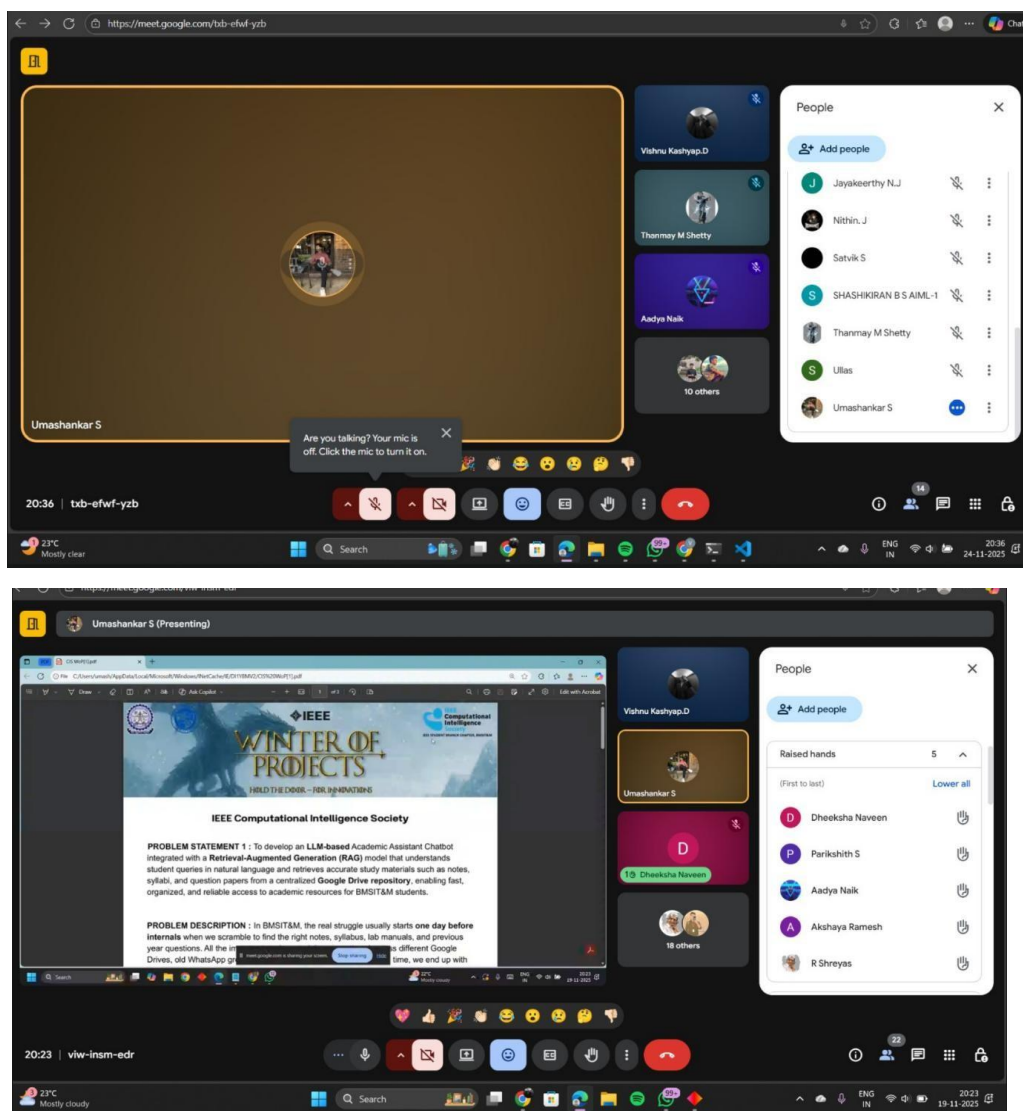
Figs: Explanation of Problem Statement by Umashankar S, Chair IEEE CIS BMSIT&M to