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## ENG (Engineering)

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The Engineering genre deals with programming, graphics and rendering, hardware, AI, machine learning, simulation, mathematical sciences, development and operational efficiency, design and construction of network and database systems /services, fraud and security measures, etc., required for the development and operation of computer entertainment systems.

### Topics sought for the ENG genre of CEDEC 2025

#### Development technology

- Graphics and rendering technology
- Examples of research and application of machine learning in computer entertainment
- Technology enabling cross-platform development across generations (differences in hardware for each generation of consoles, etc.)
- Optimization of low layers and utilization of proprietary implementations in general-purpose game engines
- Utilizing cloud environments for the communization and optimization of contents development processes
- Examples of development environments for content creation (in-game editors, dedicated web services, etc.)
- Utilization example of procedure technology
- Methods for optimizing efficiency of game development through various data (such as data pre-processing, AI utilization, data science, data visualization, etc.)
- Technology and actual examples unique to the platform (PC, console, smartphone, Internet, and others)
- Examples of solutions to technical issues in remote work and multi-location development
- Methods for investigating and estimating database bottlenecks in the cloud era and methods for tuning
- Examples of high-volume resource/asset management and build pipelines
- General programming language
- Low-level programming (multi-core, multi-thread control, optimization, acceleration, memory management, and other)
- Examples and discussion of architecture design (domain-driven design, clean architecture, etc.)
- Optimization of compilers, toolchains, IDE, in-house tools, and others
- Utilization example of GPU (physics, deep-learning, and others)
- Examples of amusement machine development
- Testing/debugging techniques for software targeting a variety of devices
- Development examples of large-scale on-line content and real-time communication competition content thru mobile devices
- Utilization examples of advanced web/network technologies (HTTP/2, HTTP/3, WebSocket, WebRTC, IPv6, and others)
- Design technology and test techniques dealing with network load, delay, loss, and others
- Explanation and utilization examples of server-less architecture
- Deep technology in detailed areas (VR, AR, physics simulation, AI, drawing, character control, collision, UI, etc.)
- Countermeasures for server/service failure and maintenance
- Technology to detect illegal activity, and to protect digital content and services from illegal activity (DRM, encryption, cheat measures, and other)
- New interfaces for content using haptic technology and voice and image recognition
- Specific examples of improving software quality, such as test automation and QA efficiency
- Technology for the improvement of accessibility and implementation case studies
- Implementation of chatbot technology and dialog systems
- Virtualization or decentralization of building systems and development environments (Cloud-based asset build and binary build, etc.)
- Video distribution focused on 3D avatars, motion capture, interactive technology, metaverse building examples, etc.
- Examples of automated generation (either still or motion) of assets, contents, programs, etc. which were then utilized within games

- **Commercializing leading-edge technologies**
- Examples of various devices such as drones, AI speakers, wearable devices, and projectors utilized in entertainment
- The IoT and robotics in computer entertainment
  
- **Topics sought for tutorials**
- Automation technology for server building/operation
- Introduction to modern graphics
- Academic knowledge required for real-world application of machine learning (statistics, optimization methods, etc.)

## PRD (Production)

The Production genre covers concrete examples of the development process, methods and environments of product management, sharing and accumulation of knowledge, initiatives in education and development of human resources, etc. in computer entertainment.

### Topics sought for the PRD genre of CEDEC 2025

#### Project People Management (discussion on projects, people, and organizations)

- Initiatives to sustain development and utilization of titles that are operated long-term
- Career paths and evaluation systems in each profession
- Development of managers and leaders and career development from other professions
- Management methods that inspire the creation of innovative games
- Project management case studies in large-scale development
- Approaches, tools, and techniques to strengthen communication, team management, and improving productivity of development work
- Human resource development and personnel evaluation systems that fit diversified work styles
- Initiatives to promote self-management on the project team, project manager and their roles, and initiatives to delegate authority to the team
- Examples of methods and process of prototyping in a large-scale development
- Methods for understanding team status for sound organizational management and project operation
- Team building and management expertise
- Initiatives to promote self-organization of project teams
- Examples of promoting mutual understanding and psychological safety

#### QA (quality assurance, discussion on testing methods and techniques)

- Examples of automated testing of content with a huge number of combinations due to user customization
- Cost-effectiveness of test automation and examples of improvements, as well as effective use of manual and automated testing

