Forum of Data Science Engineers

# Ease The Error 4.0

## AIM

The aim of this event is to foster the development of solutions for various societal problems and to evaluate students' analytical and problem-solving skills.

## OBJECTIVES

The following objectives have been outlined to guide the participants in achieving a comprehensive and enriching experience during this event:

- Acquire knowledge on various real-time industry challenges
- Develop skills in team management
- Enhance interdisciplinary skills
- Foster leadership abilities
- Strengthen problem-solving skills
- Improve time management capabilities
- Exposure to entirely new concepts and ideas

**PROBLEM STATEMENTS:**

**BLOCKCHAIN:**

1. Develop a decentralized governance model that ensures fair decision-making and community involvement, addressing challengesrelated to the centralization of power within blockchain projects.
2. Create strategies to overcome obstacles hindering mass adoption of blockchain technology, such as user-friendly interfaces, education, andregulatory compliance.
3. Develop tools and frameworks to assist blockchain projects in adhering to diverse regulatory requirements across different jurisdictions, promoting global acceptance and compliance.
4. Develop a blockchain-based supply chain solution to trace and authenticate theorigin of products, addressing issues like counterfeiting and ensuring transparency in the entire supply chain.
5. Create a blockchain-powered identity management system to enhance data security and privacy, enabling users to have control over their personal information while reducing the risk of identity theft.
6. Implement a blockchain solution for healthcare data interoperability, ensuring secure and efficient sharing of patient records among different healthcare providers while maintaining data integrity and confidentiality.
7. Design a decentralized energy trading platform using blockchain to enable peer-to-peer transactions, optimize energy distribution, and incentivize the use ofrenewable energy sources.
8. Build a blockchain-based solution for intellectual property rights management, providing a secure and transparent platform for artists, creators, and innovators to protect and monetize their intellectual assets.

**DISASTER MANAGEMENT:**

1. Design a mobile app that crowd sources water-related problems from around a community, open sources data, etc. and display them on a map.
2. Develop an application under which all rescue agencies are registered and which can display the location of other rescue relief agencies during natural/ manmade calamities.
3. Develop an application which harnesses real-time data on traffic conditions for evacuation route optimization
4. Develop a platform to coordinate emergency response to assist public after a disaster.
5. Develop an application to take up on Disaster Risk Assessment and Prediction.
6. Develop strategies and technologies to enhance the resilience of supply chains to natural disasters and disruptions, ensuring the continuous flow ofessential goods and services during and after a crisis.
7. Create community-driven early warning systems that leverage local knowledge, indigenous practices, and grassroots networks to effectively alert and mobilize at-risk populations in remote or underserved areas vulnerable tonatural disasters.
8. Develop a collaborative digital platform thatfacilitates seamless communication and information sharing among different disaster response agencies to enhance coordination and avoid duplication of efforts.
9. Implement a solution for rapid and accurate assessment of post-disaster infrastructure damage using remote sensing technologies and data analytics to prioritize recovery.
10. Utilize Geographic Information System (GIS) technology to create dynamic hazard maps that visualize potential disaster risks,enabling better urban planning and resource allocation for resilience.
11. Design a platform to efficiently organize and manage volunteers during disaster response, matching skills and availability with the needs of affected areas to maximize volunteer impact

**AI/ML:**

1. AI Based training system may be developed to real time design the course based on individual understanding andlearning capacity.

2. Design and Development of AI-ML based intelligent de- smoking/de-hazing algorithm for reproducing the real time video of the area under fire specifically for indoor fire hazards to aid the rescue operation.

3. Using AI to monitor climate change, preserve biodiversity, or optimize sustainable practices in urban settings.

4. Develop a forecasting model based on remote sensing data to predict yield.

5. Develop a study assistant for students that would help them in increasing their productivity by using AI-powered tools.

6. Develop an AI model for Speech to sign language conversion

7. Design and implement an AI-based intelligent camera decision-making system that can process video data, identify important events, and automatically make informed decisions in real-time.

8. Develop NLP (**Natural Language Processing**) algorithms to comprehend and extract crucial details from complainant-provided information.

9. Create and implement an AI/ML-based system that can autonomously analyze and categorize online content, distinguishing between authentic and fake/fraudulent websites, advertisements, and customer care numbers.

10. Design and Develop an Ai-Powered Chatbot For The Technical Education Department

**SUSTAINABILITY:**

1. Development of an application that encourages and rewards users for adoptingeco-friendly transportation methods.
2. Build a platform that connects consumers with local sustainable businesses, fostering a community committed to eco-friendly products and services.
3. Design an application that educates and motivates users to adopt a moresustainable lifestyle through eco-conscious choices in daily activities.
4. Building a platform that can facilitate the exchange of surplus food between individuals and local businesses to minimize food waste.
5. Implementing effective recycling programs and waste reduction initiatives within the campus community.
6. Develop a model for ensuring that sustainability initiatives are inclusive, accessible, and equitable for all students, faculty, and staff poses challenges in fostering diversity and inclusion.
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8. Designing and renovating offices with sustainable features such as natural lighting, energy-efficient appliances, and green spaces require investment andexpertise.
9. Develop a solution for implementing safer alternatives, proper handling procedures and waste management practices presents challenges for retailers.

