Genre definition

ENG (Engineering)

The Engineering genre deals with programming, graphics and rendering, hardware, 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 2024

Development technology
- Graphics and rendering technology
- Examples of research and application of machine learning in computer entertainment
- Technology and actual examples unique to the platform (PC, console, smartphone, Internet, and others)
- 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
- Communization and optimization of the game processes utilizing the cloud environment
- Examples of development environments for content creation (in-game editors, dedicated web services, etc.)
- 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 programing language
- Low-level programing (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
- Utilization example of procedure technology
- Testing/debugging techniques for software targeting a variety of devices such as Android ones
- Application examples for wireless communication (wireless LAN, Bluetooth, NFC, LPWA, private 5G, etc.)
- 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, Iv6, and others)
- Design technology and test techniques dealing with network load, delay, loss, and others
- Efficient data mining techniques of big data (play logs and others), and utilization examples of a BI tool
- 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
- Auto-adjustment of game-play catered to the user
- Application examples of block chain technology (NFT, data protection, etc.)
- Automatic generation method of stories and game levels
- 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 in-game utilization of assets, content, and programs created using generative AI

- **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 2024

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
- 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 teamProject 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 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
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

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
Methods for forming organizational culture in line with organizational restructuring
In-house conference management methods
Human resource development and measurement of effectiveness for highly specialized and rare occupations
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
Effort for and effect of changing the organizational culture

Topics sought for tutorials
PMBOK utilization in game development
JSTQB utilization in game development
DevOps of game industry
Implementing unit testing in application development
Concept of agility in game development

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 2024

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

Modeling/textures
- Examples of applying the latest LOD systems
- Sculpting modeling
- Techniques for efficiently creating large-scale assets
- Modeling using capture technology
- Examples of model and texture creation using procedure methods

Animation
- Animation utilizing AI
- RIG-related animation
- Special animation expressions
- Methods of representing hand-drawn animation
- Innovative skinning methods
- Examples of creating animations with procedure methods

Effects
- Effect expressions in a PBR environment
- Instances of state-of-the-art effects
- Effect expression using dynamics
- Artistic particle control

Motion capture
- Motion-capture systems of various types of input equipment
- Performance capture
- Real-time character performance
- Coordination with game engines
- Facial capture/hand capture

User interface
- Interface design for maximizing UX
- Automation and now-how on localization/culturalization
- UI design for the VR/AR/MR environment
- Attractive UI design methods
- Universal design
- UI visuals and UX design utilizing AI

Visual works, artist collection
- Asset supervision workflow
- Character design
- Design works
- Previs (previsualization)
- Concept art
- CI of design asset

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

Others
- Asset workflow for the metaverse
- Visual expression of VR/AR/MR
- Content production using 3D printers
- Visual expressions in multimedia applications (video, games, theater, etc.)
- Efficient reuse of legacy assets
- 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
- Optimization methods for mobile games
- Support for a wide variety of user environments, ranging from 2kSDR to 8kHDR
- Multi-platform support
- Know-how in work environments, such as devices used by artists
- Creation of assets, animations, etc. using machine learning
- Education and learning in all the above genres

Topics sought for tutorials
- Tips presentation boot camp in VFX, TA, and procedure
- Scan, capture, sculpting method, and workflow
- Basic expression to be the template of visual expression
- Visual expression utilization of 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 2024

- 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
- Changes in needs for human resources that takes remote environments into consideration
- Business management that takes remote environments into consideration
- SDGs (Sustainable Development Goals) and ESG (Environmental, Social and Governance) initiatives
- Compliance with the CVAA Act
- Use of NFT and other block chain technologies
- 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
- Matters of legal consideration regarding younger age groups such as parental controls
- Examples of programing education utilizing computer entertainment
- Diversification of game development methods for individuals and small-scale businesse
- Examples of and proposals for cases utilizing Edge AI
- Examples in GDPR correspondence
- Ethical perspective of game contents
- Proposals from localization and culturization businesses
- License management and legal examples
- Examples and proposals related to business morals
- Examples of success from Japan in overseas markets

＊ 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 2024

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.)
- Interactive music production, dynamic generation and synthesis
- Utilization examples of machine leaning and deep learning in audio
- Examples of automation/optimization of developing tool/authoring environment, and interworking with other software
- Examples of remote sound production

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

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, PvPvE, 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/Fundamental Technologies)

The Academic/Fundamental Technologies genre deals with the application of new and existing technologies, which cannot be thought about from the perspective of the entertainment industry. Also covered in this genre are the outcomes of elemental technologies and academic and business research that form the basis for the development of entertainment content.

Topics sought for the AC genre of CEDEC 2024

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
- 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

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