- Test and QA engineering participation from the early stages of title development and mutual collaboration examples
- Common infrastructure for automating testing and production operations across titles and departments
- Debugging and automated testing methods in iOS
- Examples of asset validation and regression testing
- Examples of unit testing within the realm of client development
- Examples of optimizing efficiency in testing when transferring mobile titles to consoles or PCs
- Examples of software tests applying machine learning

#### Workflow (discussion on methods and techniques for automation and efficiency)

- Content and asset production using machine learning
- Methods for creating, managing, and sharing terabyte-sized data asset
- Introduction and development of specialized tools for specific tasks to maximize team strengths
- Infrastructure development, including cloud utilization, for processes requiring large amounts of hardware resources, such as machine learning and large-scale authoring
- Workflow regarding localization (translation and cultural adaptation) that inspires production of appealing contents that can gain fans on a global level
- Examples of technological contributions to improving the user experience that utilize information about developer and user behavior
- Examples of building a development environment where you can work safely without any interruptions caused by errors or failures
- Examples of drawing up a workflow for a large-scale operation title
- Examples of titles with effort for automation in development
- Case studies of workflow construction for the appropriate operation of OSS and prevention of malicious external attacks

## **Knowledge Management (Discussions Related to Knowledge and Know-How)**

- Latest technologies and trends in the software development and information industry that can be applied to game development
- Case studies of initiative that form a stronger organizational culture and incorporates transformative measures
- Methods for effective internal communization and communication of information
- In-house conference management methods
- Effective communication and information-sharing within the company
- Examples of information-sharing and community activity outside of the company
- Approach from the development department for corporate branding
- Recruitment and onboarding customized to organizational culture

## **Topics sought for tutorials**

- JSTQB utilization in game development
- Automated testing for game development
- PMBOK utilization in game development
- How to approach agile game development
- DevOps of game industry

## VA (Visual Arts)

The Visual Arts genre covers representation of digital content in a wide sense, exploring new methods of expression and production flows in computer entertainment and methods of responding to a diversifying target base.

### Topics sought for the VA genre of CEDEC 2025

#### General

- Knowledge surrounding art direction
- Movie/cutscene production techniques

#### Rendering expressions

- Examples of Expression via ShaderMaterial
- Instances of state-of-the-art lighting techniques
- Expression techniques utilizing real-time GI and reflections
- Examples of ray tracing technology
- Expressions compatible with HDR displays
- Expression methods utilizing post-effect
- NPR expressions

#### Modeling/textures

- Skills to create high-quality assets
- Preparing an environment for look development and improving its efficiency
- Techniques for efficiently creating large-scale assets
- Asset creation flow pertaining to 3D scans
- Examples of model and texture creation using procedure methods
- Examples of applying the latest LOD systems

#### Motion

- Skills to create high-quality motion
- Improving efficiency of motion production utilizing AI
- Examples of motion creation through procedural methods
- Improving efficiency and quality of rigging
- Case studies of unique motion expression
- Improving efficiency and quality of skinning

#### Effects

- Skills to create high-quality effects

- 23 Instances of state-of-the-art effects
- 24 Effect expression using dynamics
- 25 Artistic particle control

#### Motion capture

- Shooting methods for high-quality capture data
- Motion-capture systems of various types of input equipment
- Optimizing capture data and knowledge on processing
- Performance capture knowledge
- Expressions that utilize facial capture/hand capture
- Workflow linked to game engine

#### User interface

- Attractive UI design methods
- Interface design for maximizing UX
- Knowledge surrounding localization and culture adaptation
- UI design for the VR/AR/MR environment
- Case studies of universal design implementation
- UI visuals and UX design utilizing AI

#### Artwork

- Knowledge surrounding concept art
- Knowledge surrounding background design
- Knowledge surrounding character design

#### Simulations

- Utilization of fluid and atmosphere simulations, etc.
- Utilization of demolition simulations
- Simulated representations of vegetation, etc.
- Other examples of using simulations to improve efficiency and expression

#### Technical art

- Development environment building
- Visual expression with new technology
- Use of DCC tools, migration cases
- Selective asset system utilizing AI
- Scalable performance tuning
- Asset management, authoring-related cases
- Examples of quantitative evaluation of pipeline installations

- Common authoring system for video and game production

### **Others**

- Visual expression of VR/AR/MR
- Content production using 3D printers
- Efficient reuse of legacy assets
- Optimization methods for mobile games
- Multi-platform support
- Skills and knowledge surrounding camera shooting useful in game production
- Video production in game engines, examples of applications outside of games
- Examples of industry-academia cooperation in the visual arts field
- Visual expression of esports
- New expressions produced through collaboration with other genres
- Utilization examples of working environment, such as devices used by artists
- Knowledge surrounding supervision of game production utilizing existing IPs
- Education and learning in all the above genres