**ED TECH:**

1. Develop a machine learning-based solution to guarantee students adhere to a minimum healthy food and exercise regimen.

2. Develop an user-friendly dashboard for teachers, parents, and students to monitor academic progress

3. Develop a Virtual Mentorship Hub where students can connect with industry professionals for virtual mentorship.

4. Develop an AI-Powered Language Translation Tool for Education

5. Develop a simple, practical, and scalable solution that democratizes access to technical education, breaking down barriers and fostering a passion for learning in the field.

**DATA ANALYTICS:**

1. Build a predictive analytics solution to identify factors leading to customer churn in a subscription-based business and recommend strategies to retaincustomers.
2. Develop a model that leverages healthcare data to predict patient outcomes, including readmission risks and recovery timelines, aiding in personalized patient care.
3. Build a data analytics solution that predicts product demand based on historical sales data, seasonal trends, and external factors to optimize inventory and minimize stockouts.
4. Develop an analytics model that analyzes traffic patterns, historical data, and external factors to optimize traffic signal timings and reduce congestion in urban areas.
5. Implement a solution that analyzes energy consumption patterns in buildings, identifies areas of inefficiency, and suggests strategies for optimizing energy usage.
6. Build an analytics model to detect fraudulent activities in financial transactions by analyzing transaction patterns, user behavior, and historical data.
7. Create an analytics tool that uses employee data to assess and improve productivity, identifying key performance indicators and recommending strategies for optimization.
8. Develop an analytics solution that analyzes student performance data to identify patterns, predict academic success, and recommend personalized learning strategies.
9. Utilize data analytics to assess the impact of climate change by analyzing environmental data, weather patterns, and trends over time.
10. Build an analytics system that monitors and analyzes data related to food safety, quality, and supply chain transparency to ensure the integrity of food products.
11. Utilize data analytics to analyze tourism data, including visitor patterns, accommodation preferences, and cultural events, to forecast tourism trendsand optimize local resources.

**SMART AUTOMATION:**

1. Develop a system that can automatically summarize lengthy documents or articles, extracting key information and reducing the content to a concise summary.
2. Create a solution that enhances home automation by integrating AI to predict and automate routine tasks based on user behavior, preferences, and external factors.
3. Build a virtual assistant that can join and actively participate in meetings, summarizing discussions, scheduling follow-up tasks, and providing insights using natural language processing.
4. Build an intelligent inventory management system that uses machine learning to predict demand, optimize stock levels, and automate reordering processes for businesses.
5. Develop a tool that analyzes social media trends, user engagement patterns,and optimal posting times to automatically schedule and publish content for maximum reach and impact.
6. Design a system that can autonomously detect and respond to cyber securityincidents, mitigating threats and vulnerabilities in real-time.
7. Create a solution that utilizes AI to optimize traffic flow, reduce congestion, and enhance overall transportation efficiency in urban areas.
8. Build an intelligent assistant that automates event planning tasks, such as venue selection, catering, and scheduling, based on user preferences andrequirements.
9. Create a chatbot powered by AI that can handle customer queries, provide real-time support, and escalate complex issues to human agents when necessary, improving overall customer service efficiency.
10. Develop a tool that automatically translates spoken or written content into different languages and generates accurate subtitles in real-time, aiding communication across language barriers.

**HEALTHCARE AND SOCIAL IMPACT:**

1. Devise a solution for better managing chronic diseases through technology.
2. Create a solution that enhances emergency response systems, such as an application that quickly connects individuals with nearby emergency services, provides real-time location tracking, and offers crucial health information to firstresponders.
3. Development of gamified platform on Children's Rights to increase legal literacy and awareness among children in India
4. Develop a solution that enhances access to quality education, particularly in underserved communities.
5. Design a solution to improve healthcare access and outcomes in remote or impoverished regions.
6. Create initiatives that empower women economically, socially, and educationally.
7. A vision-based, patient-monitoring system to address the following:Facial recognition, Sleep monitoring, Smart detection of uneasy movement and Emotion detection
8. Design innovative tools and platforms that promote mental health awareness, reduce stigma, and provide accessible mental health support within communities.
9. Develop a solution that promotes access to nutritious food and educate communities on healthy eating habits.
10. Develop strategies to combat infectious diseases through community engagement and education.
11. Build a system for quickly connecting volunteers with specific skills to areas affected by natural disasters or other crises.
12. Develop initiatives or platforms that connect disadvantaged youth with job opportunities, internships, and mentorship programs to enhance their employability.
13. Develop a solution based on Gen AI that can personalize diagnosis and treatment to support patients by predicting disease progression, creating patient specific treatment plans and enhancing telemedicine experiences.