Winter of Project Participants
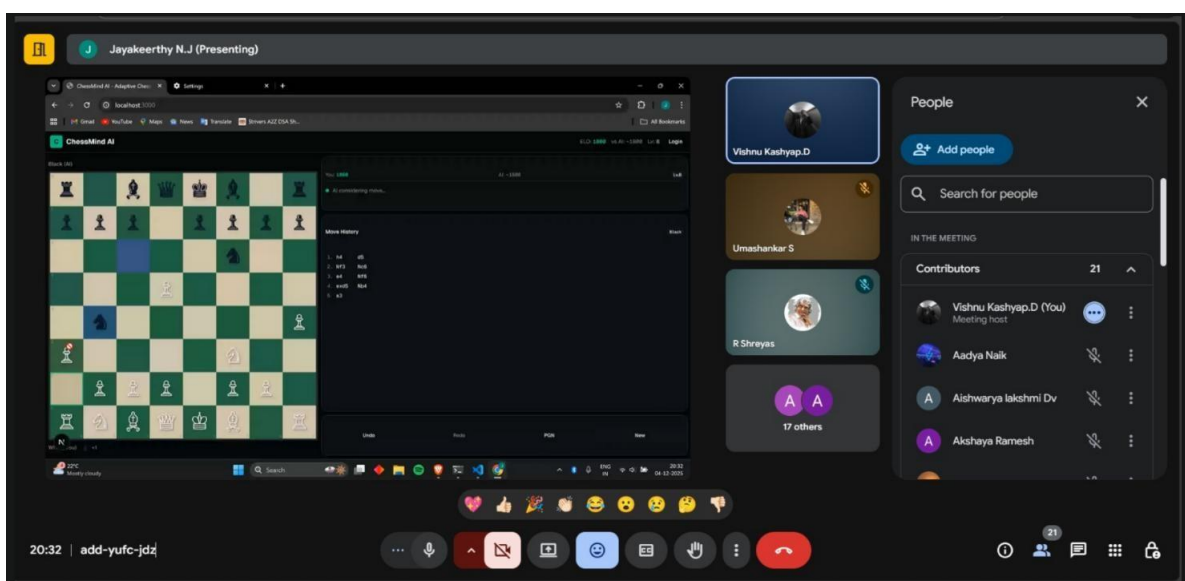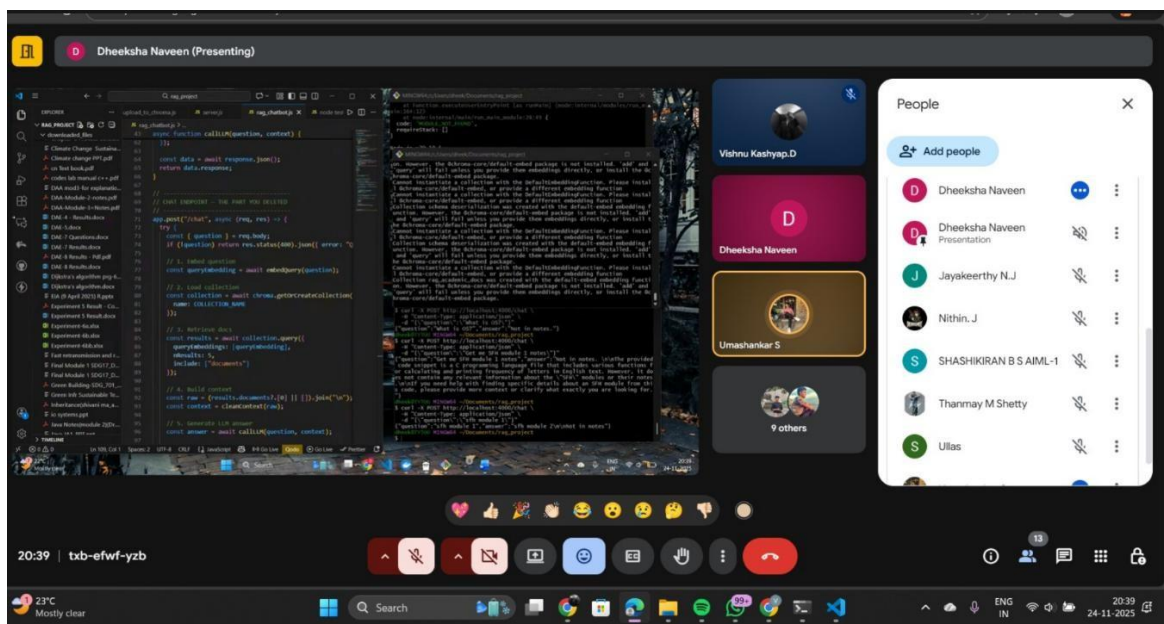
PROJECT REVIEWS