### **Topics sought for tutorials**

- Tips presentation boot camp in VFX, TA, and procedure
- Visual expression utilizing machine learning and AI
- Tool optimization in scripting language such as Python

## BP (Business & Producing)

The business & production field includes examples of success for computer entertainment as seen from a business angle, the environment around pro gamers and esports, successful and unsuccessful examples from a business viewpoint, funding, all kinds of analysis, sales techniques, rights issues, game programming training business, etc. and handling of expertise that is not limited to technology for game title production.

### Topics sought for the BP genre of CEDEC 2025

- Analysis of market including titles and user trends
- Education for game creators targeted towards young people, both in Japan and overseas
- Community building/community management both online and in real life
- Diversification of billing and business schemes
- Utilizing LLM-related technology to title development/work
- Pioneering new markets (applying game development technologies to other industries, etc.)
- SDGs (Sustainable Development Goals) and ESG (Environmental, Social and Governance) initiatives
- CVAA Act, accessibility, and barrier-free information response
- Various discussions surrounding DE&I
- Use of NFT and other block chain technologies
- How to utilize edge AI and cloud AI in business
- Diversification of work styles
- Balance between games and personal life
- Intellectual property rights of AI learning data
- Digital marketing that does not rely on IDFA and AAID
- Examples of prize system computer entertainment such as esports
- Game streaming, commentary, guidelines, etc.
- License management and legal examples
- Matters of legal consideration regarding younger age groups such as parental controls
- Examples of success from Japan in overseas markets
- Examples of programing education utilizing computer entertainment
- Diversification of game development methods for individuals and small-scale businesse
- Examples in GDPR correspondence

- Ethical perspective of game contents
- Proposals from localization and culturization businesses
- Examples and proposals related to business morals

\* Both proposals and case studies are included.

\* The examples in each item include successful/unsuccessful cases

## SND (Audio)

The Sound genre covers production technologies and examples of all aspects of game sounds in computer entertainment, such as interactive uses of sound, production of music and sound effects, recording and editing of voice and music including Foley, the work flow of asset management and implementation, localization, as well as signal processing and spatial audio technologies (including virtual surround).

### Topics sought for the SND (Audio) genre of CEDEC 2025

#### Topics of particular interest sought for the SND (Audio) genre

- Examples of new concept proposals and endeavors related to acoustic effects
- Examples of improvements made to immersive spatial expression through sound, whether during the pre-rendering phase or in real-time
- Examples of interactive/generative sound control and pronunciation implementation (physics-based, animation-linked, physical modeling, etc.)
- Regarding motion generation/composition of interactive music
- Utilization examples of machine learning and deep learning in audio
- Examples of automation/optimization of developing tool/authoring environment, and interworking with other software

#### Basic topics sought for the SND (Audio) genre

- Game sound production (music production, sound effects production, in-game mixing, sound direction, sound production)
- Voice (voice recording to insertion, voice direction, localization, examples of using voice synthesis/input/voice chat)
- Sound programming (examples of tool production/application and research & development)
- Development environment (personnel adjustment/cost/deadlines, work flow, cooperation with other work categories, QA, etc.)
- Business (legal knowledge relating to music copyright law, regulations and administration works)
- Examples of immersive productions that integrate haptics and sound
- Examples of accessibility initiatives
- Examples of sound production in a remote environment

#### Topics sought for tutorials

- The latest trends in immersive audio
- Basic knowledge to utilize machine learning in game sounds
- Fundamental knowledge of important concepts and attitudes in sound development
- Fundamental knowledge of the latest sound development technologies



## GD (Game Design)

The Game Design field deals with a wide range of insights, unique analysis and insights gained through practice, and case studies related to unparalleled and valuable experience on what needs to be considered, implemented, and examined in order to create games that move users' hearts and minds, as typified by what they consider to be "fun".

