2025 IEEE Metaverse Grand Challenge for Simulation-Based Learning

IEEE Metaverse
IEEE FUTURE DIRECTIONS
IEEE young professionals

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Objective

The challenge aims to foster **simulation-driven learning experiences on 2D or 3D metaverse platforms**, allowing users to interactively engage with concepts, processes, and problem-solving scenarios. Participants will **design, simulate, and showcase emerging technology using real-time, technological-enhanced, and/or user-adaptive simulations**. The goal is to create **scalable, immersive, and globally accessible educational tools** that transform learning.

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Official Contest Rules

Express of Interest Form

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Challenge Overview – Theme Categories

Simulation-Based Approach:

Teams will have the **creative freedom** to develop **immersive simulations** that model key processes and innovations for simulation-learning purpose. The focus is on designing engaging, interactive simulations that can **enhance the learning and training experience for YPs and/or students**.

Theme Categories

Participants must select one of the following themes to guide their simulation development:

1. Healthcare Applications in Digital Learning

- Simulating patient interactions, surgical procedures, and/or medical training in immersive environments.
- Exploring AI-driven diagnostics, wearable health tech, and/or virtual hospital management simulations.

2. Sustainable Smart Cities and Urban Innovation

- Highlighting sustainability principles through virtual laboratories and/or eco-friendly innovations.
- Demonstrating energy-efficient systems, recycling methodologies, and/or sustainability analytics in educational settings.
- Public safety infrastructure, including smart surveillance, emergency response systems, and/or disaster resilience planning.

3. Advanced Learning in Educational or Classroom Environment

- Simulating AI-driven personalization in education, including adaptive learning systems.
- Exploring smart classroom concepts, immersive collaboration spaces, and/or AI-powered instructional tools.
- Focusing on inclusive, accessible, and future-ready learning environments.

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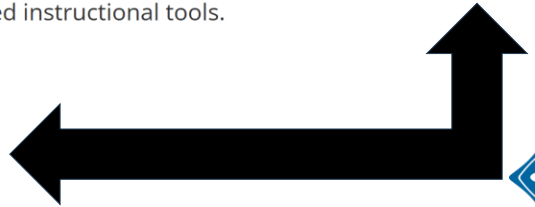
View inspiration to spark your ideas!



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Inspiration for Your Ideas:

Explore the transformative potential of simulation-driven education with AI, digital twins, and/or immersive learning environments on a 2D or 3D metaverse platform. Here are a few inspirations:

- **Process Simulation**
  - Leverage AI to create dynamic, interactive models of educational processes—think **STEM experiments, virtual physics labs, or AI-driven decision-making tools**.
  - Enhance simulations with **digital twin platforms**, enabling real-time mirroring of educational environments.
  - Provide **instant feedback and automated corrections**, allowing learners to experiment, **experience failures, and troubleshoot errors in a risk-free setting**.
- **AI-Driven Personalization:**
  - Integrate **adaptive learning algorithms** to customize content based on learner progress.
  - Deploy **AI tutors and chatbots** that offer real-time guidance and explanations.
  - Use **engagement analytics** to adjust content difficulty dynamically, ensuring an optimized learning experience for every user.
- **Interactive Problem-Solving:**
  - Design **real-world challenges** inspired by industry and academia that require hands-on virtual problem-solving.
  - Implement **decision-making scenarios** where users' choices influence simulation outcomes.
  - Introduce **scoring mechanisms** based on accuracy, efficiency, and sustainability, driving learners toward data-driven decision-making.
- **Gamification Elements:**
  - Boost engagement through **reward-based learning** with badges, points, and skill levels.
  - Challenge learners with **time-sensitive tasks** to test problem-solving efficiency.
  - Integrate **leaderboards** to encourage competitive learning, fostering peer collaboration and motivation.
- **Multi-User Collaboration:**
  - Enable **real-time teamwork** in virtual environments, allowing educators, researchers, and students to collaborate on problem-solving.
  - Develop interactive **mentoring sessions and guided demonstrations**, creating immersive learning experiences that break geographical barriers.
- **Sustainability and Ethical Considerations:**
  - Simulate **energy-efficient educational models and sustainable learning techniques** to foster environmentally conscious education.
  - Implement **analytics-driven insights** to measure sustainability impact.
  - Explore **ethical challenges in AI-powered education**, addressing bias, transparency, and responsible AI use in the learning ecosystem.

Challenge Overview – Inspiration for Your Ideas

View inspiration to spark your ideas!

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How to Participate

To officially take part in the competition, you must submit **your team's project materials** during the designated submission period.

Team Guidelines:

- Teams may consist of **1 to 5 individuals**.
- Each participant may **only join one team**.
- A complete **list of team members** must be included with the project submission.
- **Team members cannot be changed** after the submission is finalized.

The **submission portal** will be made available following the **Knowledge-Sharing Webinar Series**.
📅 **Submission Deadline: September 1st, 2025**

Competition Overview – Submission Format

Submission Format

1. PowerPoint Presentation (up to 5 slides):

- Clearly indicate the selected theme.
- Provide a brief implementation design overview.
- Highlight key technology elements that enhance education and learning experiences.

2. Video Recording (5-7 minutes, MP4 format):

- Showcase your project in an engaging format.
- Highlight elements that should be considered in the evaluation process.

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Competition Overview – Judging Criteria

Submission Deadline: 1 September 2025

Judging Criteria:

Submissions will be evaluated based on the following:

Criteria	Weight
Effectiveness of Simulation-Based Learning	25%
Creativity & Innovation	20%
Educational Impact and/or Learning Effectiveness	20%
User Experience (UI/UX) & Engagement	15%
Integration of AI, Gamification, and/or Adaptive Learning	10%
Sustainability, Accessibility, and/or Ethical Considerations	10%

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Competition Overview – Prizes

Prizes

First-Place Awards (Travel Grants): Up to two (2) winners will receive **US$2,500** in travel expenses to attend the **2025 IEEE International Symposium on Emerging Metaverse (ISEMV 2025)**, co-located with the **2025 International Conference on Computer Vision (ICCV 2025)** in Honolulu, Hawaii, USA (or another IEEE Metaverse Initiative event).

Second-Place Awards: Up to two (2) winners will receive a premium backpack featuring the IEEE Metaverse and YP logos, along with a certificate of achievement.

**Awards will only be granted if suitable winners are identified.*

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Calling all Students and Young Professionals:

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Thank you for your attention

For any questions or concerns, please contact isemv@ieee.org

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