Winter of Projects 2025 included **two structured project review sessions** aimed at tracking progress and ensuring technical correctness. During these reviews, senior members and mentors evaluated each team's work by examining their **problem understanding, system design, and working prototypes**. Teams were asked to demonstrate their progress, explain architectural choices, and discuss challenges faced during implementation. Feedback provided during these reviews helped teams refine their approaches, improve technical depth, and align their solutions with computational intelligence principles, ensuring steady and meaningful progress toward the final project expo.

MENTORSHIP AND CONTINUOUS GUIDANCE

Throughout Winter of Projects, senior members played an active mentoring role, particularly in guiding first-year students through the complete project development process. Mentors conducted two to three online mentoring sessions per week, along with regular offline interactions, to support teams in ideation, technical implementation, debugging, and system integration. This consistent engagement ensured that students received timely guidance and clarity at every stage of development.

The mentors remained closely involved with the teams from the initial understanding of problem statements to the development, refinement, and final presentation of working prototypes. Being present throughout the project lifecycle helped participants build confidence, strengthen practical technical skills, and successfully complete their projects within the defined timeline.

Figs: Online Project review and mentoring sessions held 2-3 times a week.

PROJECT EXPO AND OUTCOMES

The program culminated in the **Project Expo on 28th November 2025**, where teams presented their final prototypes to faculty members, IEEE representatives, and peers. Each team demonstrated working solutions, explained technical architectures, and justified design choices.

Out of the four teams mentored by IEEE CIS, three teams secured winning positions, reflecting the effectiveness of CIS-led problem formulation, continuous mentoring, and structured evaluation

Figs: Teams mentored by CIS showcasing their projects in IEEE Stark Expo 2025

IMPACT AND CONCLUSION

Winter of Projects 2025 served as a comprehensive experiential learning platform that strengthened students' ability to apply computational intelligence concepts to real-world problems. The IEEE CIS Student Chapter's leadership in problem design, open innovation facilitation, and mentorship significantly enhanced the technical quality and outcomes of the program.

Through sustained guidance, structured reviews, and a well-planned timeline, IEEE CIS BMSIT successfully fostered innovation, collaboration, and practical skill development, reinforcing its commitment to advancing computational intelligence education within the campus community.

ACKNOWLEDGEMENTS

The IEEE Computational Intelligence Society Student Chapter at BMSIT extends sincere gratitude to:

- **BMS Institute of Technology & Management** for providing the academic environment, infrastructure, and institutional support required for the successful conduct of all IEEE CIS activities.
- **Faculty advisors and department heads** for their continuous guidance, mentorship, and encouragement throughout the academic year.
- **IEEE Bangalore Section** for support, recognition, and opportunities extended to the student chapter.
- **Execom members and volunteers** for their dedication, teamwork, and consistent efforts in planning and executing chapter initiatives.
- **Student participants** for their enthusiasm, active involvement, and contributions to the success of all events and programs.

Their collective efforts were instrumental in the successful execution of all activities during the academic year.

CONCLUSION

The academic year 2024–25 has been a productive and impactful period for IEEE CIS BMSIT. Through sustained effort, structured planning, and collaborative execution, the chapter has strengthened its foundation and created meaningful learning experiences for its members. With a motivated team and a clear vision, IEEE CIS BMSIT looks forward to continuing its journey of innovation and excellence in the years ahead.

End Note

Prepared by:
IEEE Computational Intelligence Society – Student Chapter, BMSIT&M