### Topics sought for the GD genre of CEDEC 2024

#### Key Topics

- Examples of AAA title development and game design
- Diversification of game design in indie games
- Game design with distribution and social media sharing in mind
- Multilingual and multicultural expertise for worldwide expansion
- Examples of applying AI to improve efficiency

#### Trending specifications and game design

- Challenge of finding new genres completely unlike existing games
- Game design that creates an emergent experience for each user
- Online game design (PvP, PvPE, party games, asynchronous online)
- Ways to reduce unnecessary stress in online games
- Open-world game design (levels, mass production, coordination)
- Case studies of development and game design for casual titles for global markets
- Character design and worldview design methods with user targets in mind
- Globally accepted storytelling techniques
- Game design and narrative design utilizing metafiction
- Methods for progressing to open-world games for each game genre
- Game design that encourages health promotion
- Accessibility and universal design with consideration for various users
- Relationship between esports events and game designs
- Strategies in game design to sustain and expand IP
- Examples of game design in the blockchain and NFT fields

- Game design in line with new business models
- Game design to provide interaction with viewers of gameplay streaming videos

#### Operation and live services

- Game design transition and analysis in mobile games
- Mechanics design in the initial development and operation that enabled long-term operation  
Examples of unsuccessful cases in game development and operation, and successful cases of improving with that mistake in mind
- Examples of aggregated operational game design
- Expertise and case studies in community management

#### New technologies and adjacent genres

- Mechanics design adopting machine learning
- Simulation techniques for better VR experience
- Game design with haptic feedback
- Game design for achieving XR
- Game designs unique to the cloud game platform
- Game design with cross-platform systems
- Game design incorporating thinking behind behaviors such as economics or psychology
- Experiential entertainment and analog game expertise that applies to digital games
- Examples of new UX in video content and other media productions
- Application of academic research fields to game design

#### Project progress and development efficiency

- Discussion technique of game design according to the prevalence of telework and chat tools
- Expertise and case studies in development from prototypes of new titles
- Expertise and case studies in specifications, data coordination, and scripting
- Creating specifications using Confluence, Notion, and cloud services

#### Education/learning/others

- Training methods, workshops, and educational tools for game designers
- Examples of UE5 and Unity game designer applications and education
- Game design compliance

- Examples of game design patents and search methods
- Cross-sectional studies and comparative analysis across project boundaries

#### **Topics sought for tutorials**

- Usage of a new tool for game designs
- Development methods and design experiences leading to the production of an epoch-making game
- Game engine tutorials
- Basic knowledge in other fields that game planners should know

## AC (Academic Research)

The academic research field is an area that handles academic research topics that contribute to the development of entertainment. Specifically, these topics include interactive technology and display technology anticipated to be practically implemented in the future, research on state-of-the-art technology like content creation technology, application of existing technology overlooked by the entertainment industry, research relating to entertainment evaluation methods, and knowledge within interdisciplinary research or liberal arts and social sciences that provide insight into technology and entertainment.

### Topics sought for the AC genre of CEDEC 2025

#### Cutting-edge interaction technology

- Interaction technologies applicable to entertainment
- Interaction technologies using sensations such as auditory, tactile and olfactory senses
- Interaction technologies using virtual characters/avatars
- Systems using body information (fingerprint, retina, pulse rate, skin conduction, brainwaves, eyes, etc.)
- Technology for expanding experiences or ability and research examples (Augmented Human Technology, Superhuman Sports)
- Application of 3D printing and rapid prototyping technologies in entertainment content

#### Cutting-edge display technology

- Live-action based CG technologies (NeRF, 3D Gaussian Splatting, etc.) and their latest trends
- State-of-the-art information display technologies and research examples (displays, HMD, projection systems, etc.)

#### Fundamental Technologies

- AI and human co-creation support technology for content creation in entertainment
- Generative AI and its latest trends
- Next technology to follow VR/AR/MR, and its utilization method
- Fundamental technologies and knowledge for VR/AR/MR and the metaverse
- Examples of evaluation methods, evaluation technology, and evaluation analysis of entertainment
- Relationship-building between entertainment content and humans backed by cognitive science,

behavioral psychology, etc.

- Technologies and topics about ensuring accessibility
- Sensing technology that acquires human movement and emotions
- Knowledge of tools for creating entertainment content or the development of tools
- Technologies and news topics about producing content using remote equipment, such as drones
- New game design that expands the frame of existing games

#### Applications in combination with other fields

- Applied research on entertainment for education and welfare, etc.
- Applications of wearable systems and robot technology from the wider field of engineering for entertainment
- Humanities research on entertainment and its utilization method
- Case studies of co-creation between academic researchers and production sites

#### Topics sought for tutorials

- The latest trend of every kind of display technology
- Trends and technology prospects related to the metaverse
- Configuration method of expressions and experiences utilizing sense of touch
- Experimental design and statistical method for experimental data analysis
- Methods of experimental planning and experiment data analysis